HIAGRO (EA) SERVICES LIMITED
7th Floor, Hazina Towers,
Utalii Lane/ Monrovia Street Junction
P.O Box 20279-007, Nairobi, Kenya
Tel: +254 (0) 20 222 1937,
Fax: +254 (0) 20 555 450,
Cell: +254 (0)720 956 064
E-mail: hiagro.ea@gmail.com
Webmail: www.hiagroeastafrica.co.ke

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT STUDY REPORT

Tembo Sugar Mills Limited
Proposed Sugar Complex
L. R. No. 29837
Matolani – Chakama Location
Magarini Subcounty - Kilifi County

Prepared on behalf of:
Tembo Sugar Mills Limited
No. 20, Dar-es-salaam Road
P. O. Box 18625-00500, Nairobi, Kenya
Tel: +254 20 2613244/5
Email: info@tembosugar.co.ke

CERTIFICATION

This Environmental and Social Impact Assessment Study Report has been prepared on behalf of the Tembo Sugar Mills 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.

Lead Expert: KIIGE Daniel K.
NEMA Registered Lead Expert; MA (EPM) – UoN – Nairobi, Kenya; EMS/ISO 14001 Lead Auditor (SGS – Kenya):,
BSc (Env. Sci) - Egerton, KENYA.

Signature…… Date……

Proponent Suraj Gopinadhan
Head – Project Administration
Tembo Sugar Mills Limited
No. 20, Dar-es-salaam Road
P. O. Box 18625-00500, Nairobi, Kenya
Tel: +254 20 2613244/5
Email: info@tembosugar.co.ke

Signature…… Date……

EXECUTIVE SUMMARY

Background

The first sugarcane factory in Kenya was set up at Miwani near Kisumu in 1922 and later at Ramisi in the Coast Region in 1927. Thereafter, the Government of Kenya expanded the sugar sector by introducing sugar cane growing and milling plants in Muhoroni (1966), Chemelil (1968), Mumias (1973), Nzoia (1978) and Sony and Awendo (1979).

The sugar industry plays a significant role in Kenya's economy, contributing about 15% to the country's agricultural GDP. The sector consists of more than 250,000 smallholder farmers, who supply over 92% of the sugarcane processed by sugar companies, while the remainder is supplied by factory-owned nucleus estates. An estimated 25% of the country's population depends directly or indirectly on the sugar industry for their livelihood.

Nevertheless, ninety-five years after introduction of sugarcane in Kenya, the country is not yet self-sufficient in sugar production. There is an estimated annual deficit in excess of 200,000 metric tons which has to be imported from the Common Market for East and Central Africa (COMESA). Thus, Kenya is a net importer of sugar with an import dependency ratio estimated to be in the range of 25.2% to 33.1%, and a self-sufficiency ratio ranging from 66.9% to 74.8% during the 2008–2013 period. The mean import dependency ratio during this period was 28.5% against a self-sufficiency ratio of 71.5%, an indication that local sugar production is unable to sustain domestic sugar consumption needs.

Over the years, a number of private companies have entered the sugar sector to try and bridge the sugar demand gap. Presently the processing component of Kenya's sugar industry consists of 13 mills, 7 of which are privately owned, 2 are closed (1 Govt. owned and 1 Pvt.) & 1 is under receivership. The Government supports the sugar industry through direct investment in these mills. However, the industry continues to operate below capacity and is unable to meet Kenya's national demand for sugar or compete with more efficient producers in the international market. For this reason, Kenya's sugar sector remains highly protected.

The Proposed Project

Tembo Sugar Mills, herein thereafter referred to as 'the proponent' and/or 'TSM' shall be implemented by the Shah Group. This is a group of companies with global business interests that is owned by the Shah family of Indian now based in Nairobi, Kenya.

TSM is to be implemented by 2019, at an investment of approximately Ksh. 4 Billion and will set up a 1,500 tonne cane per day sugar factory expandable to 2,500 tonne cane per day, a 30 kilo litre per day Ethanol/ENA distillery and a 16 MW power plant which will generate a surplus of 47 Million units after meeting it's captive needs and sales of units for irrigation to Tembo Farming Limited (TFL). TSM will produce 81,950 tonnes of sugar, 7.4 million litres of Ethanol/ENA and 47 million units surplus power per annum. It will also set up a residential colony with uninterrupted power supply, provide clean drinking water and good sanitation, housing, schools, a healthcare center, a technical training center, an agricultural training center and a Sugarcane Research and Development Center.

In summary the sugar complex shall consist of the following units:

I. Sugar Plant

1. Cane handling and cane preparatory units
2. Cane Carrier
3. Mill House
4. Evaporation House
5. Pan House
6. Clarification House
7. Injection Pump House
8. Boiler House
9. Power House
10. Return Bagasse Carrier
11. Spray Pond
12. Molasses Tanks

13. Toilet Block
14. Store Godown
15. Industrial Laundry
16. Workshop
17. Service Water Reservoir
18. Ganesh Temple
19. Cane Office
20. Administrative Building/Corporate Office
21. Weigh Bridge Cabin
22. Security House
23. Sugar Storage Godown
24. Residential Colony and other utilities
25. GM Engineer/ GM Process/ Laboratory and Conference room
26. Chimney
27. G.S.R – Ground Service Water Reservoir
28. W.T.P – Water Treatment Plant
29. D. G. Set
30. Switch Yard
31. Sugar Refinery
32. Gunny Bags Godown
33. Cogen Cooling Tower
34. Bagasse Shed
35. Boiler Feed Water Tanks and Pump
36. E.T.P – Effluent Treatment Plant
37. Sugar Bag Handling System
38. Ambulance, Fire Tender and Dispensary
39. Petrol Pump
40. Employees Bus Stand
41. Super Market
42. Boutique Hotel

43. Play Ground
44. Recreational Area
45. Primary and Secondary School
46. Canteen
47. Training Center
48. Rain water Harvesting System
49. Security Personnel Dormitory
50. Mini Cooling Tower
51. Condensate Cooling Tower

II. Ethanol Distillery

1. Canteen & Excise Office
2. Evaporation House
3. Distillation House
4. Fermentation House
5. Alcohol Bulk Storage Section
6. CPU – Condensate Polishing Unit
7. Acid Storage Tank
8. Weigh Bridge Cabin
9. Molasses Unloading Pit
10. Molasses Bulk Storage
11. Time & Security House
12. Administration Block
13. Bio Composting Yard
14. Vinasse Storage lagoons/tanks
15. Panel Room

Purpose of study

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 Sugar Complex were taken into consideration during the study.

Key Environmental Issues and Impacts

i. The likely significant environmental impacts expected to arise at the construction stage are on aspects like noise, air pollution, solid waste and health and safety of workers. Mitigation of these potential adverse impacts has been addressed in the proposed Environmental Management Plan (EMP).

ii. Noise will arise out of construction equipment (vehicles plant and tools) when in operation and the construction process itself. To mitigate noise levels, the contractor will see to it that all equipment used on the site are mechanically sound and regularly serviced for optimal performance.

iii. The levels of dust loading on the environment will depend on prevailing weather conditions. Should the construction be done during the dry weather, all point sources of dust will be identified and appropriate mitigation measures employed. Source points such as roads, materials stock pile and concrete mixing yard will be wetted regularly. Other areas with sources of dust emissions and where wetting as a control measures is not practical, like workshop and cement store, workers will be made to wear dust control kits.

iv. Solid waste will be generated from left over materials. Most of these materials will be used by the time the construction is complete but most of it will be disposed at the local Government designated sites. The EMMP advises the sorting of these wastes before disposal. Solid waste will be removed regularly to avoid accumulation at the site.

v. Workers at the construction site are exposed to a higher risk of work related injuries. To safeguard the workers from potential injuries during the construction process, the EMMP requires that the contractor provides safety gear to all his workers as per the provisions of the Occupational Safety and Health Act, 2007 and to ensure protective gear is used appropriately, and to take care of the workers in the event that they suffer injuries at work the contractor will provide a cover for his workers as per the provisions of the Workmen's Compensation Act.

vi. Public safety will be taken care of by posting warning signage at strategic places around the site. This will warn the public about the ongoing construction activities and the likely dangers like heavy trucks turning and falling objects.

vii. During the operation of the factory, the significant environmental aspects likely to be impacted on negatively are solid waste and waste water, noise, air pollution, thermal pollution and vibration within the factory and increased traffic to the area. Of great significance is pollution of air through SPM, SO_2 and NO_x emitted during the manufacturing process. The environmental impact categories identified include:-

a. abiotic resource depletion (exhaust)
b. greenhouse effect (global warming)
c. human toxicity
d. acidification
e. ozone depletion
f. eutrophication/oxygen demand
g. photochemical oxidation (smog)
h. ecotoxicity
i. landscape demolition (and ecology)
j. use of energy (renewable and non renewable)
k. nuisance
l. solid waste

Project Phase	Potential Environmental Impact	Proposed Mitigation Measures
Construction and Machinery Installation Phase	Noise	✓ Restrict activities to daytime ✓ Provide ear muffs to employees exposed to high noise levels ✓ Construct a buffer wall around the property
	Water Pollution	✓ Ensure proper oil handling to avoid spills ✓ Prepare an oil spill management plan ✓ Block all water drainages to the municipal drain until installation completed
	Health and Safety Hazards	✓ Document Emergency Response Procedures ✓ Provide necessary safety signages ✓ Document all Operational Procedures ✓ Provide PPEs
	Waste Management	✓ Provide for a waste segregation and collection point and regularly collect waste ✓ Re-use as much waste as possibly can
Operational Phase	Air pollution, e.g. RSPM, SPM, SO_2 & NOx	✓ Install all required pollution control equipments ✓ Regularly water the pavements and earth roads. ✓ Complete combustion, ash silo system, hoppers, electro static precipitators, effective ash handling, mixing of collected ash with vinasse to produce biocompost to use in farm/to sell to farmers. ✓ Effective stack height (approx.. 50-55mtr) and Electrostatic precipitator is proposed as an air pollution control device
	Energy use	✓ Regularly monitor energy consumption and prepare an Energy Management Plan

Proposed Environmental Management Plan

The EMP`s developed for the proposed project will ensure that environmental pollution and or degradation does not occur as a result of implementation and operation of any of the components of the proposed development. The EMP`s cover the following management plans among others:

- Air Pollution Management Plan;
- Noise Management Plan;
- Traffic Management Plan;
- Occupational Hazards Management Plan; and
- Waste Management plan.

The project proponent and contractor will need to undertake the following to ensure the success of the EMP:

- Develop and document environmental management policies that will guide construction work and other site operations during and after implementation of the project. These policies should address environmental conservation measures to be put in place, occupation health & safety and handling of waste generated by the project;
- The project proponent to avail required finances for implementation of the EMP and
- ensure adherence to the EMP`s by the contractors implementing the project; and
- The project contractors to adhere to the environmental management plan.

Environmental Monitoring Plan

This plan provides for both active and reactive monitoring of various environmental parameters including:

i) Monitoring of the achievements of specific plans of the Environmental Management Plan, performance criteria and fulfillment of objectives;

ii) Systematic inspection of workplace;

iii) Surveillance and monitoring of the work environment, including the organization of work and activities involved;

iv) Monitoring of workers' health;

v) Monitoring of compliance with laws, regulations and requirements.

vi) Environmental conservation and related activities in the area;

vii) Work related injuries, ill health (including record keeping and monitoring of sickness/absence), disease and accidents; and

viii) Deficient safety and health performance including OHSMS failures.

CONCLUSIONS

Kenya Vision 2030 is the country's new development blueprint covering the period 2008 to 2030. It aims to transform Kenya into a newly industrializing, "middle-income country providing a high quality life to all its citizens by the year 2030". The Vision is based on three "pillars": the economic, the social and the political. The adoption of the Vision by Kenya comes after the successful implementation of the Economic Recovery Strategy for Wealth and Employment Creation (ERS) which has seen the country's economy back on the path to rapid growth since 2002, when GDP grew from a low of 0.6% and rising gradually to 6.1% in 2006.

The economic pillar aims to improve the prosperity of all Kenyans through an economic development programme, covering all the regions of Kenya, and aiming to achieve an average Gross Domestic Product (GDP) growth rate of 10% per annum beginning 2012. The social pillar seeks to build a just and cohesive society with social equity in a clean and secure environment. The political pillar aims to realize a democratic political system founded on issue-based politics that respects the rule of law, and protects the rights and freedoms of every individual in Kenyan society.

TSM fits in with all the three pillars in the sense that it is aimed at being implemented in a rural underdeveloped area, hence providing the most strategic opportunity for rapid development to kick start growth in the Kilifi County.

We have provided the proponent of the proposed project with

(i) adequate guidelines to enable them to follow the laid down regulations, standards, laws and structural drawings as designed and approved by the relevant authorities and professionals respectively.

(ii) Other laws governing the operations of factories are to be adhered to.

Our conclusion is that the project is important for economic development of the region especially the fact that Kilifi County has very few industrial developments.

We have given adequate measures to mitigate the negative impacts and proposed an environmental monitoring and management plan for the proponent to adhere to.

We therefore recommended that the proposed project be approved subject to the adherence of recommendations given in this report.

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
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 crushing 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 Sugar Mills 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

Industrialisation has been embraced by many developing countries as a means of achieving structural transformation of their economies. In Kenya Industrialisation has recently been embraced as a strategy for economic development, employment creation and poverty eradication.

As such, a policy framework was developed in 1996 for achieving Industrialisation by the year 2020. Recently another Policy, Kenya Vision 2030: "*Economic Recovery Strategy for Wealth and Employment Creation*" was unveiled in 2008. Kenya Vision 2030 is the country's new development blueprint covering the period 2008 to 2030. It aims to transform Kenya into a newly industrializing, "middle-income country providing a high quality life to all its citizens by the year 2030". The Vision is based on three "pillars": the economic, the social and the political. The adoption of the Vision by Kenya comes after the successful implementation of the Economic Recovery Strategy for Wealth and Employment Creation (ERS) which has seen the country's economy back on the path to rapid growth since 2002, when GDP grew from a low of 0.6% and rising gradually to 6.1% in 2006.

The economic pillar aims to improve the prosperity of all Kenyans through an economic development programme, covering all the regions of Kenya, and aiming to achieve an average Gross Domestic Product (GDP) growth rate of 10% per annum beginning 2012. The social pillar seeks to build a just and cohesive society with social equity in a clean and secure environment. The political pillar aims to realize a democratic political system founded on issue-based politics that respects the rule of law, and protects the rights and freedoms of every individual in Kenyan society.

The major departure from previous polices on Industrialisation is the encouragement of specifically selected industries through a broad array of support by the Government over a 20-year period, by which time Kenya will have achieved industrialized status. The present policy framework considers industry as the leading sector for addressing the development challenges faced by the country. It therefore proposes to provide "selected" industries, at various stages in the Industrialisation process, with the support that will enable them to grow and become exporters of their products.

1.2 The Proposed Project and Justification

The Shah Group, through one of its companies – Tembo Sugar Mills Limited ("TSM"), is in the process of establishing a Sugar Complex (Sugar Mill, Distillery and Power Generation) in Kilifi County, on a 203 acre undeveloped parcel of land, located at Matolani, Magarini Subcounty in Kilifi County near Malindi. TSM intends to set up a Sugar complex on a land leased from Express Company Limited, another Shah Group Company. TSM shall be supplied with the cane by Tembo Farming Limited (TFL), a sister company that has leased and intends to farm the remaining 8,155 acres of the land.

It is anticipated that upon its completion in 2019, the complex shall be complete with a 2,500 tonnes cane per day sugar factory, a 30kilo litre per day Ethanol/ENA distillery and a 16 MW power plant which will add to the country grid the surplus of million units after meeting the captive needs of TSM and TFL.

TSM aims to produce a sustained 81,950 tonnes of high quality sugar equivalent to over 9% of the consumption for sugar in Kenya in 2015 (8,89,233 tones); 9 million litres of Ethanol/ENA (a form of renewable energy) to generate US$ 8 million per year in foreign exchange and 47 million units of surplus power from co-generation, a renewable biomass power that will be supplied into the National grid. It is estimated that the power to be supplied by TSM to the National Grid will account for 0.33% of the current installed electricity generating capacity of 2,404 MW, as of November 2015.

It will simultaneously set up a residential colony with uninterrupted power supply, clean drinking water and good sanitation providing for housing, schools, a technical training center, an agricultural training center, a super market, boutique hotel and a handicrafts development center.

It will set up a Sugarcane Research and Development Center for the development of new varieties of sugarcane which can give high yields, high sucrose content and are resistant to pests and diseases. Over time, TSM will also develop a 100-acre industrial park with uninterrupted power and clean water supply; in order to promote other agro related industries, as well as light engineering businesses.

TSM is estimated to cost app. Kshs 4 billion (US$ 40 million) making it the largest single private investment in the sugar and renewable energy industries 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.

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 sugar factory project. The general steps followed during the assessment included:-

- Environment screening, during which the proposed sugar factory 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 factory 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

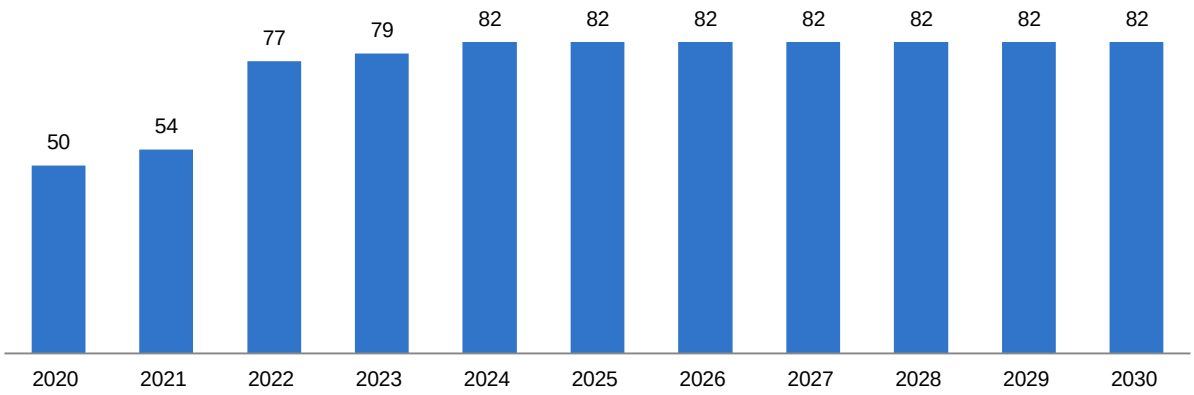
2.1 Introduction

As mentioned elsewhere in this report, Tembo Sugar Mills Limited seeks to establish a Sugar Complex (Sugar Mill, Distillery and Power Generation) in Kilifi County, on a 203 acre undeveloped parcel of land, located at Matolani, Magarini Subcounty in Kilifi County near Malindi. The land has been leased from Express Company Limited, a Shah sister Company. The sugar mill shall be supplied with the cane by Tembo Farming Limited (TFL), another company that has leased and intends to farm the remaining 8,155 acres of the land.

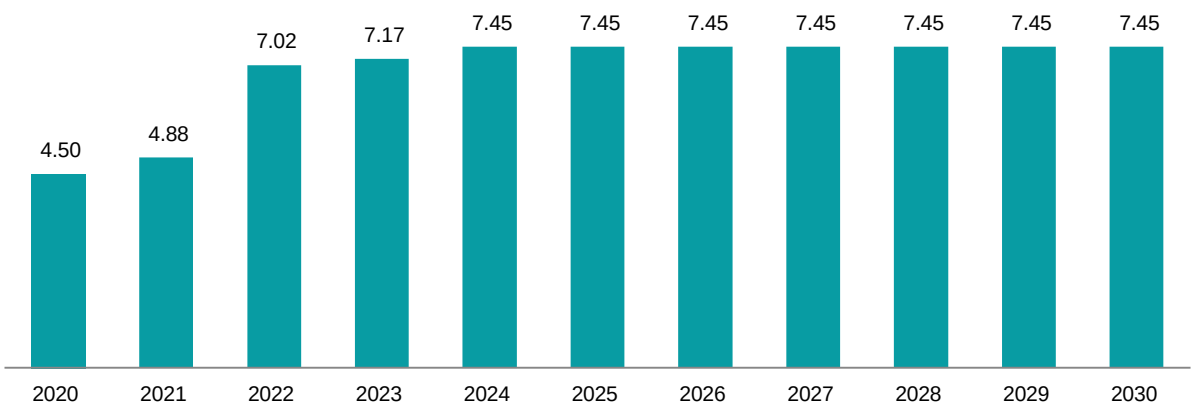
It is anticipated that upon its completion in 2019, the complex shall be complete with a capacity of 2,500 tonnes cane per day sugar factory, a 30kilo litre per day Ethanol/ENA distillery and a 16 MW power plant.

TSM will provide direct employment to 700 individuals, made up of 155 skilled and 545 unskilled. On the basis of a 5 times multiplier, this may translate to over 3,500 jobs in Kenya.

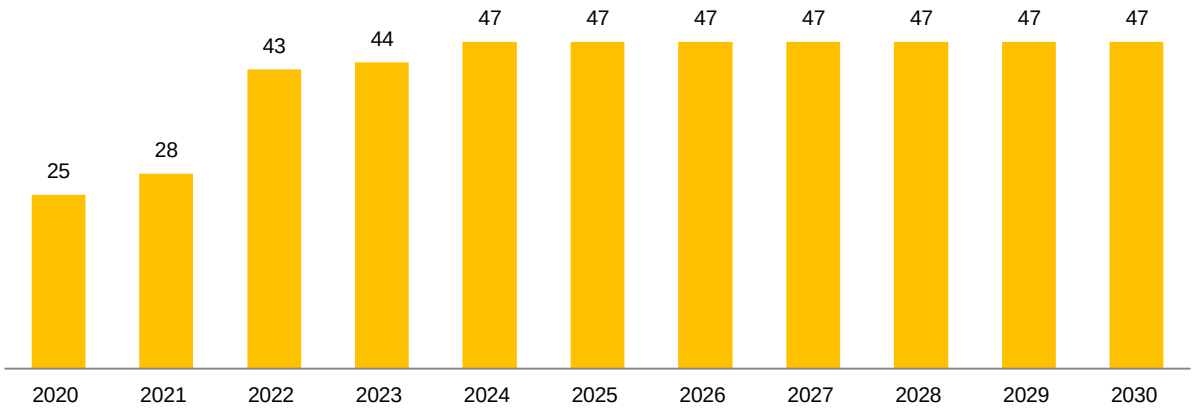
Projections of TSM Annual Sugar Production ('000 Metric Tonnes)



Projections of TSM Annual Ethanol/ENA Production (million Litres)



Projections of TSM Annual Surplus Power Production (million units)



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 Arid and Semi-Arid Land (ASAL) vegetation. Normally nomadic herders from the neighbouring Tana River County traverse the land grazing their livestock.

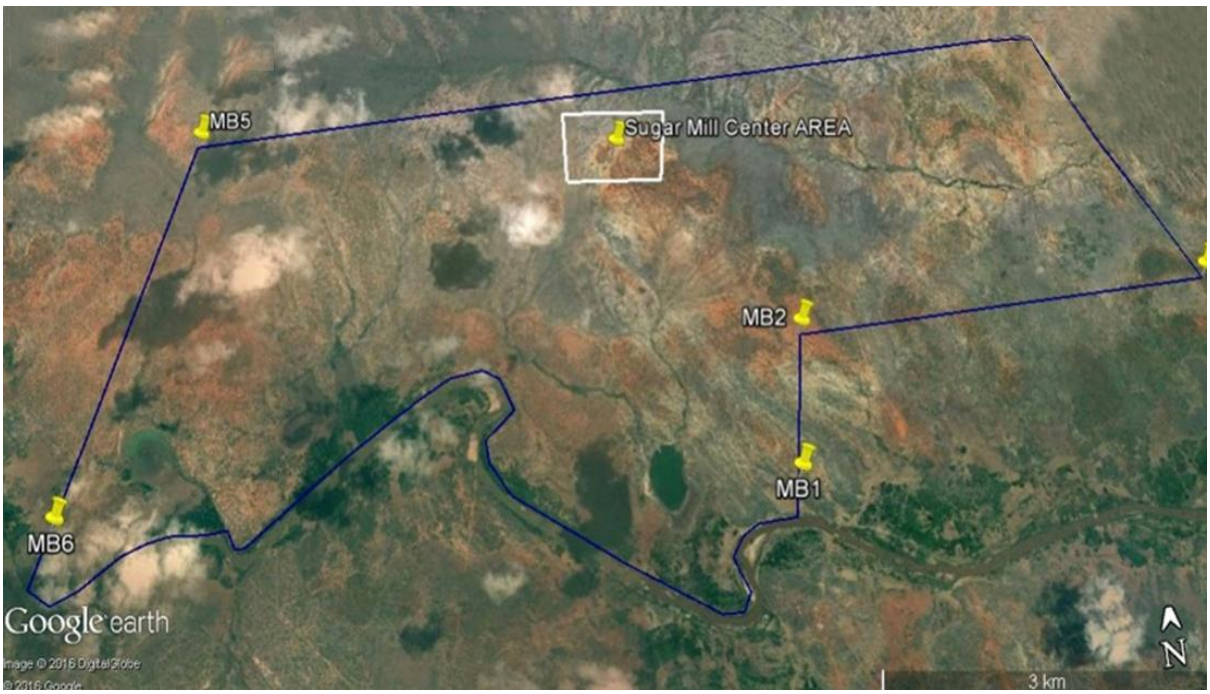


Plate 2-1: Proposed Project Site

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.

Plate 2-2: Ground status of the project site

2.3 Project Design

The various design components and the material flow for the proposed sugar factory complex is as described below. The design details are presented in the site layout on the following page.

Design outline will include the following

Table 2-1: Sugar Mill Components

No.	Component	Size in metres
1	Cane Carrier	-
2	Mill House	96.00x24.00
3	Evaporation House	42.00x24.00
4	Pan House	77.00x24.00
5	Injection Pump House	12.00x06.00
6	Clarification House	49.00x14.00
7	Boiler House	--
8	Power House	38.00x31.00
9	Return Bagasse Carrier	--
10	Spray Pond	50.00x75.00
11	Molasses Tanks	23Ø
12	Toilet Block	07.00x04.00
13	Sulphur House	--
14	Store Godown	36.00x12.00
15	Industrial Laundry	--
16	Fan House	--
17	Workshop	24.00x12.00
18	Service Water Pit	04.00x04.00
19	Ganesh Temple	--
20	Cane Office	04.00x03.00
21	Corporate Office/ Admin Block	20.00x30.00
22	Weigh Bridge Cabin	04.00x04.00
23	Security	03.00x03.00
24	Sugar Godown	102.00x60.00
25	Space for residential colony & other utilities	--
26	GM Engineering/ GM Process/ Lab/ Conference Room	--
27	Chimney	--
28	G.S.R.	45Ø
29	W.T.P.	30.00x45.00
30	D. G. Set	09.00x07.00
31	Switch Yard	150.00x160.00
32	Sugar Refinery	35.00x20.00

No.	Component	Size in metres
33	Gunny Bag Godown	10.00x08.00
34	Cogen Cooling Tower	28.00x28.00
35	Bagasse Shed	25.00x50.00
36	FW Tanks and Pump	10.00x08.00
37	E.T.P	30.00x30.00
38	Sugar Bag Handling Stystem	--
39	Ambulance, Fire Tender & Dispensary	40.00x15.00
40	Petrol Pump Station	30.00x30.00
41	Employees Bus Stand	50.00x25.00
42	Supermarket	30.00x20.00
43	Boutique Hotel	30.00x20.00
44	Play Ground	--
45	Recreational Area	--
46	Primary & Secondary Schools	--
47	Canteen	30.00x20.00
48	Training Center	30.00x20.00
49	Rain Water Harvesting Line	--
50	Pipeline from G.S.R. to Service Water Pit	--
51	Security Personnel Dormitory	--
52	Mini Cooling Tower	60.00x06.00
53	Condensate Cooling Tower	60.00x06.00

Source: Struction Project Consultants PVT. Ltd, TSM Masterplan

Table 2-2: Distillery Components

No.	Component	Size in metres
1	Canteen and Excise Office	20.00x10.00
2	Evaporation	40.00x16.00
3	Distillation	28.00x12.00
4	Fermentation	40.00x23.00
5	Alcohol Bulk Storage Section	50.00x25.00
6	C. P. U.	30.00x40.00
7	Acid Storage Tank	06.00x06.00
8	Weigh Bridge Cabin	04.00x04.00
9	Molasses Unloading Pit	05.00x24.00
10	Molasses Bulk Storage	25Ø
11	Time & Security	03.00x03.00
12	Admin Office	10.00x15.00
13	Bio Composting Yard	90.00x50.00
14	Toilet Block	07.00x04.00
15	Vinasse Storage	--
16	Panel Room	--

Source: Struction Project Consultants PVT. Ltd, TSM Masterplan

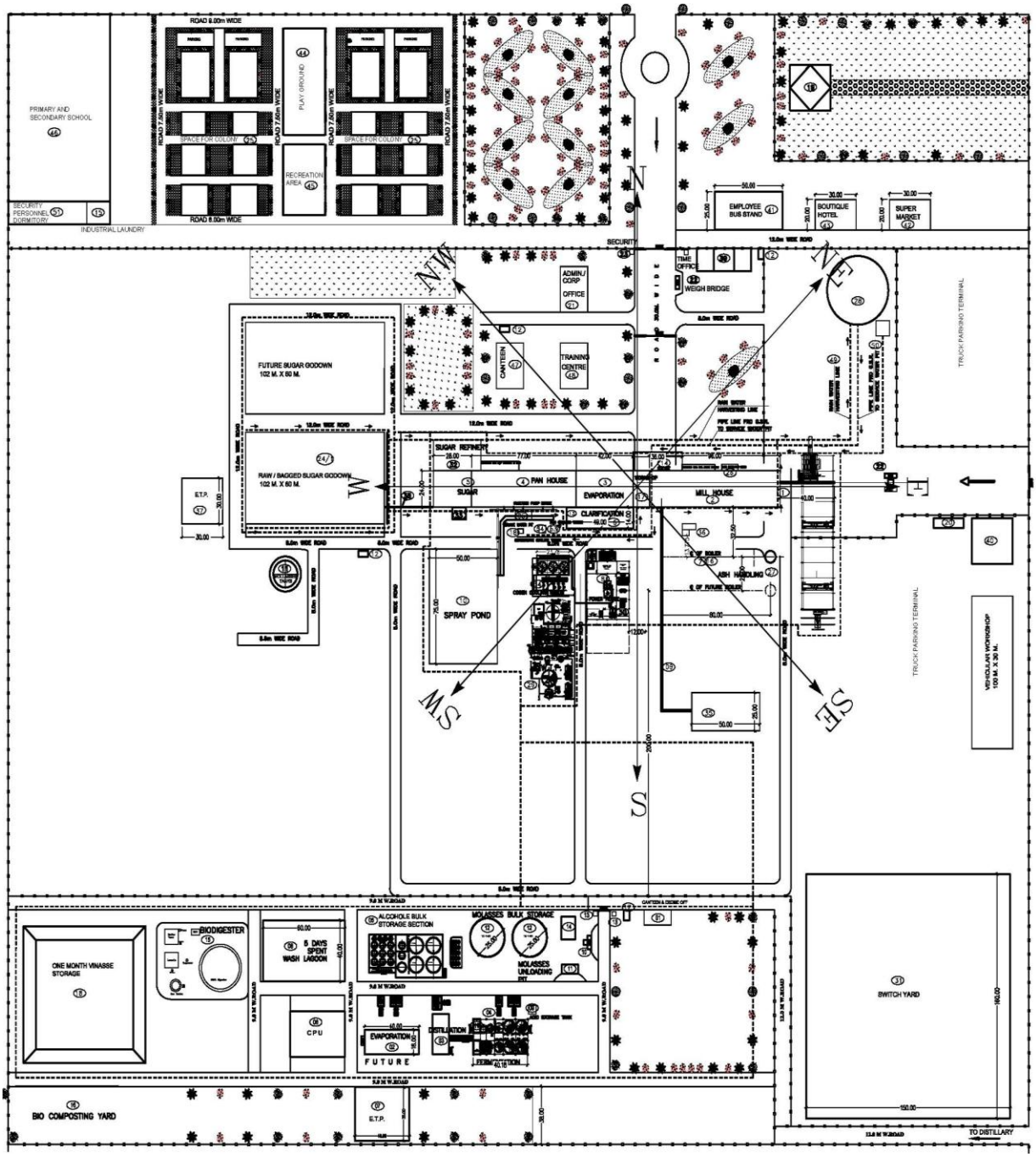


Plate 2-3: TSML Site Layout

2.4 Sugar Manufacturing Process Technology

After Cane harvesting, the cane is transported to the mills using trailers or trucks. At the mill, cane is mechanically unloaded and put on the cane carrier by mechanical devices. Cane carrier conveys the cane for the milling process.

Milling process includes two steps:

A. Breaking the hard structure of the cane and grinding the cane. Breaking the cane uses revolving knives, shredders, crushers, or a combination of these processes.

B. Milling of the crushed cane, multiple sets of three-roller mills are most commonly used although some mills consist of four, five, or six rollers in multiple sets.

Rake Elevating Conveyors transport the crushed cane from one mill to the next. On these milling roller stations Imbibition process is done with water or juice to enhance the extraction of the juice at the next mill. In imbibition, water or juice is introduced into the last mill and transferred from last to the first mill while the crushed cane travels from the first to the last mill. The crushed cane exiting the last mill is called bagasse.

The juice from the mills is strained to remove large particles and then clarified. In the raw sugar production, clarification is done almost exclusively with heat, milk of lime and small quantities of soluble phosphate also may be added. The juice is first heated up to 70^0C and after heating Milk of Lime (MOL) is added. The MOL is added to neutralize the organic acids and makes floc.

After this treatment there is a second heating of treated juice that brings the temperature up to 105^0C. This juice is then sent to settler/clarifier where heavy precipitate, formed in MOL treatment, settles down and clear juice is separated from the clarifier. This Clarified juice goes to the evaporators to be concentrated. The mud is filtered in rotary vacuum filters and generates filter cake and filtrate. This filtrate juice is mix with defecated juice.

Clear juice evaporation is performed in two stages:

A. initially in an evaporator station to concentrate the juice and
B. then in vacuum pans to crystallize the sugar.

The clarified juice is passed through heat exchangers to preheat the juice and then to the evaporator stations. Evaporator stations consist of a series of evaporators, termed multiple-effect evaporators; typically a series of four to five evaporators. Steam from large boilers is used to heat the first evaporator, and the vapor generated from the evaporation in the first evaporator is used to heat the second evaporator. This heat transfer process continues through the five evaporators and as the temperature decreases (due to heat loss) from evaporator to evaporator, the pressure inside each evaporator also decreases which allows the juice to boil at the lower temperatures in the subsequent evaporator. Some steam is bled from these evaporators, and this steam is used in various process heaters in the plant. The evaporator station in cane sugar manufacture typically produces syrup with about 60-65 percent solids and 40-35 percent water. Following evaporation, the syrup goes to the vacuum pans for crystallization.

Crystallization of the sugar starts in the vacuum pans, whose function is to produce sugar crystals from the syrup. It is done in the no. of stages to get the maximum extraction of sucrose from syrup. In the pan boiling process, the syrup enters in the 1st stage boiling and evaporated until it reaches the super saturation stage. At this point, the crystallization process is initiated by “seeding” or “shocking” the solution. When the volume of the mixture of liquor and crystals, known as massecuite, reaches the capacity of the pan, the evaporation is allowed to proceed until the final massecuite is formed. At this point, the massecuite of the vacuum pans called “strike” is discharged into the crystallizer, whose function is to maximize the sugar Crystal size and removal of sucrose from the mother liquor.

From the crystallizer, 1st stage massecuite (A massecuite) is transferred to high-speed batch centrifugal machines, from which two molasses; one heavy and other light molasses and sugar are separated.

This sugar is dried in gross hoppers and cooled. After cooling, the cane sugar is transferred to packing bins and then sent to warehouse. The light molasses is sent back to 1st stage massecuite boiling and the heavy molasses is sent to a vacuum pan and re boiled to yield a 2nd stage massecuite (B massecuite), that in turn yields a second batch of crystals. The B massecuite is transferred to the crystallizer and then to the centrifugal, and B-sugar and molasses are separated. The molasses from the second boiling (B molasses) is of much lower purity than the first molasses. It is re boiled to form a low grade 3rd stage massecuite (C massecuite), which goes to a crystallizer and then to a centrifugal from where final molasses and fore worker sugar is obtained. This fore worker sugar is sent to next continuous centrifugal machine in the form of magma which separates the light molasses and after worker sugar. This low-grade 3rd stage after worker sugar is mingled with B- sugar of 2nd stage boiling and melted together. This melt is used in the 1st stage massecuite boiling. The final molasses from the third stage boiling (blackstrap molasses) is a heavy, viscous material used as a raw material for ethanol production.

Performance Parameters of Sugar Mills

Particulars	Parameters	Remarks
Preparatory Index (PI)	Min 90%	It is the measure of the effectiveness of cane preparatory equipment like kicker, leveler & shredder.
Mill Extraction (ME)	Min 94% (with 220% Imbibitions on fiber)	It is the measure of effectiveness of mill tandem using a particular method
Moisture % Bagasse	Max 50%	It is the indication of moisture in the bagasse. Cogeneration plants are designed for 50%. Any reduction in this significantly increases boiler Efficiency
Effective Evaporation	Around 80%	It is the measure of effectiveness of Evaporators
Boiling House Recovery (BHR)	Min 89%	It is the measure of effectiveness of complete boiling house (% extraction of sugar available in mixed cane juice).
Steam % cane	35%	It is the measure of steam consumed in the process as a percentage of total cane crushed
Pol % Filtercake	Max 1.5%	It is the measure of effectiveness of vacuum filter (sucrose content lost with filter cake)
Sugar Temperature	Max 40°C	Temperature of the sugar at the packing stage
Sugar Moisture	Max 0.03%	Moisture in the sugar at the packing stage

By-products

During raw sugar manufacturing the other by-products produced are bagasse, molasses, and filter cake. Bagasse, the residual woody fiber of the cane, after extracting the juice from cane, is used for several purposes: fuel for the boilers, production of numerous paper and paperboard products, agricultural mulch, and as a raw material for production of chemicals. Generally bagasse is used as a fuel source for the boilers in the generation of process steam in sugar factories. Thus, bagasse is a renewable resource. Dried filter cake is used as an animal feed supplement, and fertilizer. Molasses is produced in two forms: inedible for humans (blackstrap) or as an edible syrup. Blackstrap molasses is used primarily as an animal feed additive but also is used to produce ethanol, compressed yeast, citric acid and rum.

The general production process is illustrated below:-

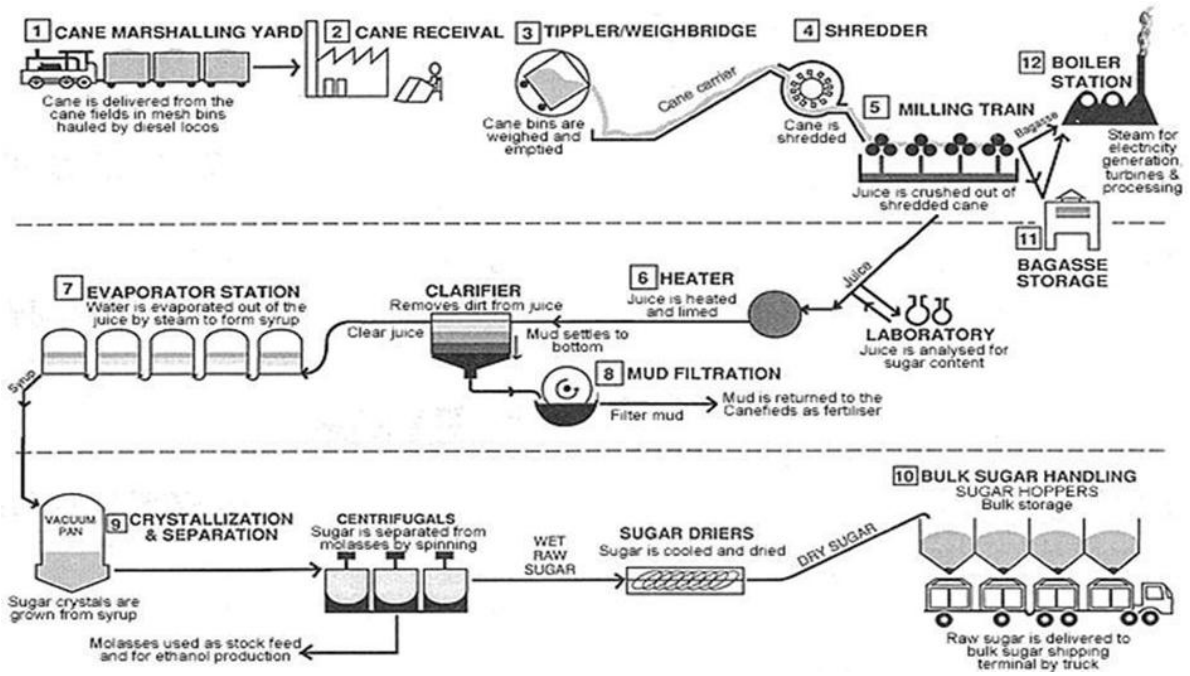


Plate 2-4: Sugar Production Process Flow

2.5 Power cogeneration plant

The cogeneration plant design is based on the rankine cycle efficiency, cost considerations, metallurgy, operability, maintenance and specifications of similar bagasse based power plants. The cogeneration plant is designed to operate at a steam pressure of 87/ 110 kg/cm2 (g) and temperature of 520/540 ± 5°C. The turbines selected are of multi stage impulse reaction, extraction cum condensing type in all phases of expansion.

This plant is designed for 24 hours of operation and the sugar mill needs to be run accordingly to have uninterrupted supply of fuel. During off season, the stored bagasse will be used for power generation. The process steam requirement of the sugar plant is met from the steam extractions (High pressure and Low pressure) at two different stages of the turbines. Apart from this mill steam requirement, HP steam requirement and distillery steam requirement are also met from these extractions. After meeting the power requirements of the sugar plant, excess power generated by the power plant is exported to the grid. Transmission and evacuation infrastructure will be a part of the project.

HP heater is considered for the Co-gen plant from the point of view of a more efficient power cycle, which means lower fuel consumption per unit of power generated. Appropriate water treatment plant along with RO and DM plants will have to be provided with suitable raw water storage tanks to meet boiler water specifications and make up water requirements. For conservation of water, condensate will be recycled after treatment.

Systems like fuel handling, ash handling, H.T. switch yard, instrumentation air, control and instrumentation will be designed to provide efficient operations. It is proposed to have a DCS type data gathering and monitoring station, which will integrate the signals from boiler PLC, TG PLC and the signals from the BOP consisting of cooling tower fans, cooling water pumps, DM plant, water treatment plant and electrical system, so that the plant functioning can be monitored from the DCS panel.

2.6 Distillery

It is proposed to put up a distillery of capacity 30,000 litres per day with Ethanol/ENA/Extra Neutral Alcohol (ENA) as the main output. Molasses from the sugar mill will be used as the raw material for this process.

In the present context, only fermentation alcohol processes, the technological advances and operational parameters are reviewed briefly in order to choose the appropriate and viable process technology of manufacturing alcohol.

Molasses is stored in bulk storage and day storage tanks of suitable capacity. The flow rate is measured with magnetic flow meters which are connected to a Programmable Logic Controller (PLC).

Fermentation is a continuous fermentation process with suitable stainless steel / Mild Steel epoxy coated tanks. These are provided with plate heat exchangers for cooling. Equipment like level monitor, automatic PH monitoring system, agitators and air blowers etc. are also provided to maintain the yeast population and to combat bacterial infection.

A closed loop cooling tower system with an induced draft–cooling tower with circulation pumps is planned to ensure higher cooling efficiency and to minimize water wastages.

Distillation: Multi-pressure vacuum distillation is used because of many inherent advantages with the technology. Primary column is of grid tray construction and the other columns are of superior 'bubble cap' construction (bubble cap gives good tray efficiencies at different conditions). All these are connected and operated using PLC.

The concentrated vinasse (through integrated evaporator of distillation plant) generated will be used for Bio Composting of press mud and boiler ash for producing Bio Compost Manure and Bio Fertilizer to be used in nucleus sugarcane plantation farms area.

2.7 Energy supply

TSM will depend mainly on the bagasse for boiler and furnace start-up operations with minimal use of wood to avoid deforestation. The amount of bagasse produced by the factory is estimated to be adequate to provide the amount of fuel required for the boilers. Bagasse will constitute the main source of fuel for processing, with its combustion being undertaken in a closed environment thus making it possible for complete combustion for higher energy saving and minimal aerial discharges. The live steam generated from the bagasse fired boilers will be fed in to a steam turbine for electricity generation to meet the factory needs with any excess added to the national grid. Power generated from the steam turbine alternator will be sufficient to meet the entire electric power requirement for the total operation as well total lighting requirements.

At the initial stages, the Kenya Power will also be commissioned to install a transformer to handle 1000 KW which will be the power requirement for the construction phase of the factory. The power supply will be obtained via a transformer from the main line along the Chakama-Malindi road or the nearest source. In the longrun this will mainly serve as a power backup as the factory is expected to eventually generate sufficient power for its own needs.

2.8 Water supply

The sugar complex will require upto 2500 M^3/day of water. This will be procured through a combination of ground water and surface water (river/stream). Sabaki River passes nearby the proposed site and the proponent will abstract water for the industry from it. The proponent has already applied for a permit from the Water Resources Management Authority (WRMA) to abstract and utilize water from the Sabaki River. The River is a perennial river with slightly turbid water which after treatment will be of good quality for both industrial and domestic purposes. The bank of the River Sabaki is well stabilized and with thick riparian vegetation including reeds.

2.9 Project Cost and Manpower

The proposed Sugar Complex is estimated to cost app. Kshs 4 billion (US$ 40 million) making it the largest single private investment in the sugar and renewable energy industries 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.

During the implementation phase 2017-2019 TSM will provide direct and indirect employment to thousands of workmen, farmers and transport operators, besides suppliers of goods and services. On operation TSM will provide direct employment to 700 individuals, made up of 155 skilled and 545 unskilled. On the basis of a 5 times multiplier, this may translate to over 3,500 jobs in Kenya.

3 LEGAL AND LEGISLATIVE FRAMEWORK

At global level there is a growing concern in Kenya that many forms of development activities cause damage to the environment. The major national challenge today is to maintain sustainable development without damaging the environment. Today, Kenya is faced with grave environmental problems and challenges amongst these are land degradation, loss of biodiversity and pollution of the environment (air, soil and water). The situation is aggravated by lack of awareness and inadequate information in the public domain on the consequences of their actions on the environment. There is also limited involvement of local communities in the participatory planning and management of their environment and natural resources. The Kenyan Government has put in place a wide range of policy, institutional and legislative arrangements to address the causes of environmental degradation in the country. The laws governing environmental protection and conservation in Kenya are derived from the constitutional statutes and the ratified international conventions. These laws regulate the establishment and operation of development projects and their associated activities, which may have negative impact on the environment, human health and socio-economic well-being of the people who interact with such projects.

Before the enactment of the Environmental Management and Coordination Act (EMCA) 1999, amendment 2015 (CAP 387). Kenya did not have a consolidated legislation for the protection and management of the environment. It had about 77 statutes that touched on various aspects of environmental management. Some of the legislative instruments have been in place for many years and are duplicated in other legislations. Environmental protection and sustainable use of natural resources have also been stated in all development plans since independence. The sessional papers and presidential directives have also emphasized the need to conserve the environment and manage the natural resources sustainably. Lack of consolidated legislation offered inadequate protection for the environment due to the absence of legal and institutional framework.

According to the Kenya National Environment Action Plan (NEAP, 1994) the Government recognized the negative impacts on ecosystems emanating from economic and social development programmes that disregarded environmental sustainability. Following this, the establishment of appropriate policies and legal guidelines as well as harmonization of the existing ones have been accomplished or are in the process of development. The NEAP process has introduced environmental assessments in the country culminating into the enactment of Environment and Development policy under the Sessional Paper No. 6 of 1999.

The Kenyan law has made provisions for the establishment of the National Environment Management Authority (NEMA), which has the statutory mandate to supervise and co-ordinate all environmental activities. Policies and legislation highlighting the legal and administrative requirements pertinent to this report are presented below. An ESIA is a legal requirement in Kenya for all development projects. The Environmental Management and Co-ordination Act 1999, is the legislation that governs ESIA studies. This project falls under the Second Schedule that lists the type of projects that are required to undergo ESIA studies in accordance with section 58 (1-4) of the Act. Projects under the Second Schedule comprise those considered to pose potential negative environmental impacts. ESIA has been prepared to fully comply with environmental legislations for Projects with Impacts and as per various NEMA Regulations. The key environmental benchmark instruments used in the policy, legal and institutional framework for the TSM Project ESIA are highlighted below.

3.1 National, county and international requirements

The ESIA for the proposed 1,500 TCD sugar factory expandable to 2,500 TCD, a 30 kilo litre per day Ethanol/ENA distillery and a 16 MW power plant at Matolani village, Chakama Location, Magarini Sub County, Kilifi County was undertaken in accordance with the environmental regulatory frameworks highlighted below.

3.2 National environmental policies

a. The Constitution of Kenya
b. Sessional Paper No. 6 of 1999 on Environment and Development
c. National Environment Policy (2013)
d. National Land Policy (2009)
e. National Water Policy (2012 Draft)
f. Draft National Policy on Wetlands Conservation and Management (2013)
g. Draft Wildlife Policy (2011)
h. National Policy for Disaster Management, 2009
i. National Gender and Development Policy, 2000
j. National HIV Policy (GoK, 1997)
k. National Environmental Sanitation and Hygiene Policy (2007)

3.3 National Legal frameworks

a. Environmental Management and Coordination Act (EMCA) No. 8 of 1999 and Amendment, 2015
b. Relevant EMCA Regulations
    i. Environmental Management and Coordination (Impact assessment and audit) Regulations, 2003
    ii. Environment Management and Co-ordination (Noise and excessive vibration Pollution Control) Regulations, 2009
    iii. Environmental Management and Coordination (Wetlands, riverbanks, lakeshores, and seashores management) Regulations 2009
    iv. Environmental Management and Coordination (Water quality) Regulations, 2006 (Legal Notice 121)

v. Environmental Management and Coordination (Controlled substances) Regulations, 2007

vi. Environmental Management and Coordination (Conservation of biological diversity and resources, and access to genetic resources and benefits sharing) Regulations, 2006

vii. Environmental Management and Coordination (Air quality) Regulations, 2009

viii. Environmental Management and Coordination (Waste management) Regulations, 2006

c. Sugar Act, 2001, revision 2012

d. Agriculture, Fisheries and Food Authority Act, 2013

e. Physical Planning Act, CAP 286, of 1998

f. Water Act, CAP 372 of 2002

g. Wildlife (Conservation and Management) Act CAP 376 of 1976, 1989 & Bill, 2013

h. Energy Act of 2006

i. Public Health Act, CAP 242

j. Registered Land act (CAP. 300) k) Employment Act

k. Occupational Safety and Health Act, 2007

l. Safety and Health Committee Rules

m. Work Injury Benefits Act

n. Use of Poisonous Substances Act Rev. 1983, Cap 247

o. The Standards Act Cap 496

p. Building Code, 1997

q. Penal Code Cap 63

r. County By-Laws

3.4 National Plans and Strategies

a. Vision 2030 – Second and Third Medium Term Plans
b. Kilifi County Integrated Development Plan
c. National Environment Action Plan
d. National Biodiversity Strategy and Action Plan (2000)
e. National Climate Change Response Strategy (2009)
f. Agriculture Sector Development Strategy 2009-2020
g. Kenya Sugar Industry Strategic Plan 2010-2014

3.5 Regional and international multinational environmental agreements

a. East African Community (EAC) Protocol on Environment and Natural Resources (EAC, 1999)
b. EAC Climate Change Policy (EACCCP) (EAC, 2011)
c. Convention on Biological Diversity (CBD Secretariat, 1992)
d. United Nations Framework on Combating Climate Change (UN, 1992)
e. Ramsar Convention (UN, 1971)

The roles of the above instruments in the proposed project are highlighted below as follows:

I. Table 3-1: National policies
II. Table 3-2: Legal frameworks, relevant regulations
III. Table 3-3: Permits and licenses
IV. Table 3-4: National and county strategic plans

Table 3-1: National Policies

Policy	Relevant environmental obligations	Linkages with the TSM project
The Constitution of Kenya (GoK 2010)	***Article 42*** – Supporting public involvement in ensuring the rights to a clean and healthy environment. **Article 43** – Supporting public involvement in ensuring the need for every person to have access to clean and safe water in adequate quantities, **Article 69** - Environment and natural resources (1) (d) Encouraging public participation in the management, protection and conservation of the environment (f) Supporting environmental impact assessment, environmental audit and monitoring of the environment (g) Eliminating processes and activities that are likely to endanger the environment; and **Article 66** – Regulating use of any land or any interest or right over any land, in the interest of public health or public planning **Article 185: 22** - Protection of the environment and natural resources with a view to establishing a durable and sustainable system of development	• Stakeholders engagement was undertaken during the pre-project implementation stage of the TSM project in Matolani • TSM project will contribute to social and economic development at national level and also in Kilifi and other neighbouring Counties • TSM will ensure the sustainable use of natural resources during construction and operational stages including the protection of valued conservation areas
Sessional Paper No. 6 of 1999 on Environment and Development (GoK, 1999)	**Human settlements** • Regulating urban development to only those areas which are suitable, avoiding ecologically fragile areas	• Stakeholder engagement was undertaken during the pre-project implementation stage of the TSM project

Policy	Relevant environmental obligations	Linkages with the TSM project
	Other policy goals • Encouraging sustainable use of resources and ecosystems • Undertaking EIA for all private and public projects • Increase public awareness on environment	• Environmental awareness was undertaken during the stakeholder engagement process
Draft Environment Policy (2012) (GoK, 2012)	• Adopting measures, incentives and disincentives to promote the re-use, recycling and reclamation of re-usable packaging material and combat pollution of the environment • Promoting application of sound environmental management tools, in particular; strategic environmental assessment, EIA, environmental audits, environmental management systems, risk assessment/management and environmental reporting • Working with private sector, NGOs and CBOs to enhance corporate social responsibility and accountability	• Effort will be made to minimize the solid waste generation by TSM • Stakeholder engagement was undertaken during the pre-project implementation stage of the project and capacity building continues
National Land Policy (2009) (GoK, 2009)	2(a) Supporting community land management and dispute resolution; 5. Supporting the implementation of environmental assessments and audits **Other policy goals:** Ensuring sustainable utilization and management of land and its resources	• Stakeholder engagement during the TSM project ESIA ensured that any public concerns associated with the project are captured

Policy	Relevant environmental obligations	Linkages with the TSM project
National Water Policy (2012 Draft) (GoK, 2012)	d) Enhancing storm water management and rainwater harvesting f) Enhancing pollution control	• The implementation of the TSM project will ensure adequate rainwater harvesting to minimise the water abstraction for the project. • The implementation of the project will ensure that water pollution will not occur at any site during construction and operational phases
Draft National Policy on Wetlands Conservation and Management (2013) (GoK,2013)	2.0: Wetland conservation and management Policy Statement 2: Ensuring that any alteration of a wetland for public interest will be subject to Environmental Impact Assessment (EIA), cost benefit analysis, and wide stakeholder consultations	The project proponent will ensure that the implementation does not affect the state of wetlands during construction and operational phases
Draft Wildlife Policy (2011) (GoK, 2011)	**8.5.3: Wildlife Security** 1. Strengthening wildlife security in wildlife conservation areas **Other policy goals** i. Decentralization of wildlife planning to constituency level ii. Educating the public and raising awareness on the critical role of wetlands, rivers and lake ecosystems iii. Ensuring good governance in the management of wildlife conservation areas and sanctuaries	• Measures will be undertaken to ensure construction and operations of the TSM project in such a manner that it will not increase the risk of wildlife poaching and spread of invasive species in conservation areas • Stakeholder engagement in the TSM project ESIA was undertaken in order to promote the level of environmental awareness

Policy	Relevant environmental obligations	Linkages with the TSM project
	iv. Incorporating or domesticating the provisions of the relevant wildlife related Multi-lateral Environment Agreements (MEAs) to which Kenya is Party to v. Putting in place mechanisms to identify, control and eradicate invasive alien species in wildlife conservation areas in collaboration with relevant lead agencies. vi. Supporting the conservation and management of wetlands	• In the final ESIA report, the ESMP will serve as a tool for good environmental governance in key wildlife conservation
National Policy for Disaster Management, 2009 (GoK, 2009)	2.1: Promoting the mainstreaming of disaster management and climate change into development planning and management for sustainability 3.1: Providing for well-structured participation of society in disaster management by integrating traditional coping strategies into the DM systems **Other policy goals:** Supporting climate change disaster risk reduction initiatives	The proponent will ensure that the project will not install factory infrastructure which can lead to environmental disasters such as floods, spills and emissions due to the future impacts of climate change
National Policy for the Sustainable Development of Arid and Semi-Arid Lands of Kenya, 2012 (GoK, 2012)	**3.4.2 Natural resource management** Promoting low-maintenance water technologies, with an emphasis on water harvesting	• TSM project implementation will ensure adequate rainwater harvesting in the factory infrastructure and all other infrastructure where possible

Policy	Relevant environmental obligations	Linkages with the TSM project
National Gender and Development Policy, 2000 (GoK, 2000)	• Considering the needs and aspirations of all Kenyan men, women, boys and girls across economic, social and cultural lines • Ensuring the empowerment of women	• The project will create employment and business opportunities for all people including women within the project area. • TSM is an equal opportunity employer
National HIV Policy (GoK, 1997)	Ensuring that new development projects especially in the rural areas encourage preventive and responsible behaviour both for the workers involved in such projects and also the local people within which projects are taking place as a goal towards curtailing the spread of the disease	• TSM shall make effort to ensure that the project during both the construction and operation stages will not escalate the risk of HIV transmission due to the involvement of workers from other areas
National Environmental Sanitation and Hygiene Policy (2007) (GoK, 2007)	**4.3: Sanitation and the environment** • Protection of the environment from pollution and its negative effect on human health • Ensuring use of technologies that uphold the right of present and future generations to a healthy and pollution-free environment. • Ensuring the use of sanitation systems that are environmentally sound • Preventing environmental pollution from liquid and solid waste **Other policy goals** • Setting of clear standards and guidelines for environmental sanitation • Increasing environmental sanitation awareness across the country	• The proponent will ensure the project especially during the operational phase will maintain high standards of sanitation and environmental hygiene especially in the labour intensive sections of the sugar factory

Table 3-2: Legal and Regulatory Framework

Legal Framework	Relevant environmental obligations	Linkages with the TSM project
Environmental Management and Coordination Act (EMCA) No. 8 of 1999 (GoK, 1999), Ammendment 2015 (CAP 387)	**Section 42** – Supporting the protection of rivers and wetlands **Section 50** – Supporting the conservation of biological diversity **Section 51** – Supporting the conservation of biological resources in situ **Specific compliance obligations** • Prohibiting and controlling the introduction of alien species into natural habitats • Controlling and prevention of environmental pollution • Carrying out EIA for all proposed projects with a potential for adverse impacts • Carrying out environmental audit and monitoring of all activities that are likely to have significant effect on the environment • Ensuring compliance with all other relevant EMCA (1999) Regulations including the following: ○ Environmental Impact Assessment and Audit Regulations, 2003	• The project will definitely affect valued environments along the way leave including wetlands and forests thereby disturbing valued biodiversity including wildlife and birdlife. Adequate mitigation measures for this has been proposed • The project should not increase the risk of invasive species in valued environments in the project site • The implementation of the project will ensure that water pollution will not occur at any site during construction and operational phases • The proponent will use proper technology and strategies to ensure minimum noise and vibration as well as low carbon emission levels both during construction and operational stages

Legal Framework	Relevant environmental obligations	Linkages with the TSM project
	○ The Environmental management and coordination (Noise And Excessive vibration Pollution Control) Regulation, 2008 ○ Water Quality Regulations, 2006 (Legal Notice No. 121) ○ Waste Management Regulations, 2006 (Legal Notice No.121) ○ Air Quality, Regulations, 2008 ○ Controlled Substances Regulations, 2007 (Legal Notice No.73 of 2007) ○ Fossil Fuel Emission Control Regulations (2006) ○ Conservation of Biodiversity Regulations 2006 ○ Wetlands, River Banks, Lake Shores and Sea Shore Management Regulation, 2009	• The proponent will avoid the use of chemical materials or substances that deplete or have the potential to deplete the ozone layer. • The proponent will undertake the obligatory environmental monitoring audits throughout the life cycle of the project • The proponent will observe and comply with all the relevant EMCA regulations as listed in Column 2 • The Project proponent will meet all the costs and pay for the entire EIA process
Sugar Act, 2001, Amended 2012	The Act is the primary legal framework governing the structure, operations and relationships of stakeholders in the sugar industry and provides for: a) Establishment, powers and functions of the Kenya Sugar Board, which is the industry regulator; b) Licensing and registration of sugar mills; c) Financial provisions – the Sugar Development Levy;	The proponent will observe and comply with all the relevant regulations as listed in Column 2

Legal Framework	Relevant environmental obligations	Linkages with the TSM project
	d) Quality, health and safety; e) Offences and penalties; f) Sugar industry agreements; g) Rights of growers; h) Establishment and Constitution of the Sugar Arbitration Tribunal	
Agriculture, Fisheries and Food Authority Act, 2013	Control over soil conservation, land preservation and land development are mainly controlled within this Act, and many of the provisions can be generally applied beyond those lands suitable for agriculture	The project should not initiate or accelerate soil erosion and land degradation within agricultural areas
Physical Planning Act, Cap 286, of 1998 (GoK, 1998)	**Section 29:** Ensuring that developers to ensure proper execution and implementation of approved physical development plans **Other legal obligations:** • Ensuring that subsidiary area plans are recognized and integrated in the Regional Physical Development Plans • The local authority concerned shall require the developer to restore the land on which such development has taken place to its original condition within a period of not more than ninety days	• The proposed TSM project should not contradict the overall goals of physical planning in the implementation areas • The proponent will ensure quick restoration of all the disturbed environments after the construction phase

Legal Framework	Relevant environmental obligations	Linkages with the TSM project
	Section 36: The Local Authority Act may if deem necessary require a submission of Environment Impact Assessment report together with development application if they feel the project has some injurious effects on the environment	
Water Act, Cap 372 of 2002 (GoK, 2002)	**Article 20.** (1) Ensuring that state schemes shall take precedence over all other schemes for the use of water or the drainage of land **Part IV:** Addresses the issues of water supply and sewerage **Other legal obligations** • Promoting the conservation and proper use of water resources • Protection of any water resource, its source or catchment	• The project will apply for water abstraction permits from WRMA and comply with all water management plans • The project will ensure maximum rainwater harvesting together with water recovery techniques in production
Energy Act of 2006	The Act provide for the establishment of the Energy Regulatory Commission (ERC) and the Rural Electrification Authority (REA). The ERC is responsible for the regulation of importation, exportation, generation, transmission, distribution, supply and use of electrical energy; and importation, exportation, transportation, refining, storage and sale of petroleum products. The commission also protect the interests of consumer, investor and other stakeholder	The proponent will observe and comply with all the relevant regulations as listed in Column 2

Legal Framework	Relevant environmental obligations	Linkages with the TSM project
Public Health Act, Cap 242 (GoK, 1986)	**Article 129**: Supporting the protection of public water supplies **Article 117:** Supporting the prevention or remedy danger to health from unsuitable activities including dust and noise The Act also prohibits bathing, washing clothes, watering animals, erecting dwellings, sanitary conveniences, stables and cattle kraals, dipping tanks, factories and other works that may pollute water supply. The haphazard disposal of manure, and filth or noxious offensive matter is also covered by the Act	The proponent will observe and comply with all the relevant regulations as listed in Column 2 The proposed TSM sugar factory should not interfere with public water supply systems both during construction and operational phases
The Lands Act (2012) (GoK) 2012	Under this Act, any Trust Land as the one TSM has a lease, is under the custody of the County Government. The Act also mandates the National Land Commission to adjudicate all land matters	The provisions of the Act shall apply in all the land parcels acquired by the proponent in the project site
Employment Act, 2007	The Employment Act declare and define the fundamental rights of employees, to provide basic conditions of employment of employees, to regulate employment of children and to provide for matters connected with the foregoing. The Act declares that: - Priority will be given to the local community in terms of employment opportunities.	Priority for employment shall be given to the local community. Equal opportunity shall be provided to all genders

Legal Framework	Relevant environmental obligations	Linkages with the TSM project
Occupational Safety and Health Act, 2007	This Act applies to all workplaces where any person is at work, whether temporarily or permanently. The provisions of the Act are to ensure that workplaces maintain a safe working environment. Among the requirements are the adequate and sufficient ventilation, lighting and good housekeeping. **Other requirements include:** • Provision of wholesome drinking water. • Provision of suitable personal protective equipment and clothing. • The requirement that workstations suit and fit the worker. • Provision of adequate fire-fighting equipment and precautions against fire. Workplaces should ensure machinery safety, chemical safety and electrical safety.	Failure to comply with the OSHA, 2007 attracts penalties of up to KES 300,000 or 3 months jail term or both or penalties of KES 1,000,000 or 12 months jail term or both for cases where death occurs and is in consequence of the employer
Safety and health committee rules (LN 31)	**Safety and health** The Rules require the creation and management of OHS Committees. The Rules require that the project proponent must have in place an OHS Committee if there are a minimum of 20 persons employed in a work place.	The provisions of the Rules shall apply

Legal Framework	Relevant environmental obligations	Linkages with the TSM project
	The Rules also require that the proponent complies with the following measures: i. Post an abstract of the Act in key sections of the exchange. ii. Provide adequately stocked First Aid Kits in various sections of the service station iii. Ensure that there is an appropriate number of certified first aid staff trained by recognized institution such as the St. John's Ambulance or Kenya Red Cross Society. iv. Provide a general register for recording all incidents and accidents. v. Formation of an S&H Committee of five members from management and five from the workers. All members of the S&H Committee to undergo a DOHSS approved 40 hour induction course. vi. Nominate and formalize an S&H management representative. vii. The S& H Committee must meet at least quarterly, take minutes, circulate key action items on bulletin boards and send a copy of minutes to the DOHSS head office in Nairobi.	

Legal Framework	Relevant environmental obligations	Linkages with the TSM project
	viii. Appropriate record -keeping including maintenance of all current certificates related to inspection of critical equipment such as air compressors, lifts and pulleys. Such inspections need to be undertaken by a competent person certified by the Director of the DOHSS.	
Work Injury Benefits Act (WIBA)	The Work Injury Compensation Benefit Act provides guidelines for compensating employees on work related injuries and diseases contacted in the course of employment and for connected purposes. The Act includes compulsory insurance for employees. The Act defines an employee as any worker on contract of service with employer. The Act requires the contractor should provide medical cover for all his employees during construction phase.	The Provisions of the act shall apply
Use of Poisonous Substances Act Rev. 1983, Cap 247	Sections 3,4,6,8 imposes restrictions and conditions on the use of poisonous substances and requires that persons concerned with storage, transportation and disposal or use of poisonous substances be registered or licensed	The proponent shall adhere to the provisions especially during the operation stage
The Standards Act Cap 496	The Act is meant to promote the standardization of the specification of commodities, and to provide for the standardization of commodities and codes of practice; to establish a Kenya Bureau of Standards, to define its functions and provide for its management and control.	TSM shall ensure that all its commodities and codes of practice utilized in the project adhere to the provisions of this Act

Legal Framework	Relevant environmental obligations	Linkages with the TSM project
Building Code 1997	The Act mandates County Governments the powers to approve building plans.	TSM shall duly comply
Penal Code Cap 63	**Section 191** - States that if any person or institution that voluntarily corrupts or foils water from public springs or reservoirs, rendering it less fit for its ordinary use is guilty of an offence **Section 192** – States that a person who makes or vitiates the atmosphere in any place to make it noxious to health of persons /institution, dwelling or business premises in the neighbourhood or those passing along public way, commit an offence.	TSM shall observe all the environmental management and monitoring plan stipulated in the report as well as the recommendation provided for mitigation/ minimization/ avoidance of adverse impacts arising from the project activities
Kilifi County Government By Laws	Every County has its own Environmental By-Laws	The Proponent shall observe all the relevant County By-Laws

Table 3-3: Permits and Licenses

No.	Legislation	Required Permit
1.	Environmental Management and Coordination Act (EMCA, 1999), Revision 2015 (CAP 387)	• EIA License • Emission licenses • Effluent discharge • Operation of waste disposal • License to generate hazardous waste
2.	Sugar Act, 2001	• License for new sugar facilities by the Kenya Sugar Board
3.	Water Act, 2002 Water Resource User Association (WRUAs) is established to manage and conserve water at the lowest level WRMA licenses water abstraction from river and ground water	• Water Permit
4.	Standard Act, Cap 496	• Standardization permits from KeBS
5.	Public Health Act, Cap 242	• Licenses eating places such as restaurants and canteens
6.	Occupational Safety and Health Act of 2007	• Registration of Workplace • Respective H&S Audits
7.	Physical Planning Act, Cap 286	• Development approval

Table 3-4: National and County Strategic Plans

Policy, Plan or Strategy	Relevant environmental obligations	Linkages with the TSM project
Vision 2030 (GoK, 2008)	• The economic pillar in the Second MTP consists of six priority sectors: tourism; agriculture, livestock and fisheries; trade; manufacturing; BPOs/ITES; oil and other minerals. • MTP II - Trade within and outside the country remains a priority sector of the economic pillar. • MTP II - Under education, ECDE will be mainstreamed and the Government will continue strengthening access to universal primary education and to provide wider access to secondary education for all primary school leavers. • MTP II - In the health sector, the Government in partnership with county Governments, will continue to emphasize primary health care, access to clean water to households, and better management of communicable diseases.	• TSM addresses this priority sector squarely, putting 3,300 hectares under irrigation, by investing in the water supply, irrigation and related drainage, roads and power works. This will enable production of 745,000 MT per annum of sugarcane as well as food crops. • TSM squarely addresses this priority sector by setting up a primary and secondary school as well as a technical training center and an agricultural training center to be commissioned in 2020. • TSM squarely addresses this priority sector by setting up a healthcare center and working with the GoK & the Kilifi County Government to achieve significantly lower incidences of Tuberculosis and Malaria, as well as to achieve almost full immunization for the people of Kilifi County.

Policy, Plan or Strategy	Relevant environmental obligations	Linkages with the TSM project
		• TSM therefore more than meets the fundamental requirements of the Economic and Social pillars of Vision 2030 and should be recognized and treated as Vision 2030 Flagship project.
Kilifi County's Government development strategy	The Kilifi County Government's development strategy of achieving economic transformation for a shared prosperity covers 5 broad pillars. • **Pillar I:** Investing in agricultural transformation and food security. • **Pillar II:** Access to quality healthcare services and education • **Pillar III:** Transport, energy and water environment, forest and natural resources for inclusive growth • **Pillar IV:** Creating conducive business environment for employment • **Pillar V:** Further entrenching devolution for better service delivery.	• TSM strategy of setting up this project complements the developmental strategy plan of Kilifi County Government by putting more land under irrigation, generating renewable energy, creating infrastructure for primary and secondary education and also TSM has in place comprehensive plans for wide scale investment in the education sector within the Kilifi County through its corporate social investment agenda. Further, TSM has comprehensive plans to boost health facilities within the Kilifi County, which will largely compliment the Government agenda for affordable health care.

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 km^2.

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 TSM 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.

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

Temperature

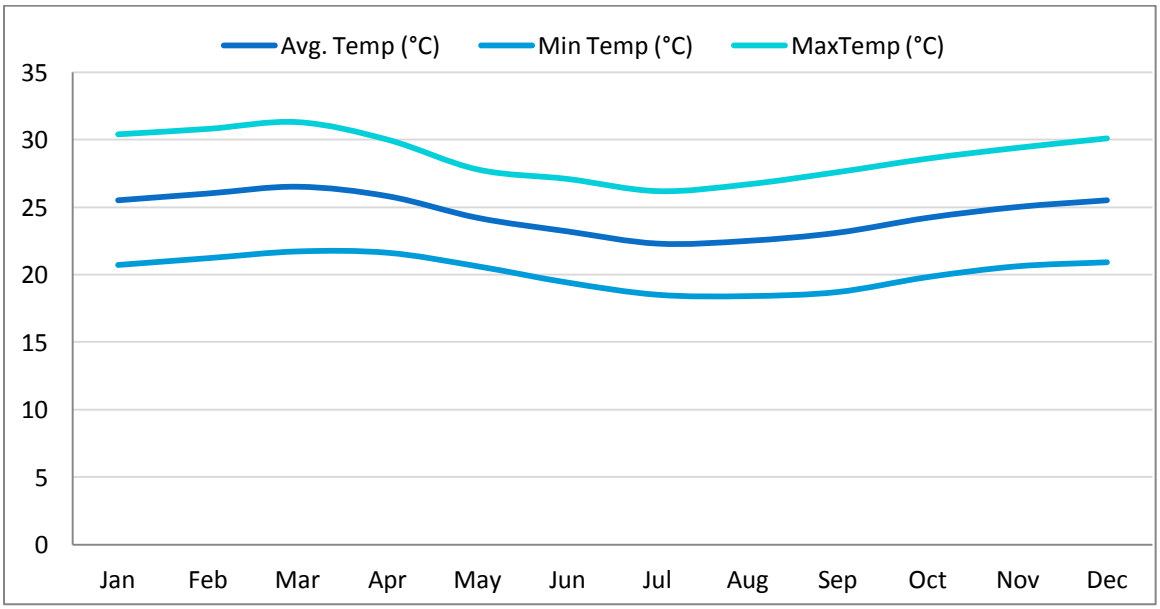
The area where the farm and sugar mill are located is within the tropical climate zone. The mean monthly temperature for the area shows a narrow range of variation between the coldest month (July – 22.3^{o}C) and the hottest month (March – 26.5^{o}C). January, February, March, April and December records some of the highest temperatures while July, August and September records the lowest temperatures.

The table below shows the average temperatures while Fig shows the data graphically. (Source: https://en.climate.org):

Table4.2. Mean Monthly Temperature

	Jan	*Feb*	*Mar*	*Apr*	*May*	*June*	*July*	*Aug*	*Sept*	*Oct*	*Nov*	*Dec*
Avg. Temp(°C)	25.5	26	26.5	25.8	24.2	23.2	22.3	22.5	23.1	24.2	25	25.5
Min Temp(°C)	20.7	21.2	21.7	21.6	20.6	19.4	18.5	18.4	18.7	19.8	20.6	20.9
Max Temp(°C)	30.4	30.8	31.3	30.0	27.8	27.1	26.2	26.7	27.6	28.6	29.4	30.1

Figure 4.1: Mean Monthly Temperature



4.3 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 runs along the property

4.4 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.

4.5 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.

Plate 4.2: Proposed Factory Location

4.6 Air Quality

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

4.7 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.

4.8 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 (subject to terms), 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

4.9 Electricity

The electricity supply will be from KPLC. The demand will be determined at the start of construction. Upon completion, the sugar complex shall generate its own power while exporting surplus power to the national grid.

4.10 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

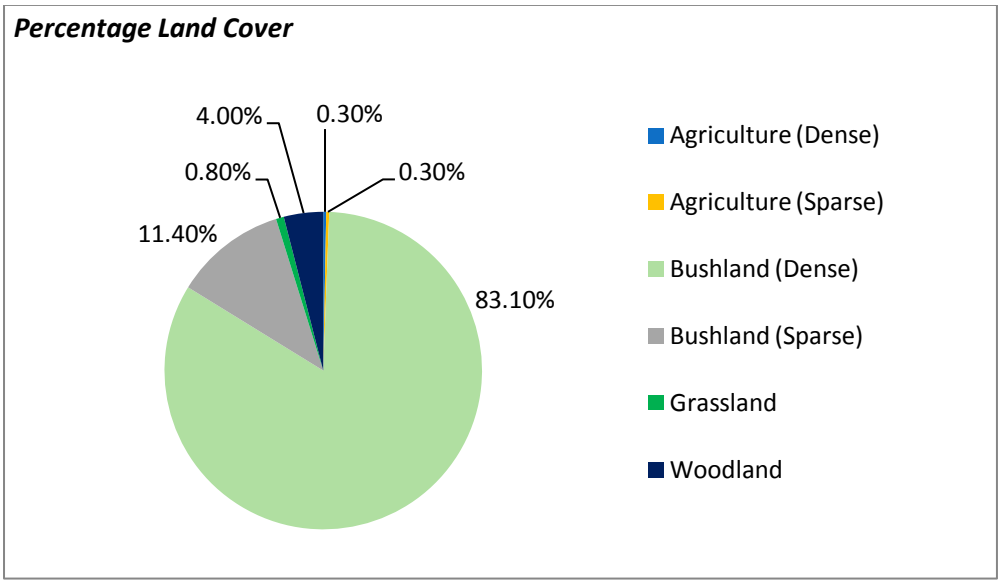


Plate 4.4: Farming along the River Sabaki

Plate 4.5: Livestock belonging to nomadic pastrolists

4.11 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 2017 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:

A. County Director of Water Affairs – Kilifi County
B. County Director Culture – Kilifi County
C. Social Services Department
D. Kilifi County CEC – Wildlife, Forestry, Environment & Natural Resources
E. Kilifi County Ag. CEC - Agriculture and Land
F. NEMA CDE – Kilifi County
G. MCA – ADU Ward, Kilifi County Assembly
H. Subcounty Administrator – Magarini Subcounty
I. 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 based sugar complex 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 TSM 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 healthcare 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 by-products will include ash which can be used to fertilize the soil.

H. The establishment of sugar mill 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

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

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.

Pollution

The proponent was required to ensure that such emissions are controlled well to avert any form of environmental pollution.

Industrial Development

The respondents noted that the proposed Project will enhance industrial development in Matolani 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 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.

5.5 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.

6 ACTIVITIES AND POSSIBLE IMPACTS

6.1 Introduction

This Chapter identifies and discusses both positive and negative impacts associated with the construction and operation of the proposed TSM sugar complex. On-site and off-site impacts can occur due to project location, and during construction, operation and decommissioning phases of the proposed Project. Identification and assessment of impacts depend on the nature and magnitude of the activity being undertaken and also on the type of pollution control measures that are envisaged as part of the Project proposal. The impacts are identified according to phases namely: Impacts during construction, operation and decommissioning phases. The activities that will take place in the course of this project and the waste generated are specific to each of the phases: the planning, construction, decommissioning and operation/usage phases.

6.2 Pre-construction and construction

The pre-construction phase will be concerned mainly with planning and feasibility studies such as soil and water quality surveys, design, environmental impact assessment and resettlement action plan. The construction phase will include erection of structures and buildings and installation of plant and equipment.

Masonary & concrete work

There will be construction of the perimeter wall, walls, foundation, floors, pavements, drainage systems and parking area among other components of the project that will involve masonry work. General masonry and related activities will include stone shaping, concrete mixing, plastering, and slab construction and curing of fresh concrete surfaces within the inside of the building. These are labour intensive activities but will be supplement by machinery such as concrete mixers.

Electrical works

Electrical work during the modification of the premises will include installation of electrical gadgets and appliances including electrical cables, lighting apparatus, sockets etc. in addition, there will be other activities involving the use of electricity such as welding and metal cutting.

Plumbing

Installation of pipe work for water supply and distribution will be carried out within the inside of the buildings. In addition, pipe work will be done to connect sewage from the premises to the ETP system, and for drainage of storm water from the rooftop into the peripheral storm water drainage system and the proposed soak pits in the area. Plumbing activities will include metal and plastic cutting, the use of adhesives, metal grinding and wall drilling among others.

Fixing of machinery

Machinery that will be used during the operation will be fixed during this phase.

6.3 Positive impacts during construction phase

A number of positive impacts are associated with the proposed Sugar factory during construction phase. These are as discussed below.

Employment opportunities

The proposed Project will directly and indirectly create employment for a number of workers, especially casual workers within Matolani. However, the exact number cannot be predetermined at this stage. Though the employment will be temporary, those who will be employed will earn income hence use the money to satisfy some of their needs.

Provision of market for supply of building materials

The Project will require supply of large quantities of building materials most of which will be sourced locally in Magarini and in the surrounding areas. Producers and suppliers of materials such as building stones, timber, electrical cables, paint, sand, and cement will thus get market for their goods. This provides ready market for building material suppliers such as quarrying companies, hardware shops and individuals with such materials. However, the hard rocks that will be excavated from the site during construction will also be reused.

Provision of market for food vendors and owners of nearby business premises

The construction workers will attract food vendors in the area to supply food to the construction workers. The food vendors will therefore increase their sales and income as a result of selling food to the construction workers. In addition, the owners of the nearby business premises are also likely to benefit as a result of the construction workers purchasing some of the items from their shops.

6.4 Negative impacts during construction phase

The following negative impacts are also associated with the construction of the proposed Project.

Local increase of construction traffic

The construction of the proposed Project will make local increase of construction traffic inevitable. This is as a result of the movement of the construction vehicles and machines in and out of the construction site as the construction site is about 1.5 km to Matolani – Hawa Wanje Road. However, there is unlikely to be significant increased traffic jam as a result of the construction vehicles turning to the proposed Project site since the road is not busy.

Noise pollution and vibration

Noise pollution and vibration is likely to occur due to site excavation, grading and offloading of construction materials at the proposed site. Noise pollution and vibration is also likely to occur as a result of excavation activities, use of porker vibrator, use of mixers and communication from construction workers on site. Since the proposed Project site is within already constructed commercial and industrial premises, the proposed Project construction will be a potential source of disturbance to the neighbors both week days and weekends. However, since excavation will be manual and explosives are not likely to be used, adverse impacts to the construction workers and neighboring residents will not be experienced.

Occupational health and safety

Construction sites always present an element of danger. Construction workers are likely to encounter accidental injuries as a result of the intensive engineering and construction activities including erection and fastening of materials, metal grinding and cutting, concrete work, steel erection and welding among others. Such injuries can result from accidental falls from high elevations, injuries from hand tools and construction equipment cuts from sharp edges of metal sheets and collapse of building sections among others. Deaths have also been experienced as a result of poor construction activities leading to occupational health and safety concerns.

Workers are also likely to be exposed to diseases from building materials during the construction phase of the Project. It is therefore recommended that before the construction phase of the proposed Project commences, building materials will be inspected according to the occupational health and safety standards.

Occupational health and safety of the workforce will have to be monitored by the respective contractor's supervisors and foremen. As long as proper procedures are followed and personal protective equipment (PPE) provided and their use enforced, risks of accidents and incidents can be substantially reduced.

Impact on air quality

Potential impacts on the air quality during construction phase will be due to exhaust and dust emissions generated in and around the construction site by the construction equipment. Motor vehicles used to mobilize materials for construction and operating of construction vehicles and equipments would cause a potentially significant air quality impact by emitting pollutants through exhaust emissions.

The sources of air emission can be grouped into three categories namely:

- Point Source;
- Area Source; and
- Line Source.

A point source is a single source of emission with an identified location; an area source is when the sources of emission are many widely distributed point sources having relatively comparable significance; and a line source is when the sources of emission from a number of fixed or moving facilities have relatively comparable significance, such as roads.

Dust emission is likely to occur during demolition of any existing structures and site clearance, excavation and spreading of top soil during construction of the proposed sugar factory especially if the activities are taking place during dry seasons. However, there will be very small possibility of particulate matter (PM) suspended and settleable particles affecting the site workers and even neighbors health, since construction method of minimum excavation and nil cart away of soil will be applied and only residual material and debris carted away.

During the period of maximum construction activity, the fuel consumption at the Project site is expected to rise significantly and the background concentrations of Suspended Particulate Matter (SPM), Respiratory Particulate Matter (RPM), Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_2) and both Carbon Monoxide (CO) and Lead (pb) are also expected to rise.

These emissions can have significant cardio-pulmonary and respiratory effects on the local population; the health effects may range from subtle biochemical and physiological changes to difficulty in breathing, wheezing, coughing and aggravation of existing respiratory and cardiac condition. The impact of such emissions can be greater in areas where the materials are sourced and at construction site. Activities associated with site clearance, excavations, spreading of the top soil during construction, frequent vehicle turning and slow vehicle movement loading and off- loading areas can be implicated in this process. Table 6-1 below is a summary of the impact of these emissions on human health.

Table 6-1: Summary of impacts of emissions

Pollutant	Source	Primary Impacts
Sulphur Dioxide (SO_2)	• Combustion of sulphur containing fossil fuels for: ○ Construction equipment ○ Vehicle ○ Diesel engine	✓ Plant injury ✓ Reduced visibility ✓ Deterioration of metals, textiles, leather, finishes and coatings ✓ Aggravation of respiratory diseases(asthma, emphysema) irritation
Nitrogen Oxides (NO_X)	• Combustion of fossil fuel from: ○ Construction equipment ○ Vehicles ○ Diesel generators	✓ Aggravation of respiratory illness ✓ Reduced visibility ✓ Reduced plant growth ✓ Formation of acid rain
SPM (Dust)	• Construction activities • Combustion of fossil fuels for construction equipment, vehicle and diesel generators	✓ Soiling ✓ Reduced visibility ✓ Aggravation of the effects of gaseous pollutants ✓ Increased cough and chest discomfort ✓ Reduced lung function ✓ Aggravation of respiratory and cardio-respiratory diseases
Carbon Monoxide (CO)	• Combustion of fossil fuels from ○ Construction equipment ○ Vehicles ○ Diesel Generators	✓ Plant injury ✓ Reduced visibility ✓ Deterioration of metals, Textiles, Leather, finishes, coatings ✓ Irritation of eyes ✓ Aggravation of respiratory diseases(asthma, emphysema)

Even then, dust and exhaust gas emissions from construction machineries will be small and temporary. Therefore, no adverse impacts, except for those close to the construction site, are likely to be affected. On completion of construction, the adverse impacts of SPM, RPM and engine emissions on ambient air close to the construction site will be eliminated.

Disposal of solid waste

Construction activities create solid wastes that need to be disposed. Such wastes include:

i. Excavated materials from the earth works;

ii. Timber from used formwork;

iii. Paints, lubricants and petroleum wastes;

iv. Containers, cement paper bags and other packaging materials;

v. Metal, glass, plastic containers and other unwanted materials; and

vi. Food remains.

Soils will be excavated at the proposed Project site; the excavation works to level the site and to come up with the basement will result in the generation of the excavated material.

These wastes may have a direct impact on the neighboring premises. Disposal of the same solid wastes off-site could also be a social inconvenience if done in wrong places. The offsite effects could be un-aesthetics view, pest breeding, unhygienic conditions, chocking of nearby drains and stream and pollution of physical environment. Proper waste management will however be taken into consideration and proper dumping done according to the requirements and directions of the County Government and NEMA.

Increased water demand

During the construction phase, the construction works will create additional demand for water in addition to the existing demand at the project area. Water will mostly be used in the following activities:

- Concrete works including curing;
- Controlling dust on site;
- Washing of machinery and equipment;
- Preparing of mixtures, including water based emulsion paints;
- Washing and drinking by construction workers;
- General cleaning; and
- Landscaping.

Increased water demand could result in increased Project costs, increased health risks, and increased soil erosion if not properly managed.

Energy consumption

The proposed project will consume fossil fuels to run transport vehicles and construction machinery. The machinery will include: construction vehicles and compactors. Fossil energy is non-renewable and its excessive use may have serious environmental implications on its availability, price and sustainability. Electricity will also be used during the construction of the proposed Project. The consumption of electricity is likely to be on the higher side. It should be noted also that manual labour as a source of energy will mainly be used during construction of the proposed Project. Efficient management of energy consumption is therefore required for optimal performance of the Project and to control Project costs.

Increased storm water runoff from new impervious areas

Construction of the proposed Project and access driveway could result in additional runoff through creation of impervious areas. These areas generally have higher runoff coefficients than natural area, and increased flood peaks are a common occurrence in developed areas. The storm water runoff is likely to increase the flooding along access roads.

Extraction and use of building materials and procurement

Building materials such as hard core, ballast, cement, rough stone and sand required for the construction will be obtained from quarries, hardware shops and sand harvesters. These materials are mainly extracted from natural resource bases such as river banks, and forests among others. Since substantial quantities of these materials will be required. The availability and sustainability of such resources at the extraction sites will be negatively affected as they are not renewable in the short term. In addition, the sites from which the materials will be extracted may be significantly affected in several ways including landscape changes, displacement of animals and vegetation, poor visual quality and opening of depressions on the surface leading to several human and animal health impacts.

Certain construction materials are also hazardous and expose the construction workers to diseases. These include materials or substances made of asbestos, silica, heavy metals (such as lead and cadmium). It is therefore recommended that before the construction phase of the proposed Project commences, building materials will be inspected according to the occupational health and safety standards.

Oil spills

The machines to be used on site will have moving parts which will require continuous oiling to minimize the usual corrosion or wear and tear. Possibilities of such oils spilling and contaminating the soil on site are real. Likewise, moving vehicles on site may require oil change leading to oil spills. Irrespective of these possibilities, no significant adverse effects are expected as a result of oil spills given the scope, nature and duration of time to be taken on the construction of the proposed Project.

6.5 Positive impacts during operation phase

Just as in the construction phase, there are positive impacts associated with the construction of TSM Sugar complex during operation phase. These positive impacts are discussed below:

Employment opportunities

Employment creation is one of the major impacts of the proposed Project during its operational phase. Technicians and operators will be employed in the project. Those contracted or employed will generate income as a result of being employed or contracted.

Optimal use of land

The proposed sugar complex project will enhance economy of land through intensification of land use in addition to provision of sugar and related by-products. This will be significant since the country is currently experiencing shortage of sugar and related by-products.

Increase in revenue to the national and County Government

The operation of the proposed Project will result in positive gains for numerous authorities. The Kilifi County Government, Kenya Revenue Authority (KRA), Kenya Power and Lighting Company (KPLC), Kenya Sugar Board (KSB) through payment of relevant taxes, rates and fees to respective institutions.

Improved amenities

The operation of the proposed sugar complex project is expected to improve amenities such as roads, water, health care and social facilities in the surrounding area in that the proposed Project will construct schools, a health center, water points and support the needy in the society.

Increased market for sugar and related by-products

The farmers and the general consumer community are likely to benefit from the operation of the sugar complex since wholesalers who will purchase sugar, by-products and by-products products from the factory premises will improve their sales.

6.6 Negative impacts during operation phase

The following negative impacts are associated with the proposed sugar complex during its operation phase.

Increased water use

The industrial activities during the operation phase of the Project will involve use of large quantity of water. This will increase the water demand in project area.

Disposal of waste water

Since the disposal of waste water will be directed to the effluent treatment plant, if the plant is not efficient enough it may require alternative treatment, which may be costly. However, since the factory will use the proposed effluent treatment plant; it is anticipated that the plant will work efficiently. Treated effluent will be used for irrigation of sugarcane plantation.

Increased storm water flow

Upon completion, the building roofs and pavements of the Project will lead to increased volume and velocity of storm water or run-off flowing across the area covered by the proposed Project.

Impact on air quality

Potential impacts on the air quality during operation phase will be due to exhaust and dust emissions generated in and around the plant by the ovens, furnaces and other machinery.

Motor vehicles used to mobilize materials and equipments would cause a potentially significant air quality impact by emitting pollutants through exhaust emissions.

During the period of operation, the fuel consumption at the Project site is expected to rise significantly and the background concentrations of Suspended Particulate Matter (SPM), Respiratory Particulate Matter (RPM), Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_2) and both Carbon Monoxide (CO) are also expected to rise.

These emissions can have significant cardio-pulmonary and respiratory effects on the workers; the health effects may range from subtle biochemical and physiological changes to difficulty in breathing, wheezing, coughing and aggravation of existing respiratory and cardiac condition.

Generation of solid waste

Operation activities create solid wastes that need to be disposed. Such wastes include:

- Paints, lubricants and petroleum wastes;
- Packaging materials;
- Metal, glass, plastic containers and other unwanted materials; and
- Food remains.

These wastes may have a direct impact on the immediate surrounding and neighboring premises. Disposal of the same solid wastes off-site could also be a social inconvenience if done in wrong places. The off-site effects could be un-aesthetics view, pest breeding, unhygienic conditions, chocking of nearby drains and stream and pollution of physical environment. Proper waste management will however be taken into consideration and proper dumping done according to the requirements and directions of the County Government and NEMA.

Energy consumption

The proposed Project will consume fossil fuels to run and heat the machinery, lighting and other operations. Fossil energy is non-renewable and its excessive use may have serious environmental implications on its availability, price and sustainability. Electricity will also be used during the operation of the proposed Project. The consumption of electricity is likely to be on the higher side. It should be noted also that manual labour as a source of energy will mainly be used during operation of the proposed Project. Efficient management of energy consumption is therefore required for optimal performance of the Project and to control Project costs.

Oil and fuel spills

The machinery to be used in the plant will have moving parts which will require continuous oiling to minimize the usual corrosion or wear and tear. Possibilities of such oils spilling and contaminating the soil on site are real. Likewise, combustion processes would require fuels, which may lead to fuel spills. Irrespective of these possibilities, no significant adverse effects are expected as a result of fuel and oil spills given the scope, nature and duration of time to be taken on the operation of the proposed Project.

Occupational health and safety risks

Workers are likely to encounter various occupational risks ranging from physical to biological and chemical hazards at the plant.

Accidents, injuries and falls

The employees are likely to encounter accidental injuries as a result of the intensive engineering and plant operation activities. Such injuries can result from accidental falls from high elevations, injuries from hand tools and operation equipment cuts from sharp edges of metal sheets among others.

Noise pollution and vibration

Noise pollution and vibration is likely to occur due to leveling and casting process at the proposed site. Since the proposed Project site is within already constructed commercial and industrial premises, the proposed Project construction will be a potential source of disturbance to the neighbors both week days and weekends. However, since there are noise abatement measures, adverse impacts to the workers and neighboring premises will be controlled.

Thermal effect

Operation of the proposed project would involve the use of ovens and furnace which burn at very high temperatures and can easily cause thermal effects to the workers. The effects could be acute to chronic with different degrees of burning.

Ergonomic effects

The relationship between the working posture and the machinery would affect the workers muscles and joints. The machinery should be designed to minimize adverse effects of poor working posture among the workers in the plant.

6.7 Positive impacts during decommissioning phase

The following positive impacts are associated with the proposed Project during the decommissioning phase:

Rehabilitation

Upon decommissioning of the proposed Project, rehabilitation of the Project site will be carried out to restore the site to its original status or to a better state than it was originally. This will include replacement of topsoil and re-vegetation which will lead to improved visual quality of the area.

Employment opportunities

For demolition to take place properly and in good time, several people will be involved. As a result several employment opportunities will be created for the demolition staff during the decommissioning phase of the proposed Project.

6.8 Negative impacts during decommissioning phase

The following three negative impacts discussed below, are associated with the proposed Project during its decommissioning phase.

Noise and vibration

The demolition works will lead to significant deterioration of the acoustic environment within the Project site and the surrounding areas. This will be as a result of the noise and vibration that will be experienced as a result of demolishing the proposed Project.

Solid waste generation

Demolition of the proposed Project and related infrastructure will result in large quantities of solid waste. The waste will contain the materials used in construction including concrete, metal, drywall, wood, glass, paints, adhesives, sealants and fasteners. Although demolition waste is generally considered as less harmful to the environment since they are composed of inert materials, there is growing evidence that large quantities of such waste may lead to release of certain hazardous chemicals into the environment. In addition, even the generally non-toxic chemicals such as chloride, sodium, sulphate and ammonia which may be released as a result of leaching of demolition waste, are known to lead to degradation of groundwater quality.

Occupational health and safety impacts

During decommissioning phase, risks of accidents and ill health as a result of demolition activities are likely to take place. Demolition workers, neighboring premises are also likely to be affected by the dust generated and other fumes generated by the demolition machines.

6.9 Summary of anticipated impacts

Table 6-2 below summarizes the anticipated impacts and their magnitude right from the Project setting to decommissioning.

Table 6-2: Summary of anticipated impacts

S/No	Impact	Activity/ area and pollutant source	Negative Impacts		Positive Impacts		No Impact
			Short Term	Long Term	Short Term	Long Term	
A.	**CONSTRUCTION PHASE**						
1	Employment opportunity	Skilled labour, unskilled and semiskilled labour.			✓		
2	Provision of market for supply of building materials	Making available the raw materials needed for construction of the proposed Project.			✓		
3	Provision of market for food vendors and owners of the nearby business premises	Supply of food to the construction and purchase of items from the nearby business premises.			✓		
6	Local increase of construction traffic	Transportation of construction materials to site and disposal of demolished material from site.	✓				
7	Noise pollution and vibration	Use of compactors, vibrators and communication from construction workers.	✓				
8	Occupational health and safety	Accidental fall, injuries from falling objects and hand tools etc.	✓				
9	Impact on air quality	Emissions from DGs, SO_2, NO_X, SPM, CO, PM etc.	✓				
10	Disposal of solid and liquid waste	Earth from excavations, food remains and waste water.	✓				
11	Increased water demand	Water used for mixing of concrete and other construction works.	✓				
12	Energy consumption	Use of manual labour, and fuel used in the DGs and other construction machines	✓				
13	Increased storm water runoff from new impervious areas	Storm water runoff from the pavements	✓				

S/No	Impact	Activity/ area and pollutant source	Negative Impacts		Positive Impacts		No Impact
			Short Term	Long Term	Short Term	Long Term	
14	Extraction and use of building materials and procurement	Extraction of sand, ballast, cement etc.	✓				
15	Oil spills	From construction machines	✓				
B. OPERATIONAL PHASE							
1	Employment opportunity	Skilled and semiskilled labour, including security guard and landscapers.				✓	
2	Optimal use of land and provision of sugar products	construction of the sugar complex				✓	
3	Increase in revenue to national and local authorities	Through tax paid.				✓	
4	Increase aesthetic value of the surrounding area	Aesthetic of the area.				✓	
5	Increased market to the industrial and business community	Purchase of sugar products by the nearby industrial and business community.				✓	
6	Solid waste generation	Industrial waste		✓			
7	Energy consumption	KPLC main				✓	
8	Increased water use	Industrial water use		✓			
9	Disposal of waste water	Water for use in the production processes, and sanitation		✓			
10	Increased storm water flow	Rainfall.		✓			
C. DECOMMISSIONING PHASE							
1	Rehabilitation	Landscaping or conversion of the area to other uses.				✓	
2	Employment opportunities	Skilled, semi skilled and unskilled labour.			✓		
3	Noise and vibration	Demolition activities.	✓				
4	Solid waste generation	Demolition activities.	✓				
5	Occupational health and safety impacts	Accidental fall, injuries from falling objects and hand tools, dusts emissions can lead to respiratory diseases.	✓				
6	Reduction of industrial facilities	Demolition of industrial facilities	✓				

Occupational Health and Safety Management

Tembo Sugar Mills Limited needs to recognize that some activities of any premises, organization or an individual leave an impact on the environment. In this respect, there is need to focus on reducing the environmental, health and safety impact of a number of activities through a programme of continuous improvement.

In this respect their environmental policy should focus on the following:-

- Quantify and monitor all environmental impacts of the factory including any other new projects, and set specific targets;
- Comply with current legislations and, where practical, seek to meet future legislative requirements ahead of relevant deadlines;
- Integrate environmental, health and safety objectives into relevant business decisions in a cost-efficient manner;
- Require all employees to address environment, health and safety responsibilities within the framework of normal operating procedures;
- Minimize waste, seek to recover as much as is economically practical and ensure the remainder is disposed of responsibly;
- Maintain the appropriate emergency response plans for major incidents in order to minimize their environmental and safety impact;
- Influence suppliers of services and own-brand goods to reduce their impact on the environment;
- Enhance awareness of relevant issues among employees, clients, guests, colleagues and others who have an interest in the business;
- Document information on EHS performance.

Table 6-3: Health and Safety Concerns during Operational Phase

Objective: Compliance with relevant health and safety standards/requirements

Approval of building plans	• It is a legal requirement that all buildings be approved by the Local Authority and the local Occupational Health and Safety Office.
Registration of the premises	• Registration of the facility under the Occupational Safety and Health Act of 2007, Laws of Kenya is mandatory.
General register	• A general register should be kept within the facility as stipulated in OSHA, 2007.
Repeat of Incidents, accidents and dangerous occurrences	• Provisions for reporting incidents, accidents and dangerous occurrences should be in place. This should be done in prescribed forms obtainable from the local Occupational Health and Safety office
Insurance	• The premises should be insured as per statutory requirements (third party and workman's compensation).
Health and safety committee	• Provisions must be put in place for the formation of a Health and Safety Committee, in which the employer and the workers are represented
Medical Examinations for all employees	• Arrangements must be in place for the medical examination of all employees before, during and after termination of employment especially for those working under thermal stress and for those working near smoke.
Safety of personnel	• All machines and other moving parts of equipment must be guarded to protect all workers from injury
Emergency/ hazard response/ preparedness plans **First Aid**	• There must be well designed and documented emergency preparedness plans including fire emergency procedures • Well stocked first aid boxes which are easily available and accessible should be provided in the premises • Provision must be made for persons to be trained in first aid, with a certificates issued by a recognized body. • There should be the most current emergency telephone numbers poster prominently displayed within the premises.

Fire protection	• Fire fighting equipment such as fire extinguishers and hydrant systems should be maintained at strategic locations within the factory. • Regular inspection and servicing of the extinguishers must be undertaken by a reputable service provider and records of such inspections maintained • Signs such as "NO SMOKING" must be prominently displayed within the premises, especially in parts where inflammable materials are handled • Train fire marshalls on fire fighting • Restrict entry of persons to the workplaces with fire such as the kiln and the mills
Emergency exits	• Maintain at least 2 emergency exits per floor • All the emergency exits should open outwards and be marked in RED and aisles should be clear of slip, trip and fall hazards
Personnel Protective Gear (PPG)	• Provisions for suitable overalls, safety footwear, dust masks, gas masks, respirators, gloves, ear protection equipment etc should be made available and the personnel must be continuously trained to use the equipment. People working under hot temperatures should be provided with clothing such as to prevent them from excess heat. They should also work in short time shifts
Housekeeping	• Floor areas should be free of debris, spillage and tripping hazards
Ergonomics	• Chairs must have a proper backrest to provide lower back support • Provision for repairing and maintaining of hand tools must be provided • Hand tools must be of appropriate size and shape for easy and safe use • Height of equipment, controls or work surfaces should be positioned to reduce bending posture for standing workers • Work tables of suitable height should be provided for seated workers to avoid too high or to low hand positions

7 MITIGATION MEASURES AND MONITORING PLANS

7.1 Overview

This Chapter highlights the mitigation measures for the anticipated negative impacts of the proposed Sugar complex. The potential impacts and the possible mitigation measures have been analyzed under three categories: construction phase, operational phase and decommissioning phase.

7.2 Mitigation of construction related impacts

The following measures can be considered as mitigation measures of the negative impacts associated with the proposed Project during construction phase.

Reduction of local construction traffic

The proponent through the contractor will put measures in place to mitigate the local traffic jam that will occur in the project are as a result of the construction vehicles turning to offload the raw materials to the site and after offloading the raw materials. To minimize the local construction traffic, construction vehicles will enter and leave the site at appropriate times. The contractor will also use signs and barriers to direct vehicles and pedestrian traffic as needed around the construction site. Some activities may also be scheduled in offpeak traffic times to minimize impacts.

Minimization of noise and vibration

Significance of noise and vibration impacts depends on whether the project would increase noise and vibration levels above the existing ambient levels by introducing new sources of noise and vibration. Noise and vibration impacts would be considered significant if the project would result in the following:

- Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

- Exposure of persons to, or generation of, excessive ground-borne vibration or groundborne noise levels.
- A substantial permanent increase in ambient noise levels (more than five dBA) in the project vicinity above levels existing without the project.
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

The Proponent of the proposed Project shall put in place several measures that will mitigate noise pollution and vibration arising during the construction phase. The following noise suppression techniques will be employed to minimize the impact of temporary construction noise at the Project site.

A. Install portable barriers to shield compressors and other small stationary equipment where necessary.

B. Prescribe noise reduction measures if appropriate e.g. restricted working hours, transport hours and noise buffering.

C. Consult with the surrounding community on the permissible noise levels and best working hours.

D. Use quiet equipment (i.e. equipment designed with noise control elements).

E. Co-ordinate with relevant agencies regarding all construction activities in the Project area. Limit pickup trucks and other small equipment to a minimum idling time and observe a common-sense approach to vehicle use, and encourage workers to shut off vehicle engines whenever possible.

F. Construct mainly during the day. The time that most of the neighbors are out working.

Minimization of occupational health and safety impacts

To reduce the occupational health and safety impacts during the construction phase of the proposed Project, the Proponent through the Contractor is committed to adherence to the occupational health and safety rules and regulations stipulated in Occupational Safety and Health Act, 2007. In this regard, the Proponent is committed to provision of appropriate personal protective equipment, as well as ensuring a safe and healthy environment for construction workers as outlined in the Environmental Management Plan (EMP). Construction Workers accidents especially in deep trenching operations and elevated areas shall be mitigated by enforcing adherence to safety procedures and preparing contingency plan for accident response in addition, safety education and training shall be emphasized.

Minimization of air quality impacts

Air quality impacts generated from exhaust emissions and dust emissions will be minimized as follows. The following measures shall be implemented during construction to minimize the exhaust emission:

- The engine size of the construction equipment shall be the minimum practical size;
- The number of construction equipment operating simultaneously shall be minimised through efficient management practices;
- Vehicle idling time shall be minimized; and
- Equipment shall be properly tuned and maintained as per the manufacturer's specifications.

This will also be achieved through proper planning of transportation of materials to be used during construction of the proposed Project to ensure that vehicle fills are increased in order to reduce the number of trips done or the number of vehicles on the road.

Dust emissions from construction sites can also pose health risk to workers, and sensitive receptors surrounding the site, if not managed properly. It is the responsibility of the contractor to provide appropriate safety training, information equipment, signage, security and emergency response plans on site.

To mitigate the impact of SPM (dust), the following measures are recommended for implementation:

- Applying water to at least 80% of all inactive accessible disturbed surface areas on a daily basis when there is evidence of wind driven dust;
- Watering all roads used for any vehicular traffic at least twice per day of active operations or road used for any vehicular traffic once daily and restrict vehicle speed to 15 mph;
- Down wash of trucks (especially tyres) prior to departure from site;
- Cover stockpiles of sand, soil and similar materials or surround them with wind breaks;
- Cover trucks hauling dirt and debris to reduce spillage on to paved roads surface or have adequate free board to prevent spillage;
- Post signs that limit vehicle speeds onto unpaved roads and over disturbed soils; and
- Rapid onsite construction so as to reduce duration of traffic interference and therefore reduce emissions from traffic delays.

Minimization of solid waste during construction phase

The Proponent through the Contractor shall put in place measures to ensure that construction materials requirements are carefully budgeted and to ensure that the amount of construction materials left on site after construction is kept minimal. It is further recommended that the Proponent should consider the use of recycled or refurbished construction materials. Purchasing and using once-used or recovered construction materials will lead to financial savings and reduction of the amount of construction debris disposed of as waste.

Additional recommendations for minimization of solid waste include:

- Use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of construction waste generated over time;
- Provision of facilities for proper handling and storage of construction materials to reduce the amount of waste caused by damage or exposure to the elements;
- Use of building materials that have minimal packaging to avoid the generation of excessive packaging waste;
- Use of construction materials containing recycled content when possible and in accordance with accepted standards; and
- Adequate collection and storage of waste on site and safe transportation to the disposal sites and disposal methods at designated area shall be provided.

The proponent through the contractor will also make sure that the construction wastes generated are disposed to the approved dump site by the private waste management company that will be contracted.

Minimization of increased water demand

The Proponent of the proposed Project shall ensure that water is used efficiently at the site by sensitising construction workers to avoid irresponsible water use. The contractor should also harvest rainwater and use in the construction activities. In addition the contractor should:

- Install water conserving taps;
- Promote recycling and reuse of water as much as possible;
- Promptly detect and repair of water pipes and tank leaks; and
- Install discharge meter to determine and monitor total water usage.

However, it should be noted also that apart from the negative impacts likely to be caused by mismanagement of water, increased water demand is inevitable during construction of the proposed Project.

Reduction of energy consumption

The Proponent through the Contractor shall ensure responsible electricity use at the construction site through sensitization of staff to conserve electricity by switching off electrical equipment or appliances when they are not being used. In addition, proper planning of transportation of materials will ensure that fossil fuels (diesel, petrol) are not consumed in excessive amounts. Complementary to these measures, the Contractor shall monitor energy use during construction and set targets for reduction of energy use. The Contractor will also develop energy management plan.

Reduction of increased storm water runoff from new impervious area

The proponent of the proposed Project will put in place some measures aimed at minimizing soil erosion and associated sediment release from the Project site during construction. These measures will include levelling the Project site to reduce run-off velocity and increase infiltration of rain water into the soil. A storm water management plan that minimizes impervious area infiltration by use of recharge areas and use of detention and/or retention with graduated outlet control structures will be designed.

Reduction of impacts at extraction sites and impacts associated with construction materials and procurement.

The Proponent of the proposed Project shall ensure that all building materials such as sand ballast hard core are extracted from registered quarry and sand mining firms whose facilities have undergone satisfactory environmental impact assessment/audit and received NEMA approval. Since such firms are expected to apply acceptable environmental performance standards, the negative impacts of their activities at the extraction sites are presumably well mitigated.

To reduce the negative impacts on availability and sustainability of the materials, the Proponent will only order for what will be required through accurate budgeting and estimation of actual construction requirements. This will ensure that materials are not extracted or purchased in excessive quantities. Moreover, the Proponent will ensure that wastage, damage or loss (through run-off, wind, etc) of materials at the construction site is kept minimal, as these would lead to additional demand for and extraction or purchase materials.

In addition to the above measures, the Proponent shall consider reuse of building materials and use of recycled building materials. This will lead to reduction in the amount of raw materials extracted from natural resources as well as reducing impacts at the extraction sites.

The following should also be taken into consideration:

- The tender documents should specify required standards and certification for procurement of all materials and appliances;
- As far as possible, environmentally friendly and sustainable materials should be used. Materials not to be used for construction of the proposed Sugar factory complex include:
    - High alumina cement;
    - Wood wool slab in permanent formwork to concrete;
    - Calcium silicate bricks or tiles;
    - Asbestos in any form;
    - Asbestos substitutes or any naturally occurring or man-made mineral fibres;
    - Lead, lead paint or any other materials containing lead which may be inhaled, ingested or absorbed;
    - Vermiculite, unless it is established as being fibre-free;

- Any products containing cadmium that are regarded as being injurious substances (refer to the UK Environmental Protection (Controls on Injurious Substances) (No.2) Regulations 1993);
- Any other substances regarded as being deleterious building materials which are not in accordance with statutory requirements or with current accepted good building practice at the time of specification or construction;

- The Contractor should be instructed in the use of all materials that may have negative environmental (including health) effects; and
- If any material or substance is used that is at any point in the future deemed to be deleterious to health, then it must be replaced with an acceptable alternative.

Controlling oil spills during construction Phase

The Contractor shall control dangers of oil and fuel spills during construction by maintaining machinery in specific areas designated for this purpose. Prompt cleaning of oil and fuel spills, and proper disposal of clothing or rags contaminated with oil will also take place.

7.3 Mitigation of negative impacts during operation phase

The anticipated negative impacts of the proposed Project arising during the operation phase shall be mitigated as discussed below:

Ensuring efficient solid and liquid waste management

During operational phase of the Project, scrap metal and waste oils and grease waste will be generated. NEMA has come up with the Environmental Management and Coordination (Waste Management) Regulations, 2006 on how various wastes should be managed.

The effluent treatment facility shall be monitored to ensure consistent efficiency in the emissions from the plant to the receiving environment.

The Proponent of the proposed Project will be responsible for efficient management of wastes generated by the Project during its operation. However, the waste metals, oils and grease will be collected in drums and resold. The Proponent has also designed waste collection facilities. As indicated in the Environmental Management and Coordination (Waste Management) Regulations, 2006, an integrated solid waste management system will be taken into consideration.

Minimization of air quality impacts

Air quality impacts generated from emissions will be minimized by the use of the particulate precipitate. The particulate precipitate will neutralize gaseous emissions and trap particulates to control air pollution. Dust emissions from the operations of the plant can also pose health risk to workers, and sensitive receptors surrounding the site, if not managed properly. It is the responsibility of the contractor to provide appropriate safety training, information equipment, signage, security and emergency response plans at the factory.

Minimization of energy consumption

Energy conservation measures are often the easiest, quickest and cheapest way to reduce costs and be environmentally pro-creative. Energy conservation program will be implemented through measures taken both on energy demands and supply.

- The following measures will be put in place to ensure effective and optimal use of energy: Selecting the most efficient lighting system design and minimum lighting level appropriate for the required application in various stages of industrial processes;
- Adopting the most effective lighting controls to ensure optimum operating efficiency and minimum energy wastage, e.g. central programmable time switches;
- Installing energy saving appliances e.g. energy saving bulbs; and

- Maximizing the contribution of daylight to reduce the use of artificial lighting. However, when dealing with the energy saving bulbs the following should be taking into consideration when one falls on the floor and breaks:
  - The new eco-friendly bulbs contain toxic mercury.
  - Toxic mercury inside the bulbs can aggravate a range of problems including migraines and dizziness hence everyone must leave the room for at least 15 minutes if one falls to the floor and breaks.
  - Evacuate the room, taking care not to step on the shards of glass littering the floor.
  - Do not use a vacuum cleaner to clear up the mess as the machine's sucking action could spread toxic mercury droplets around the rooms.
  - Put on rubber gloves and sweep the debris into a dustpan.
  - Place the remains in a plastic bag and seal it.
  - Do not put the bag in a normal household dustbin.
  - Try not to inhale dust from the broken bulb.

Efficient water use

A combination of water saving appliances and water management measures will be planned and implemented within the proposed sugar factory complex. Specific measures that will be implemented include the following:

- Re-use the water for cooling purposes;
- Promote awareness on water conservation and reducing water wastage;
- Quick fixing of licking pipes; and
- Sweep with a broom and pan where possible, rather than hose down external areas.

The following water saving investments should be taken into consideration:

- Reduce water delivery in taps, through the installation of low flow devices or aerators on taps;
- A manually pressed button flush valve which stops on release of button; and
- Water efficient plumbing fixtures to save water and energy.

Rain water harvesting should be taken into consideration to capture rain water and store. Rain water harvesting helps in utilizing the primary source water and prevent the runoff from going into storm drains and thereby serving dual purpose of:

- Making water available for future use; and
- Reducing the load on other service lines.

Disposal of waste water

The proponent will make sure that the effluent treatment plant to serve the proposed factory complex is well operated and that proper monitoring takes place to make sure that the surrounding environment is not polluted.

Storm water management

Rainwater runoff comprises of storm water, which flows into both surface water and ground water. Proper management of this resource ensures that storm water discharge is free from contamination.

A good storm water management policy should include:

- Good housekeeping to avoid contamination of storm water;
- Provision of silt traps in storm water drains; and
- Regular inspection and cleaning of storm drains.

Minimization of occupational health and safety impacts

To reduce the occupational health and safety impacts during the operation phase of the proposed Project, the Proponent is committed to adherence to the occupational health and safety rules and regulations stipulated in Occupational Safety and Health Act, 2007. In this regard, the Proponent is committed to provision of appropriate personal protective equipment, as well as ensuring a safe and healthy environment for workers as outlined in the Environmental Management Plan (EMP). Workers accidents especially in deep curing operations and elevated areas shall be mitigated by enforcing adherence to safety procedures and preparing contingency plan for accident response in addition, safety education and training shall be emphasized.

7.4 Mitigation of negative impacts during decommissioning phase

Just as in the construction and operational phase, the negative impacts of the proposed sugar factory complex during decommissioning phase can be mitigated as follows:

Minimization of noise and vibration

Significant impacts on the acoustic environment will be mitigated as described in Section 7.2.2.

Efficient solid waste management

Solid waste resulting from demolition works associated with the proposed Project during decommissioning phase will be managed as described in Section 7.2.5.

Minimization of occupational health and safety impacts

Risks of accidents and ill health as a result of demolition activities shall be mitigated by ensuring that appropriate health and safety measures are applied in all activities; fence all unsafe and dangerous areas; and continue to monitor environmental health at all main receptor points around the site until the site handover.

High levels of dust concentration resulting from demolition or dismantling works will be minimized as follows:

- Rehabilitating or stabilize all disturbed areas through tree planting and landscaping;
- Avoiding dusty activities for example loading and dumping on windy days; and
- Continuing to monitor dust emissions in the surrounding areas.

8 ALTERNATIVES INCLUDING THE PROPOSED ACTION

8.1 The proposed Development Alternative

The EIA Project report will be presented to the National Environmental Management Authority. This will help in evaluating and examining the effects of the project on the environment. After the evaluation and under the proposed development alternative, an *Environmental Impact Assessment (EIA) License* would be issued. This way, NEMA would approve for the implementation of the project. However, the development has to ensure that all environmental measures are complied with during the construction period and during occupation and operation.

The alternative consists of the proponent's/applicant's final proposal with the inclusion of the NEMA guidelines and regulations and procedures. This is as stipulated in the Environmental Management and Co-ordination Act (EMCA) of 1999, which aims at reducing environmental impacts to the maximum extent practicable.

8.2 Relocation alternative

Relocation option to a different site is an option available for the project implementation. At the moment, there are no alternative sites for the proposed development (i.e. the project proponent do not have an alternative site). The proponent has to look for the land if relocation is proposed. Looking for the land to accommodate the scale and size of the project and completing official transaction on it may take a long period. In addition, it is not guarantee that such land would be available.

The project proponent would spend another long period of time on design and approvals of the plans by the relevant departments. The Project design and planning before the stage of implementation would call for extra cost; already encountered in the proposed development i.e. whatever has been done and paid to date would be counted as a loss to the proponent. Assuming the project will be given a positive response (after (say) relocation) by the relevant authorities including NEMA, it (project) would have been delayed for a long period before implementation. This would also lead to a situation like No action

Alternative (as explained below). The other consequence of this is that it would discourage both foreign and local investors especially in the Agri sector. In consideration of the above concerns and assessment of the current proposed site, relocation of the project is not a viable option.

8.3 The No Action Alternative

The No Action Alternative in respect to the proposed 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 project proponent/land owner and the Kenyan society and the Government. The property will remain under-utilized.

The No Project Option is the least preferred from the socio-economic and partly environmental perspectives since if the project is not done:

- The economic benefits especially during construction and operation i.e. provision of much needed jobs for skilled and non-skilled workers will not be realized
- There will be no generation of income by the developer and the Government.
- The Government's development policy may not be realized
- The socio-economic status of Kenyans and the local people would remain unchanged.
- The local skills would remain under utilized
- No employment opportunities will be created for Kenyans who will work in the project area.
- Discouragement for investors to produce this level of standard and affordable developments.

From the analysis above, it becomes apparent that the No Project Alternative is not the appropriate alternative to the local people, Kenyans, and the Government of Kenya.

8.4 The comparison of Alternatives

Under the proposed Development Alternative, the project would create more and standard commercial infrastructure, provide business outlets and would provide employment directly and indirectly to the Kenyan population. It would provide jobs for the workers during construction. After completion more jobs would be generated by the businesses within the project. Under the No Action Alternative, there would be no development at all. There would be no benefits from the site and neither would there be the insignificant environmental Impacts.

Provided the Environmental Impact mitigation measures are implemented as well as adoption of sound construction management practices, negative effects on water, soil, air, sound, sewerage and drainage systems will be avoided /minimized. However, commitments related to development alternative would ensure that potential impacts are minimized to levels of insignificance.

8.5 Mitigation for the proposed Action

Mitigation measures include proper handling of the waste material as generated especially during clearing and preparation of the site. The application or adaptation of standard construction management practices is fundamental. Conflicts arising from the foreseen negative impacts will be solved through consultation with the neighbours/public; by explaining the mitigation measures prescribed for the impacts. In addition, the mitigation measures would be appropriately designed and implemented to protect the environment and especially water, soil, drainage, flora and fauna of the area/site. The environmental statutory certificate that would be issued and the project (environmental) aspects included in the report would help to control damage to the environment. This is in accordance to the Environmental Management and Co-ordination Act (EMCA), 1999.

9 ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

This chapter outlines an environmental management plan prepared to cover the design, construction, defects liability, operation and maintenance of the proposed factory.

Table below presents the environmental management and monitoring plan. It outlines the corresponding management strategies proposed that will be employed to mitigate potential adverse environmental impacts and assigns responsibility for the implementation of mitigation measures.

Mitigation measures must be reflected in the contract specifications and bill of quantities. It is the responsibility of Tembo Sugar Mills Limited to ensure incorporation of these measures into these documents.

The project manager should define project specific responsibilities, terms of reference and lines of communication. It is imperative that this project report is made available to the relevant Project Team members.

Prior to mobilization, the contractor should include all proposed mitigation and management measures in his schedule of works, and the supervising consultant should ensure that the schedule and the environmental management and monitoring is complied with. This will lend a sense of ownership to the contractor, in addition to instilling a thorough understanding of the pertinent issues.

The responsibility for the supervision and implementation of all the proposed mitigation measures during construction and the defects liability period, responsibility for maintenance lies with the Tembo Sugar Mills Limited, including monitoring activities.

Environmental Management and Monitoring Plan (EMMP)

Phases	Project activities	Negative impacts	Mitigation measures	Responsible persons	Monitoring means	Estimated cost (KShs)
Pre-construction	Consultation proposal Development proposal write-up	None	None	Consultant/ proponent	Observation	Negligible
	Architectural drawings & specifications approval	None	None	Architect/proponent		Negligible
	Structural Drawings & specifications approval	None	None	Structural Engineer/ proponent		Negligible
	Mechanical Drawings & specifications approval	None	None	Mech. Engineer/proponent		Negligible
	Electrical Drawings & specifications approval	None	None	Electrical Engineer/ proponent		Negligible
	Site visit, Project Report formulation and write-up	None	None	Environmental expert/ proponent		Negligible
	Bill of quantities	None	None	Quantity surveyor/ proponent		Negligible
Construction	Procurement, Transportation Construction of site office	Oil spillage Materials spillage Littering the site Soil Compaction Heavy vehicle traffic	Ensure no spillage occurs Ensure use of serviceable vehicles Ensure no littering of environment	Contractor Supervising/Environmental expert	Inspection/ Observation	25,000 (Covered under planning and administration costs of the contractor)
	Excavation of the foundries	Oil spillage Noise Dust Destruction of building foundation	Ensure use of serviceable vehicles Ensure removal of all materials excavated and proper repair after wards	Contractor Supervising/ Environmental expert	Inspection/ observation	10,000 (Covered under planning and administration costs of the contractor)
	Storage of the construction materials	Littering the site	Safe storage of used materials	Contractor Supervising/Environmental expert	Inspection/ observation	10,000 (Covered under planning and administration costs of the contractor)

Phases	Project activities	Negative impacts	Mitigation measures	Responsible persons	Monitoring means	Estimated cost (KShs)
	Construction	Oil spillage Noise Dust	Ensure no oil spillage occurs Ensure use of manual labour and hand tools Ensure use of serviceable machinery	Contractor Supervising/ Environmental expert	Inspection/ observation	10,000 (Covered under planning and administration costs of the contractor)
	Installation of equipment	Oil spillage Noise Dust	Ensure no oil spillage occurs Ensure use of manual labour and hand tools Ensure use of serviceable machinery	Contractor Supervising/ Environmental expert	Inspection/ observation	10,000 (Covered under planning and administration costs of the contractor)
	Construction of infrastructure utilities	Oil spillage Noise Dust Soil destruction	Ensure no oil spillage occurs Ensure use of manual labour and hand tools Ensure use of serviceable machinery	Contractor Supervising/ Environmental expert	Inspection/ observation	10,000 (Covered under planning and administration costs of the contractor)
	Construction of septic tanks and facility for solid waste handling and temporary storage	Poor sanitation and environmental health degradation as a result of inadequate effluent waste water disposal and solid waste management	Ensure no oil spillage occurs Ensure use of manual labour and hand tools Ensure use of serviceable machinery	Contractor Supervising/ Environmental expert	Inspection/ observation	1,000,000 (Covered under planning and administration costs of the contractor)
	Construction of car parking and car parking run off drains	Oil spillage Noise Dust Soil destruction	Ensure no oil spillage occurs Ensure use of manual labour and hand tools Ensure use of serviceable machinery	Contractor Supervising/ Environmental expert		300,000 (Covered under planning and administration costs of the contractor)
De-Commissioning	Clearing of unused materials Cleaning	Oil spillage Noise Dust Soil destruction	Ensure no oil spillage occurs Ensure use of serviceable machinery	Contractor Supervising/ Environmental expert	Inspection/ Observation	10,000 (Covered under planning and administration costs of the contractor)

Phases	Project activities	Negative impacts	Mitigation measures	Responsible persons	Monitoring means	Estimated cost (KShs)
Operational Phase	Manufacturing operations	Solid Waste generation Generation of waste materials	Ensure proper management of waste Ensure solid waste is collected regularly and handled properly. Re-usable and recyclable material should be sorted out	Proponent/ Factory Manager	Continuous monitoring	Per Year: Kshs. 400,000
	Generation of sewerage and waste water	If not properly managed, could creates hazardous condition and compromise sanitary hygiene of the building	Ensure the sewage waste water is collected and disposed off into the proposed waste water septic tanks. Ensure the waste water tanks are not leaking	Proponent/ Property Manager	Routine Inspection	Per Year: Kshs. 500,000
	Storm water discharge into the Municipal Council storm drains	If not well directed to the existing storm drain, could lead to flooding and property destruction since the area is a flood zone.	Ensure connection of storm drains to recently constructed storm drains and regular cleaning of the system to prevent clogging	Factory Manager	Routine Inspection Routine waste water Analysis	Ksh. 100,000
Operational Phase	Factory operations and general maintenance of the building	Noise and vibrations above normal Accidents and incidences on employees	Observe Health and safety at work place Keep proper records Have a health and safety committee Develop and implement a maintenance plan	Proponent/ Factory Manager /Environmental consultant	Routine Inspection	Kshs 200, 000

10PROJECT BUDGET

Project budget is estimated to be Ksh 4 Billion.

Source: proponent

11 CONCLUSION AND RECOMMENDATION

11.1 Conclusion

The result of this EIA report has indicated that there are no significant and /or permanent negative impacts likely to be generated by the activities of the proposed project.

Most of the potential negative impacts to be generated have been low and those rated as high can only cause irreparable damage to the environment and human health if the mitigation measures are not implemented as recommended.

It is therefore concluded that the proposed project will not compromise the well being of the environmental condition in the Magarini area and will in fact create employment for the Kenyan population.

11.2 Recommendations

Recommendations have been made in detail for the proposed factory development project. These are summarized below:

- Workmen should be provided with suitable protective gear (such as nose masks, ear plugs/muffs, helmets, overalls, gloves, industrial boots, etc.), and there should be a fully equipped first aid kit on site.
- The contractor must have workmen's compensation cover. The contractor is required to comply with the Workmen's Compensation Act, as well as other relevant Ordinances, Regulations and Union Agreements.
- Adequate sanitary care facilities should be provided for construction and operational phase workers.
- Construction workers to be hired before hand and all measures to be taken to avoid prospective workers gathering at the gate waiting to be hired.

- The consultants and contractors are requested to ensure that the construction works are carried out in a proper manner so as to minimize soil erosion, the impact of the construction on the air quality, noise and keep the site as tidy as possible.
- Construction debris should be cleared as and when specified tasks are completed.
- All drainage structures must ensure the safe final disposal of water and must also be self-cleaning. During construction, the design must ensure that flow of water in the storm water drains is not impeded.
- Property developer to liaise with private refuse handlers to handle waste collection/disposal from the construction site and operation of the industrial development. All remaining debris should be taken to an approved dumpsite.
- Once earthworks have been done, restoration of the worked area should be carried out immediately, by backfilling, and/ or planting of grass or shrubs. Landscaping of the site will provide habitats to other small animals and bird life.
- Where possible, recyclable items should be collected for re-use.
- The Kilifi Water and Sewerage Company should determine through consultation with the contractor the amount of water that should be used during construction purposes so as not to put a strain on other water users.
- Acceleration and deceleration lanes should be provided for the entrance/exit of the site. Traffic will need to be controlled during construction, also by putting up warning and directional signs as well as bumps.
- Warning/informative signs should be erected when construction works are about to begin. Signs should indicate when works are likely to begin and end.

ANNEXTURES

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. TSML Response to Public Concerns

X. TSML Master Plan

I. Certificate of Incorporation

No. PVT/2016/017187

CERTIFICATE OF INCORPORATION

I hereby CERTIFY, that -

TEMBO SUGAR MILLS 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 : 05/09/2017

Personal Identification Number
P051599305N

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

Taxpayer Information

Taxpayer Name	TEMBO SUGAR MILLS LIMITED
Email Address	ACCOUNTS@TEMBOSUGAR.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 : 18625	**Postal Code :** 00500

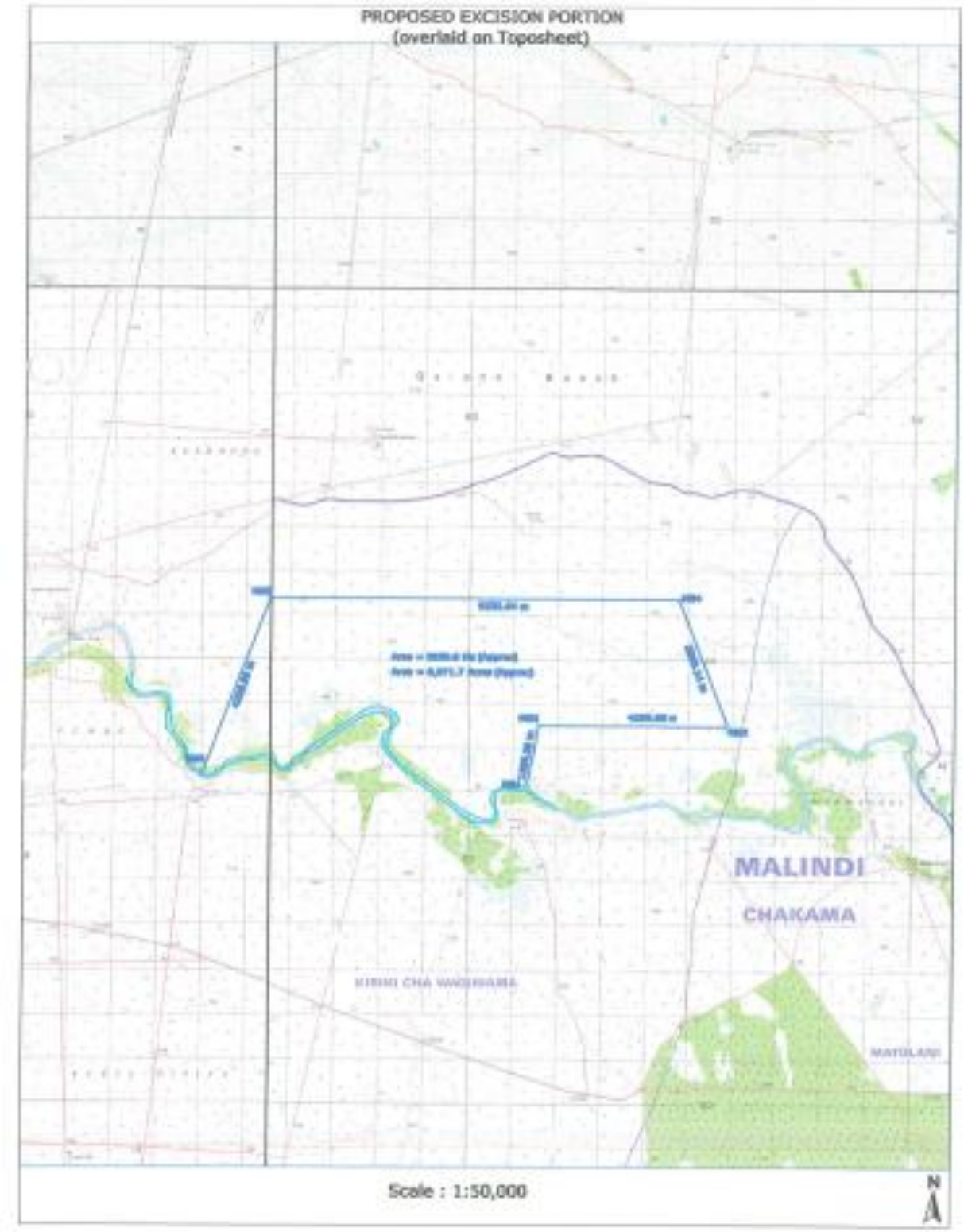
Tax Obligation(s) Registration Details

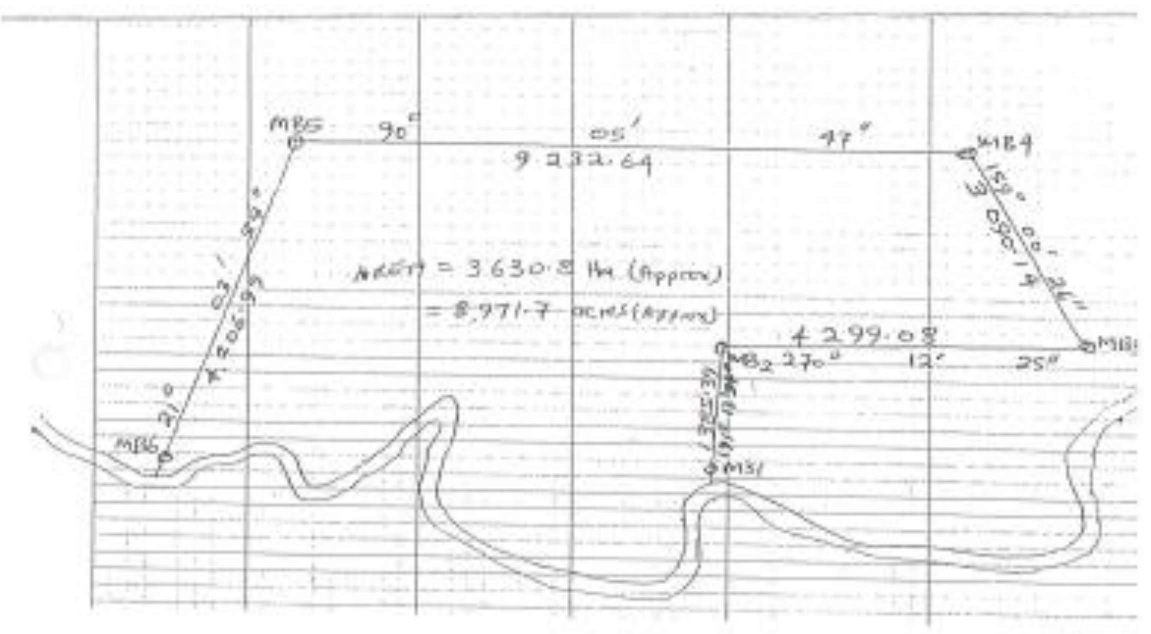
Sr. No.	Tax Obligation(s)	Effective From Date	Effective Till Date	Status
1	Income Tax - Company	05/07/2016	N.A.	Active
2	Value Added Tax (VAT)	05/09/2017	N.A.	Active

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.

Disclaimer : This is a system generated certificate and does not require signature.

III. Site Location and Layout




MB5
90°
05'
47"
9 232.64
MB4
AREA = 3630.8 Ha (Approx)
= 8,971.7 acres (Approx)
4 299.08
MB2 270°
12'
25"
MB1
MB6
MB3

IV. Land Ownership Document

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

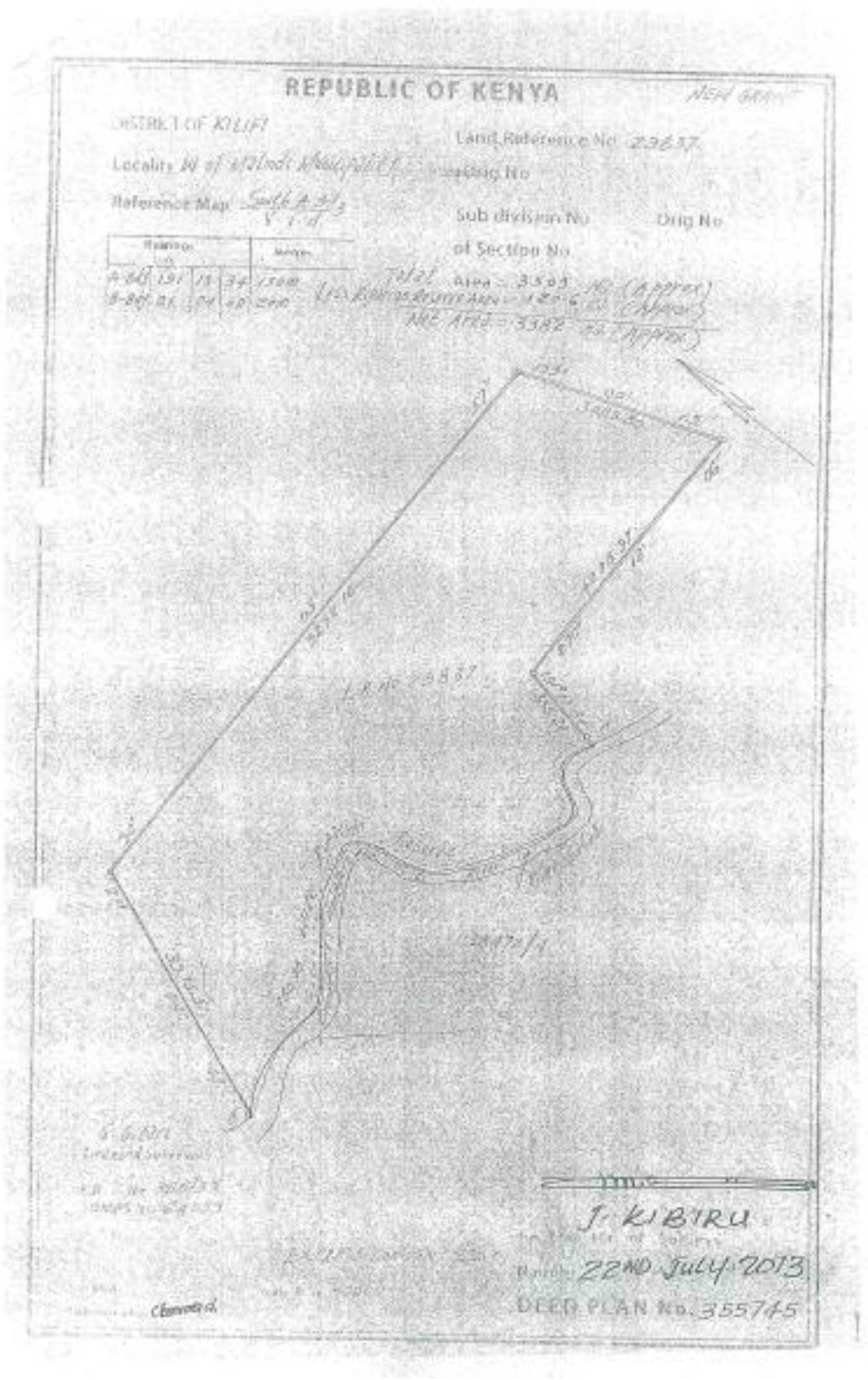
Two Thousand and FIFTEEN.

Registrar of Titles
S. K. Mwangi *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
DISTRICT OF KILIFI
Land Reference No 23837
Locality
Reference Map
Sub division No
Orig No
of Section No
L.R. No 23837
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: 12.50
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

Passport size Colored photograph

SIGNED by the Lessee
IN THE PRESENCE OF:

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 SUGAR MILLS LTD

AND

EXPRESS COMPANY LIMITED

LAND REFERENCE NUMBER
LR NO. 29837

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MEMORANDUM OF UNDERSTANDING (MOU)

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

BETWEEN

TEMBO SUGAR MILLS 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 18625 - 00500, Nairobi hereinafter called **"TSML"** 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 SUGAR MILLS LTD. P.O. BOX 16625-00500 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 TSML and/or its nominees.

C. TSML intends to set up a Sugarcane processing project (**"Project"**) to produce sugar, power, ethanol/alcohol, and 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 TSML agrees to ascertain the same before execution of the Sub-Lease (defined below).

E. ECL has agreed to Sub-Lease to TSML or their nominees a part of the said Property measuring Two Hundred and Two and Decimal Six Three (202.63) acres (equivalent to 82 hectares as indicated on the Title Deed) (**as shown in attached Master Site Layout Plan, marked with a white square box, attached hereto as Annex 1**) having centre GPS co-ordinates S 03° 04.187 / E 039° 32.409 for the term and subject to the covenants, agreements, conditions, stipulations and provisions hereinafter contained.

TEMBO SUGAR MILLS LTD. P.O. BOX 18625-00500 NAIROBI

EXPRESS COMPANY LIMITED

NOW THIS MOU WITNESSES AS FOLLOWS:

1. TSML 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 Two Hundred and Two and Decimal Six Three (202.63) acres (equivalent to 82 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 TSML 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 TSML of debt and equity funding for purposes of the Project.

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

3. TSML will pay pro-rata to the area occupied by it, a 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 TSML achieves financial closure and breaks ground for the project.

4. TSML 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**.

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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 TSML 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 TSML 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, TSML 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 TSML 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 TSML shall be entitled to modify and finalise the same in such form and content as may be desired by TSML and as may be required in the interest of the project, save that TSML 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 TSML.

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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 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 TSML 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 TSML and its advisors. The representations, warranties and indemnities will survive the expiry or termination of this MOU and the Sub-Lease.

13. TSML 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. TSML agrees to appoint a Liaison Officer from the community subject to their requirements of qualification, competence, attitude to work and behavior requirements being met.

15. The obligation of TSML 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 TSML and its advisors. ECL shall be bound to provide all information/copies of documents called for by TSML and its advisors.

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(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 TSML 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 TSML to use the said Property for the Proposed Use. The cost of which shall be reimbursed by TSML.

(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 TSML 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 TSML to obtain all approvals, licenses and permissions in respect of successfully undertaking the Project.

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16. Exclusivity & Fidelity

In consideration of the expenses that TSML 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 TSML 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 equity as may be required for the purpose of implementing the project

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18. Breach of this MOU by ECL will result in TSML being entitled to specific performance as well as payment from ECL of three (3) times the expenses incurred by TSML 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 TSML 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 SUGAR MILLS LTD. P.O. BOX 18625-00500 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 Director 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.

MATHIAS N. KAMAU ADVOCATE & COMMISSIONER FOR OATHS P.O. Box 11647 - 00100 (GPO) NAIROBI

.....
ADVOCATE

SEALED with the Common Seal of)
TEMBO SUGAR MILLS LIMITED)
and delivered in the presence of:)
)
)
)
)
)
Director)

TEMBO SUGAR MILLS LTD.
P. O. Box 18625 - 00500
NAIROBI, KENYA
TEL: +254 - 20 - 2613244 / 5
EMAIL: info@tembosugar.co.ke

Before me
ADVOCATE

I CERTIFY that **Vinod Vora** being the Director of **TEMBO SUGAR MILLS 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.

MATHIAS N. KAMAU ADVOCATE & COMMISSIONER FOR OATHS P.O. Box 11647 - 00100 (GPO) NAIROBI

.....
ADVOCATE

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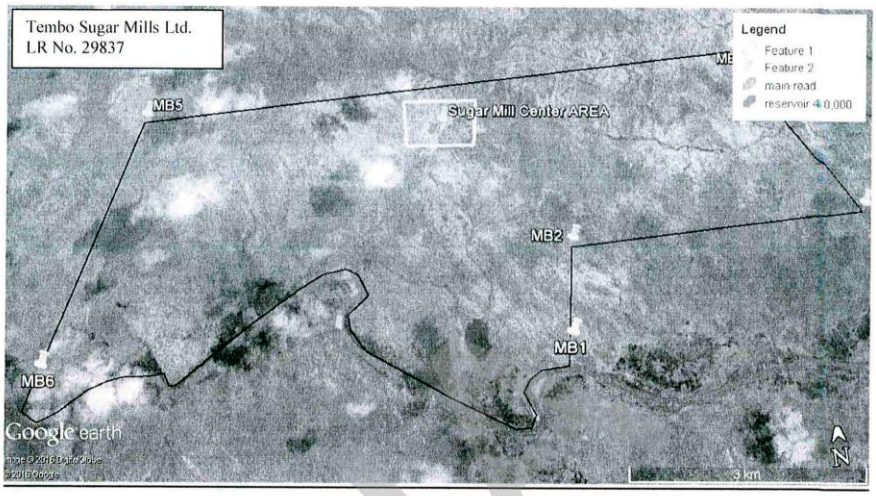
ANNEXURE 1

(Plan of the Property)



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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	NGETIA DOUGLAS KAFAMA	SOCIAL WORKER	GOOD	
3	PETER C. NDOKO	CDA	Excellent Project	COUNTY DIRECTOR - CULTURE * DEPT. OF ICT CULTURE & SOCIAL SERVICES 01 MAR 2017 * COUNTY GOVERNMENT OF KILIFI
4	STEPHEN MWAMBAGHINA	ON MISHO ATTACHMENT	GOOD.	
5	PRISCA GONA	WELFARE OFFICE	Good Luck	

COUNTY GOVERNMENT OF KILIFI
AND NATURAL RESOURCES
COUNTY EXECUTIVE COMMITTEE MEMBER
03 MAR 2017
AND NATURAL RESOURCES
P. O. Box 519 - 80108, KILIFI - KENYA
COUNTY DIRECTOR OF ENVIRONMENT
KILIFI COUNTY
03 MAR 2017

VI. Lead Agencies Consultation Notes

A. 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.

B. 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 by-products 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.

i. 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 by-products 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.
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.

Comments and Issues	Response
	Also increase the social amenities like schools, healthcare 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.

ii. 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 by-products 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.

Comments and Issues	Response
	Tembo Representative stated that there are plans to build school, healthcare 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.

iii. 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 by-products 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

A. List of Participants

No.	NAME	DESIGNATION	TELEPHONE NO.	SIGNATURE
39	BENJAMIN MUIVA	MANAGER (S.I.E) 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	0713839903	
46	SOLOMON K. NYUBASHIRI	SNR. CHIEF MAGAMA	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	CHONGOLA SARO	mukulima		
51	SAMSON ZIRO WANJE		0703212828	
52	KATANA CHARO FONDO	MRDR CHAIRMAN	0720-519900	
53	SAIDI MWAKERINGO	MKULIMA	0711949715	
54	SARO NGOWA	MKULIMA		
55				
56				
57				

No.	NAME /JINA:	DESIGNATION	TELEPHONE NO.	SIGNATURE
19	Kaciba Mwaringa			
20	Peterson Ketho		0705845550	[illegible]
21	Safari Mwaringa		0707696859	[illegible]
22	KAZUNGU CHOME PONDA		0713820642	[illegible]
23	Michael Safari Saro		0711642787	[illegible]
24	CHRISPUS KAHINDI		0712979674	[illegible]
25	THONYA CHARO		0702860550	[illegible]
26	Jamics Kahindi		0737449815	[illegible]
27	Baduta		Bari Sa	[illegible]
28	MATHIAS NGOWA SARO		0713313772	[illegible]
29	JACOB GARAMA		0706670891	[illegible]
30	TINGALI MWARING		0797604451	[illegible]
31	Mafe Mwaringa			
32				
33				
34				
35				
36				
37				

B. 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, healthcare centers and technical training centers 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. TSML Response to Public Concerns

1. 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.

C. 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.

D. 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.

2. 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.

3. **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.

4. **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.

5. **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 center and agriculture training center 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.

6. **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.

7. **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.

8. **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.

9. **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.

10. **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.

11. **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.

12. **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. TSML Masterplan