ENVIRONMENT & SOCIAL IMPACT ASSESSMENT STUDY REPORT
FOR
PROPOSED EXPORT PROCESSING ZONE TEA WAREHOUSES ON L.R No.29437/34, BONJE, KWALE COUNTY

GPS coordinates: Latitude 4°01'37.1"S 39°37'44.1"

PROPONENT

WILSON SMITHETT (EPZ) LIMITED

P.O BOX 98459-80100

MOMBASA

ESIA EXPERTS

MUNYUA A. MWENGA NEMA Reg.0340

CHRIS KIMANGA NEMA Reg.

MAY 2024

PROJECT FACT SHEET

Project Name	TEA WAREHOUSE & PACKING EPZ
Proponent	WILSON SMITHETT (EPZ) LIMITED P.O BOX 98459-80100, MOMBASA KRA PIN P051613252B Email: info@wilsonsmithett.co.ke
Report	Environmental and Social Impact Assessment Study Report
Project components	1. Boundary Wall – 715.4 meters 2. Office block -2,422 m^2 3. Tea Warehouses EPZ 1- 8,428 m^2 4. Tea Warehouse EPZ 2 – 3,106 m^2
Project Cost	Ksh. 626,205,851/=
Project site & Footprint	L.R No.29437/34 Bonje, Kwale County 7.73Acres 13,956 m^2

ESIA TEAM

Munyua A. Mwenga	Team Leader
Chris Kimanga	Environmentalist
Timothy Muriuki	Process Engineer
Martin Mamboleo	Environmental Economist
Isaiah Wafula	Environmental Planner/GIS Analyst
Victor Odenda	Sociologist

1. DOCUMENT AUTHENTICATION

This ESIA Project Report has been prepared in accordance with the Environmental Management and Coordination Act (EMCA) 1999 (Rev. 2015), and the Environmental (Impact Assessment and Audit) Regulations for submission to the National Environment Management Authority (NEMA). We the proponent and the ESIA Lead Expert certify that the particulars given in this report are correct to the best of our knowledge.

Prepared by:

Signed:_____	Signed:_____
Date:_____	Date:_____
Munyua A. Mwenga	**Chris Kimanga**
EIA LEAD EXPERT NEMA REG.NO 0340	ASSOCIATE EXPERT NEMA REG.NO 10720

PROPONENT

WILSON SMITHETT (EPZ) LIMITED
P.O BOX 98459-80100
MOMBASA

Signed: …… Date: ……

2. NON–TECHNICAL SUMMARY

Wilson Smithett EPZ Ltdp proposes to construct a tea packaging factory on 7.73acres piece of land (LR No. 29437/34) situated at Colfax Industrial Park, in Kasemeni ward, Kinango sub-county in Kwale County. The project proposal entails the construction of a boundary wall, 2 warehouses and office block.

The project is envisaged to have the following merits:

1. Enhanced land use; the proposed project will put the land to a more productive use than it is now
2. Generation of revenue for both the county and national governments
3. Development of social amenities
4. Creation of employment opportunities
5. Enhancement of other businesses

The project proposal has some likely adverse environmental concerns for which sufficient mitigation measures have been proposed to ensure low residual impacts as summarized below:

Environmental Concerns	**Construction phase safeguards**
Traffic Impact	1. The timing of the truck arrivals and departures should largely be outside of the commuter peak periods 2. During the construction stages, all trucks are to enter the construction site and not occupy the nearby roads with a traffic control plan 3. Warning signs are to be placed to advise pedestrians and manage their safety when walking across the construction driveways. 4. No machinery or material is to be stored on the footpath or verges or public areas. 5. All material handling is to be done within the site boundaries.
Construction waste	6. Avoid overloading trucks and cover trucks to minimize dust and loss of load from trucks during transportation; 7. For aggregate and sand, use water sprays or covered chutes to reduce dust emission during loading and unloading of materials from barges; 8. Maintain mixing plants in good working condition to reduce emissions from the plant; 9. As far as possible, plan truck trips to material sources and to the sites during low-traffic hours; and 10. Implement safety procedures to reduce the potential for road accidents.
Noise & vibration pollution	11. Schedule noisy activities during the normal working hours of between 8 am to 5 pm. 12. No work should be undertaken at night or very early in the morning; 13. Switch off idle machines and equipment; 14. Ensure machinery is well serviced to reduce the noise emitted; 15. The contractor should adhere to the provision in the Environmental Management and Coordination (Noise and Excessive Vibration pollution) (control) regulations,2009 16. Provide workers with appropriate PPEs when working in noisy environments e.g. ear plugs

	17. Construction waste is not to enter the biophysical or socio-economic environment; and 18. Contractors to have waste management plans to mitigate potential impacts
Air pollution	19. Practice dust management techniques, including watering and spraying to suppress dust; 20. Move earth and sand in covered vehicles/transport to avoid it being blown by wind increasing suspended particulate matter in the atmosphere; 21. All power plants are to be of good condition with acceptable smoke emissions; 22. Set up dust barriers/screens at strategic locations; and 23. Provide and enforce the use of Personal Protective Equipment (PPE) for staff.
Water shortages	24. The contractor should sensitize construction workers on the importance of proper water management through clerks of works by having talks with them when doing their rounds around the site; 25. Replace or repair leaking pipes supplying water to the construction sites to minimize wastage; 26. The Contractor should ensure the provision of adequate water storage facilities on the construction site to meet project needs during periods of high demand externally and refill storage tanks during periods of low demand;
Pollution/contamination of ground & surface water	27. No mixing of concrete to occur on exposed / bare ground. Concrete mixing should be done on a bounded surface to avoid soil pollution and contaminating the ground and surface water; 28. Appropriate containment structures are to be provided to store contaminated water from the construction site. The contractor should ensure this water are properly disposed of and not allowed to be drained on site; 29. The concrete batching area should be bounded to prevent contamination of soils and surface water features; 30. All fuel storage to be appropriately bunded and provided with a canopy; and 31. Ablutions for construction workers to enable proper disposal of faecal matter and avoid contamination of surface water features which could be a cause of waterborne diseases.
Occupational Health & Safety	32. The contractor should ensure registration of all construction works by the Director, Directorate of Occupational Health and Safety Services (DOHSS)in compliance with the Buildings and Works of Construction Engineering Rules,1984; 33. The contractor should contract a qualified Health and Safety advisor to conduct training and monitoring of construction works; 34. The contractor should provide a standard First Aid Kit on site; 35. The Contractor should train several workers in First Aid depending on the number of workers on site as stipulated in the First Aid Rules 1977

	through DOSHS-certified First Training institutions e.g. Red Cross, St. John Ambulance
Environmental Concerns	**Operational phase safeguards**
Stormwater management	36. Leakages if any shall be attended to immediately. 37. Storm water at the site to be managed properly. 38. Provide adequate drainage system such as designated storm water drains to discharge the surface water to industrial drainage system for discharging the wastewater and storm/surface water to avoid clogging and maintain the drainage system regularly. 39. Regular maintenance of the drainage 40. Regular cleaning and checking. 41. Sheds to be provided to avoid mixing of storm water with any spilled material
Solid waste management	42. Efficient collection and transportation mechanism for disposal of solid wastes. 43. To investigate and locate NEMA approved treatment centres for centralized disposal and reuse of solid wastes. 44. Solid wastes are to be separately collected and disposed off. This will reduce load and increase the efficiency of the solid waste management system. 45. Search for future recycling schemes and evaluate their worth and implement such schemes wherever a promise of economic feasibility exists
Transportation and traffic Impact	46. The vehicles used for transporting materials / products shall follow the applicable guidelines given in The Motor Vehicles Act. 47. Trained transporters to be engaged for transport of raw materials / products, spill control & other emergency actions. 48. Avoiding of horn when not necessary. 49. Vehicular movement only during day time should be ensured 50. Transportation by covered vehicles will be ensured 51. Regular maintenance and optimum use of the vehicles will be ensured 52. Driver will be educated about the characteristics of any wastes and immediate actions in case of any spillage accident. – 53. Record maintenance of material. 54. Optimisation in raw material consumption
Public Risk and safety Management	55. Firefighting equipments/system and extinguishers will be installed as per the requirement of the fire risk in all plants/sections/ departments 56. To minimize the adverse health effects all necessary/ suitable personal protective equipment like helmet, safety goggles, gumboots, earmuff/ear plug and safety net etc. will be provided for working personnel. 57. All suggested/proposed pollution control devices/measures should be installed and operated / maintained properly on a regular basis.

	58. All precautionary methods will be adopted by the company as well as. The proponent will be committed towards the Health & Safety of workers 59. Drinking water supply for the employees to be provided 60. Proper sanitary facilities will be made available by the proponent so that employees do not suffer from any health ailments. 61. Periodical training programme to inform the employees about their task, associated risk, and safe –working practices will be undertaken.Training also includes information on accident prevention, proper control and maintenance of equipment and safe material handling practices. To refresh the academic and skill improvement as per management requirement, induction training and external training will be provided to freshers with respect to "Industrial Safety & Health Training".
Water & Wastewater management	62. Management to ensure proper handling of the spillages during transfer operation. 63. Training to be imparted to workers. 64. The spillages if any during handling to be attended immediately. 65. Besides, the management will also ensure proper usage of the Personnel Protective Equipment by the workers during handling of wastewater. 66. Proper ventilation to be provided in storage area to prevent the bad odors 67. Ensure safe disposal of any empty containers to registered/approved recyclers. 68. Relevant records to be maintained. -

This ESIA study recommends that during project implementation, the mitigation measures identified and recommended be closely monitored to ensure that they are being undertaken. All contracts for the construction of any of the proposed project components must stipulate the responsibilities of the contractor for implementing the proposed mitigation measures. In this regard, the Environmental and Social Management Plans (EMPs) developed in this main ESIA report consider the impacts of construction and the operation phases of all tea warehousing project components. The core responsibilities during the implementation of the ESMP have been allocated.

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3. ABBREVIATIONS & ACRONYMS

BETA	Bottom-Up Economic Transformation Agenda
CBD	Convention on Biological Diversity
CIDP	County Integrated Development Plan
CSR	Corporate Social Responsibility
ECDE	Early Childhood Development Education
EMCA	Environmental Management Coordination Act
EMP	Environmental Management Plan
EPRA	Energy & Petroleum Regulatory Authority
EPZA	Export Processing Zone Authority
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
GIS	Geographical Information System
HIV/AIDs	Human Immunodeficiency Virus/Acquired Immune Deficiency
INLUG	Integrated National Land-use Guidelines
ISWMS	Integrated Solid Waste Management System
KES	Kenya Shilling
KFS	Kenya Forest Service
KPLC	Kenya Power and Lighting Company
KTDA	Kenya Tea Development Agency
KWASCO	Kwale Water and Sanitation Company
NCA	National Construction Authority
NEAP	National Environmental Action Plan
NEC	National Environment Council
NECC	National Environment Complaints Committee
NEMA	National Environment Management Authority
NET	National Environmental Tribunal
NLUP	National Land Use Policy
NMT	None Motorised Transport
OSH	Occupational Safety and Health
PIN	Personal Identification Number
PPE	Personal Protective Equipment
QC	Quality Controller
QS	Quality Supervisor
SERC	Standards and Enforcement Review Committee
TOR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change
WRA	Water Resources Authority

1 INTRODUCTION

This Environmental and Social Impact Assessment Study Report is prepared on behalf of Wilson Smithett EPZ Ltd Under section 58 Environment Management and Coordination Act (EMCA), 1999 and the second schedule (8(q) Food processing plant) of EMCA, 1999, the project proposal requires an ESIA before it can start. Wilson Smithett (EPZ) Ltd is proposing to put up an export processing zone facility that will comprise of: tea warehouses, administration block, and boundary wall on a 7.73 acres piece of land in Kwale county. The primary activity once the buildings are completed will be packing & branding of tea leaves into smaller attractive packaging for the export market.

1.1 Project Background

The proposed project is located on LR No. 29437/34 situated at Colfax Industrial Park, in Kasemeni ward, Kinango sub-county of Kwale Country. The land is owned by Wilson Smithett EPZ Ltd. (Appendix 1 shows a copy of the title for the project area).

1.2 Project Proponent

The project proponent is Wilson Smithett EPZ Ltd, a locally registered company. Annex 2 (certificate of incorporation and KRA PIN certificate).

1.3. Project Description

The Tea Warehouses Export Processing Zone project involves the construction of a state-of-the-art tea packing facility for the export market.

1.1 Project's Objectives

The objectives of the Tea Warehouses Export Processing Zone are

1. To construct 2 interconnected tea warehouses and associated facilities; and
2. To pack and export tea products once building is completed & commissioned.

1.2 Objectives of ESIA the study

1.2.1 General Objective

The general objective of the ESIA study is to carry out a systematic examination of the present environmental situation within the project area to determine the likely impacts of the proposed Tea Warehouses Export Processing Zone with a view of improving the sustainability of the project.

1.2.2 Specific Objectives of the ESIA Study

(i) To highlight environmental issues of the proposed project with a view to guiding policymakers, planners, stakeholders and government agencies to help them understand the implications of the proposed project on environmental elements within the Bonje project area;
(ii) To review existing legal institutional, and policy framework relevant to the proposed project;
(iii) To find out impacts associated with the implementation of the proposed export tea packing facility & suggest mitigation measures for the negative impacts;
(iv) To assess and give recommendations on the various mitigation measures to be taken to reduce possible negative impacts on the proposed piece of land for development;
(v) Analyse occupational health and safety issues associated with the proposed project;
(vi) To determine the compatibility of the proposed development with the neighbouring land uses evaluate local environmental conditions;

(vii) Facilitating meetings for the stakeholders to air their views;
(viii) Identifying and contacting the project stakeholders to seek their views on the proposed project;
(ix) To assess the relative importance of the impacts of alternative plans, design and sites;
(x) To generate baseline data for monitoring and evaluation of how well the proposed mitigation measures are being implemented during the project operation period;
(xi) To develop an Environmental and Social Management Plan (ESMP) to guide in decision making and for future auditing;
(xii) To raise stakeholder awareness on potential impacts of the project on the environment with a view to making them understand the implication of the project in their environment;
(xiii) To develop an ESIA report in conformity with the EMCA 1999, Environmental (Impact Assessment and Audit) Regulations 2003 and EMCA (amendment) 2015 and legislation under it; and
(xiv) Submission of the final EIA report to NEMA and subsequent follow up to obtain relevant authorization/permit in order for the project to commence.

This ESIA Study Report, therefore, details the positive and negative effects of the development on the project environment and recommends appropriate environmental and social measures to minimize any undesirable effects resulting from the project.

1.3 Terms of Reference (ToR)

The following Terms of Reference apply to the project:
(i) Screening and scoping.
(ii) Establishing the suitability of the proposed location for the proposed housing development
(iii) Carry out a literature review.
(iv) Carry out preliminary fieldwork.
(v) Prepare the TOR for submission to NEMA for consideration and approval.
(vi) Undertake detailed fieldwork.
(vii) Carry out baseline investigations and analyses.
(viii) Hold meetings with the project proponent, other project consultants, relevant regulatory government bodies, and stakeholders.
(ix) Carry out a systematic environmental assessment at the proposed project site and the surrounding area in line with established standards and laws.
(x) Provide a description of the proposed activities throughout the entire implementation process of the project with a special focus on potential impacts to the surrounding environment and facilities.
(xi) Develop an Environmental Management Plan and cost estimates for the proposed housing development.
(xii) Produce an Environmental and Social Impact Assessment report that contains among other issues potential negative and positive impacts and recommendation of appropriate mitigation measures to minimize or prevent adverse impacts.

A copy of the terms of reference approval letter is attached in appendix 4

1.4 Methodology

The methodology used in the ESIA Study included the following.
i. A site reconnaissance and visual survey to determine the baseline information of the project area;
ii. Comparative study of the project with existing land uses in the neighbourhood;
iii. Reviewing and analysis of the project documents;
iv. Discussion with the proponent and the design team;
v. Assessment of the site to detail the various existing and likely impacts;
vi. Assessment of health and safety issues;
vii. Seeking public views through interviews and questionnaire administration;

viii. Proposal of mitigation measures to minimize any negative impacts; and
ix. Preparation and submission of ESIA study report to NEMA.

1.4.1 Screening

Environmental screening was applied at the preliminary stage to determine whether the proposed development required an Environmental Impact Assessment. With reference to the second schedule of EMCA (1999), the proposed project was identified as among those that requires Environmental Impact Assessment so as to ensure that negative impacts from the project are mitigated as the positive ones are amplified.

1.4.2 Approaches to undertaking the ESIA

This ESIA Project Report has been prepared in accordance with the Environmental (Impact Assessment and Audit) Regulations of 2003. It is also guided by the general principles of green buildings. The study methodology also comprised the following activities:

1. Desktop study;
2. Field investigations of air, noise and groundwater
3. Public meetings & neighbourhood consultations

1.4.2.1 Desktop Study

The desktop study involved:

(i) Initial meetings with project architects and engineers to discuss the proposed project, including activity options under consideration;
(ii) Preparation of a checklist that consisted of a simple catalogue of environmental factors, which were compared with the activities to be performed;
(iii) Collection and review of baseline data, maps, reports and other relevant information on the existing environmental and social conditions of the project area;
(iv) Review of existing legislation, regulation and policies relevant to the proposed project; and
(v) Review of proposed project engineering designs and construction inputs, including anticipated technical processes.

1.4.2.2 Field investigations

Field investigations involved:

(i) The site walks within the project area and the neighbouring areas that are within the zone influenced by the project;
(ii) Taking photographs of significant aspects to assist in describing the baseline environmental and social conditions of the project area and its influence zone;
(iii) Taking the site coordinates and the area elevation;
(iv) Interviews with representatives of relevant key regulatory authorities within the project area and interested and affected parties mainly within the project influence zone; and
(v) Filling in the questionnaires to facilitate environmental impact data collection.

The aim of the field investigations was to verify information and data collected during the desktop study and to collect any new information that may have been important in the assessment of impacts and design of mitigation measures.

1.4.2.3 Report Preparation & Outline

The ESIA study report was prepared and compiled and a draft report discussed with the proponent. Thereafter, the findings of the assessment were discussed amongst the proponent, the project lead consultant and the ESIA

experts. This was necessary to appreciate the various responsibilities and modalities of implementing the proposed project. The final report was then prepared and submitted to the proponent for endorsement.

1.5 Potential Project Impacts

1.5.1 Potential Positive Impacts

The positive impacts associated with the proposed project include the following among others:

- Enhanced land use;
- Development of social amenities
- Employment opportunities
- Enhancement of other businesses

1.5.2 Potential Negative Impacts

1. Air Pollution (Particulates and Dust Emission)
2. Noise and Excessive Vibrations
3. Traffic impact
4. Stormwater & liquid waste generation
5. Solid Waste Generation
6. Water Demand & Usage
7. Energy Demand & Usage
8. Occupational Health & Safety

1.6 Public Consultations

Public consultations are critical in conducting an effective ESIA. Public consultations consisted of the use of public meetings, key informant interviews and questionnaires. Compilation for public consultation feedback is found in Chapter 6 of this report.

1.7 Estimated Project Cost

The estimated project cost is Kenya shillings **Six hundred and twenty-six million, two hundred and five thousand, eight hundred & fifty one**. (Ksh**.** 626,205,851/=**).** A summary Bill of quantity is attached in appendix 5

1.8 ESIA Study Output

This ESIA study report is prepared for purposes of presenting pertinent information to NEMA for approval and licensing of the project.

2 BASELINE INFORMATION

2.1 Location and Administrative Context

The proposed project is located on Plot LR NO. 29437/34 Kwale County sited at coordinates 4°01'37.1"S 39°37'44.1". Administratively, the proposed project site is situated in Bonje area within Kasemeni ward, Kinango Subcounty. It is approximately 1.3 km Southwest of Miritini Interchange along Mombasa- Nairobi highway. Map 1 below shows the location of the proposed project site.

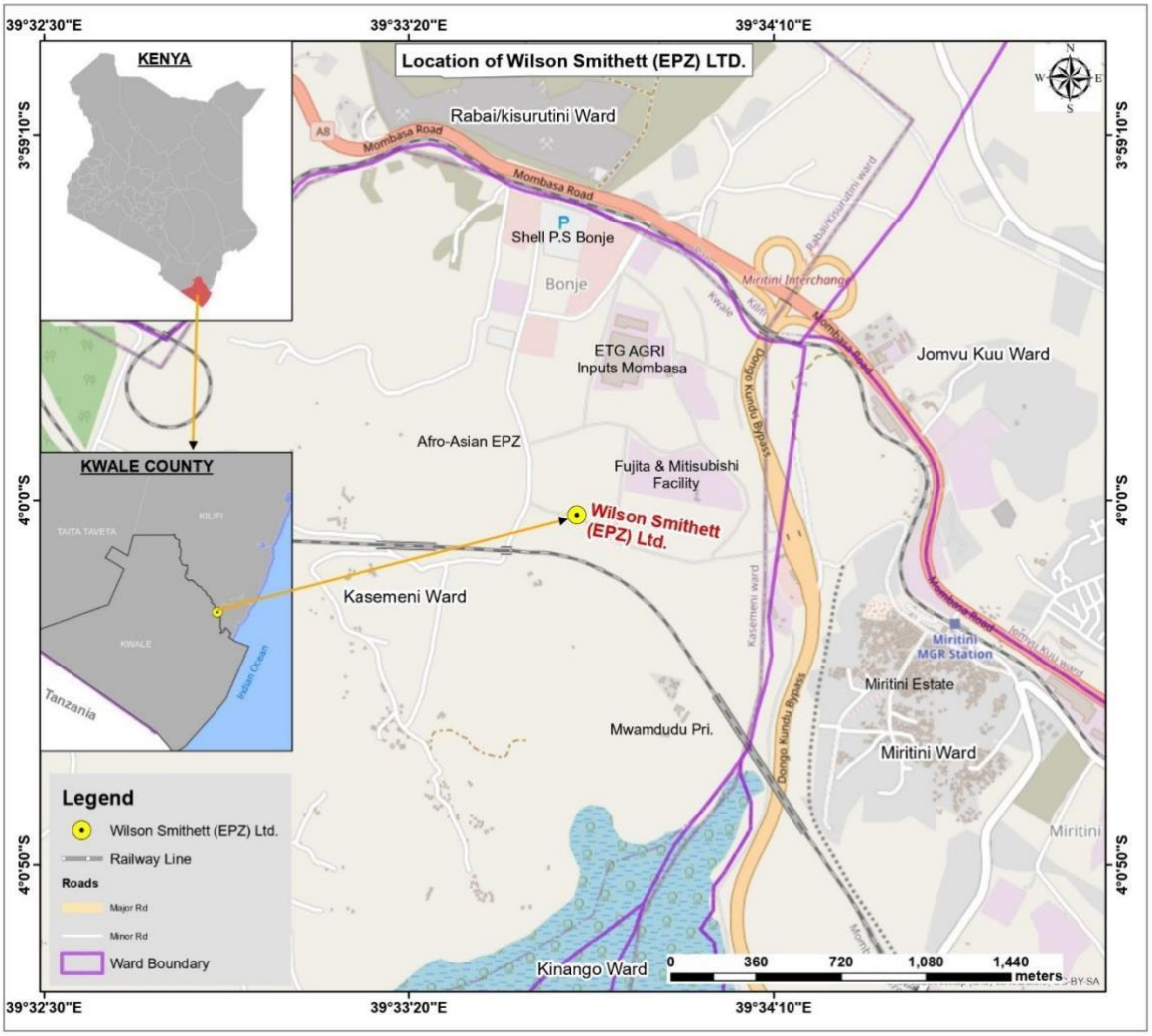

Figure 1: Project site location

1. Topography

Kwale County in particular is situated in coastal lowland with extensive flat areas rising gently from 8 meters to 850 meters above sea level in the west mainland region. The general topography of the Kasemeni area is relatively flat with breaks of medium valleys with seasonal flows. The slope is predominantly west east towards the sea shoreline from Taita hills in the west where Mwache River originates. The local landforms are influenced by the rivers and mild slopes towards the flood plans. The highest elevation in the area is 750m above the sea level and is located in the North-western region while the lowest point is 14m a.s.l. The proposed project site is situated on relatively flat land having been leveled during the development of Colfax Industrial park. The land is characterized by a slight slope towards the south east of the project property.

2. Hydrology and Drainage

The larger coastal region is drained by the two major rivers, Tana and Athi (Sabaki) which rise from the central highlands in the interior. Other rivers draining the coastal areas include Mwache, Kombeni, Rare and Ramisi rivers. Mwache River is the main determinant of the drainage in the project area and the immediate adjoining areas. Mwache river is approximately 5 km from the project site area located in Bonje araea of Kasemeni ward. The river originates from Taita hills and discharges into Mwache Creek. Kombeni River basin to the north of the Mwache river basin has similar characteristics (discharging into Tudor Creek just north of Changamwe). The two rivers and their tributary streams are seasonal but carry high storm water flows during rains.

The Mwache River Basin and catchment

Mwache river basin covers an area of 2,250 km^2 within the 3 main river drainage basin. The length of river Mwache is approximately 110 km flowing through a basin that lies between 300m to 14m a.s.l. The basin exhibits gentle slopes in the upper regions and flat in the lower regions. The catchment with the main river network is shown in Map 2 below. This map has been prepared using a 1:50,000 Survey topographic sheet. The area is not endowed with surface water sources since all rivers and streams are dry. Mwache River collects all other streams that transport runoff from the catchments. Among the major seasonal tributaries into Mwache River, include the following;

i. Ngenyeni river flowing from the Chengoni/Samburu area in the northwestern zones of Kinango Sub County
ii. Ngoni River is considered the main stream of Mwache from the catchment and rises from Pemba hills along the western edge of Kinango Sub County with the farthest watersheds being the Taita Hills and collects numerous seasonal streams along its length.
iii. Mnyenzeni River also originates from Mabesheni hills and runs parallel to the Mwache basin to join a short distance from the site proposed for construction of Mwache dam.

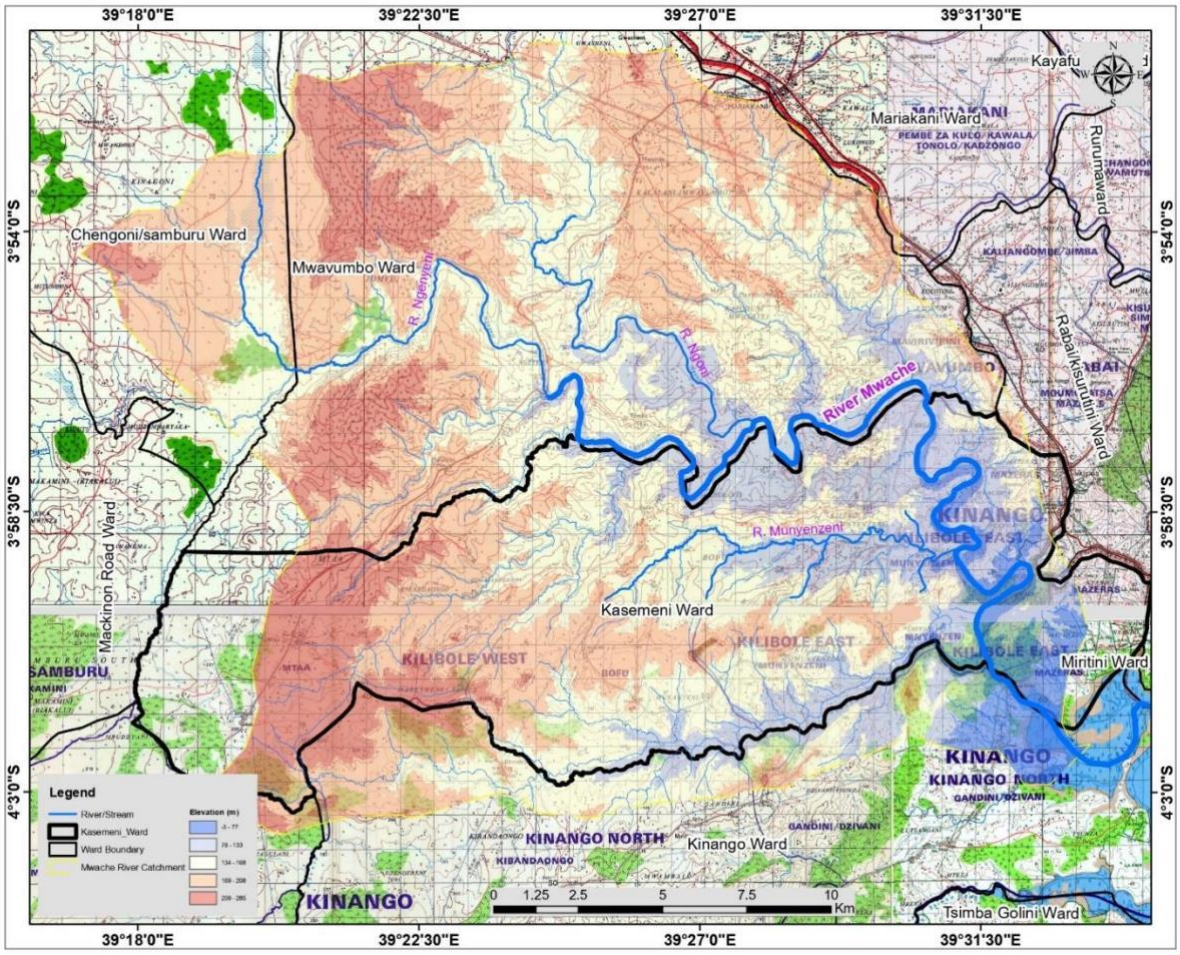

Figure 2: Area topography & Drainage

3. Geology & Soils

The coastal zone is generally underlain by a base rock of sedimentary origin (shells, sandstones and clays). The project site and surrounding is composed of the rocks of sedimentary origin, ranging in age from Triassic to Recent. The Triassic rocks are known as Duruma Sandstones and were deposited under lacustrine and subaerial conditions with minor marine facies. The Jurassic rocks are of marine origin and consist of limestones, mudstones, shales and thin bands of sandstones. The Jurassic rocks have easterly regional dip, but these are down faulted against the older Duruma Sandstone Series.

Soils in the larger region vary with topography and geology of the area. Within the project site, the soils have formed on lagoonal deposits and coral reef limestone. Their composition ranges from sand, clay, loam alluvial deposits and complexes of those composites. The soils are poorly drained, very deep, excessive saline, olive to greenish grey, loam to clay and often contain sulphuric material. The poor permeability of the soils coupled with the flat terrain makes the area susceptible to flooding during heavy rains. This necessitates the establishment of proper drainage to handle the storm water.

4. Infrastructure

   Roads

The road network within the project area is well distributed making the project site easily accessible. The site is located approximately 1.3 km Southwest off Mombasa- Nairobi highway from of Miritini Interchange. The site is linked via a tarmac road to Dongo Kundu Bypass (a dual carriageway) which connect it to Mombasa- Nairobi highway. It can also be accessed via a marram road to the west which directly connects to Mombasa- Nairobi highway in the northern part of the site. The locality is served by all-weather roads which facilitate the shipment of products in and out of the neighboring industrial facilities such as ETG AGRI Inputs Mombasa and Fujita & Mitisubishi motors. Public service vehicles are the common mode of Transport.

Electricity: The project area is traversed by high voltage electricity line. The project site can easily access electricity from the mains supplying industrial parks and commercial facilities such as Afro Asian Tea EPZ in the area.

Telephone: Telephone lines are currently in limited use due to the widespread use of mobile phones. Communication network in this area is excellent, courtesy of several mobile phone service providers in the county. Mobile phones reception and coverage is good, though there are no mobile phones communication satellites boosters.

Rail: The Colfax industrial park and by extension the site is served by two railway lines: meter gauge railway line that passes on the northern side running towards Mariakani and Nairobi via Voi and the SGR railway line. The infrastructure has stimulated economic growth of the area attracting many investors to the park.

2.2 Socio-Economic Characterization of the Project Area

1. Demographic Characteristics

Kwale county has a population of 866,820 with a population of 105 persons per Km^2. Kinango Subcounty which host the project site accounts for the largest share (34.2%) of the county population - 296,455. Table below 1 summarizes the ward level population size project area and its neighbourhood. Kasemeni ward in which the proposed project site is situated has the highest population (59,946 people) with a high density of settlement (182 persons per Km^2) relative to neighboring ward. This population is projected to rise to 67,042 people by the year 2027. The high population points to the increasing demand for employment due to the increased labour force. According to Kwale County CIDP (2023-2027), the labour force population in the county is estimated to total 446,434 which is about 51.5 percent of the population. The labour force population consists of 214,400 males and 232,034 females in 2019 and is projected to increase to 499,286 by 2027. Women and youth constitute the majority.

Social facilities

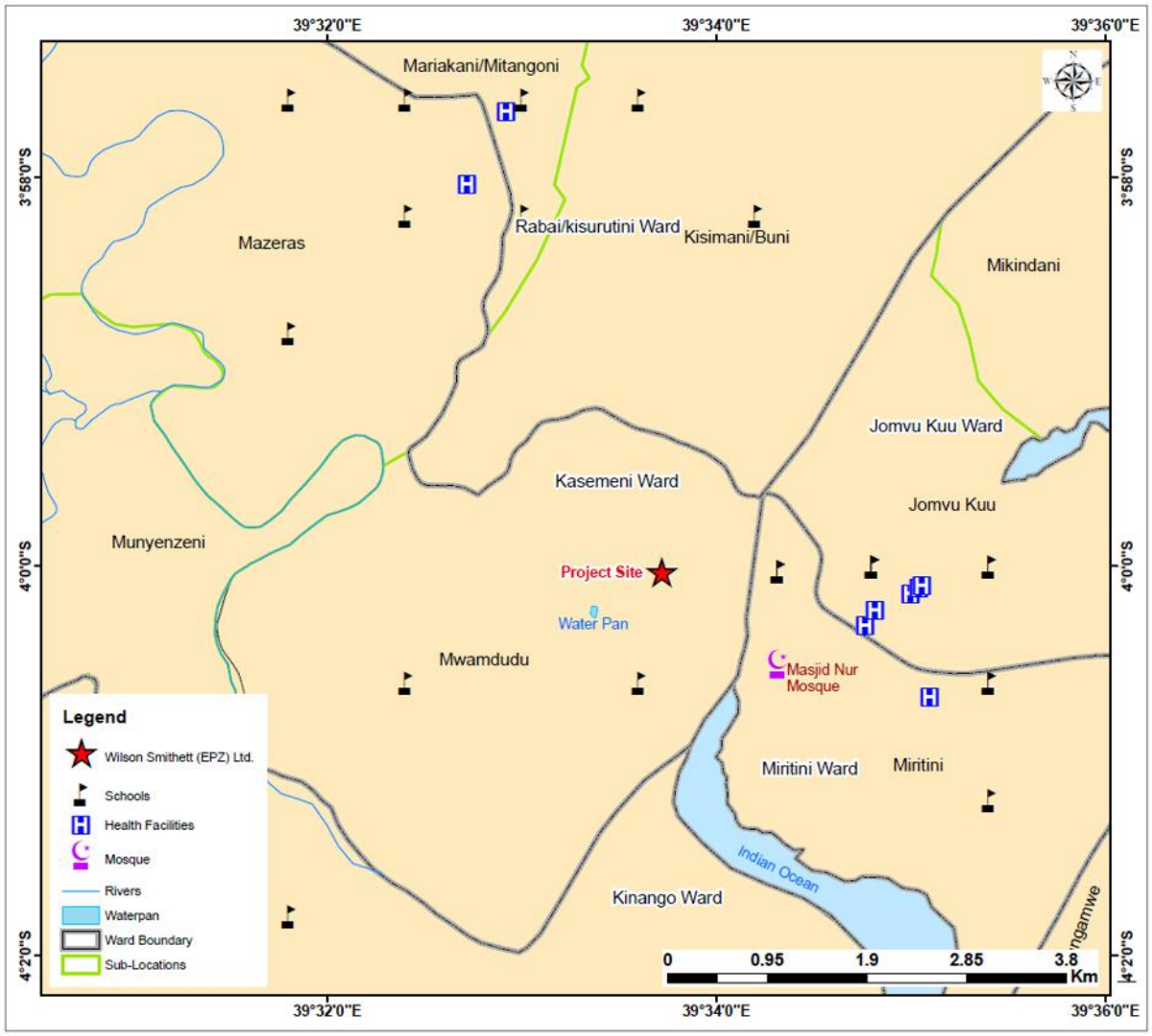

Table 1: Kwale County administrative units

Administrative Unit	Total	Male	Female	Area (in Km2)	Population Density (Persons/Km2)
Kwale County	866,820	425,121	441,681	8,254	105
Kinango Sub County	296,455	142,910	153,537	4,043	73
Ndavaya Ward	38,173	18,506	19,666	516	74
Puma Ward	29,903	14,533	15,370	894	33
Mackinon Road Ward	48,273	23,473	24,797	1,071	45
Chengoni/ Samburu Ward	50,248	24,081	26,165	748	67
Mwavumbo Ward	43,768	21,095	22,672	283	154
Kasemeni Ward	59,946	28,848	31,097	329	182
Kinango Ward	26,144	12,374	13,770	202	129

Source: Kenya National Bureau of Statistics; KNBS (2019).

Settlements Distribution

Population distribution and settlement patterns in the project area are influenced by infrastructural network (roads, water availability, telecommunications and electricity), availability and accessibility of areas of gainful employment, availability of cheap housing, security and land tenure. Sparsely populated areas in the larger project area neighbourhood include Ndavaya, Puma, Mackinon Road, Chengoni/ Samburu and partly Bonje. The low population areas are mainly rangelands and less productive agriculturally. Kasemeni ward has the highest density of settlements which is attributed to improved development in terms of access infrastructures such as road network, and electricity as well as accessibility employment opportunities from the industrial parks in the locality. Regionally, the highest population densities are found in Mombasa Island Division and along the major highways such as Mombasa – Lunga Lunga road and Mombasa – Nairobi Road in Changamwe Division and Mombasa – Malindi road. Miritini Estate located approximately 1.5km east of the project site within Miritini Ward, in the neighbouring Mombasa County has the highest density of settlements and offers affordable residence to locals working in the industries in the region.

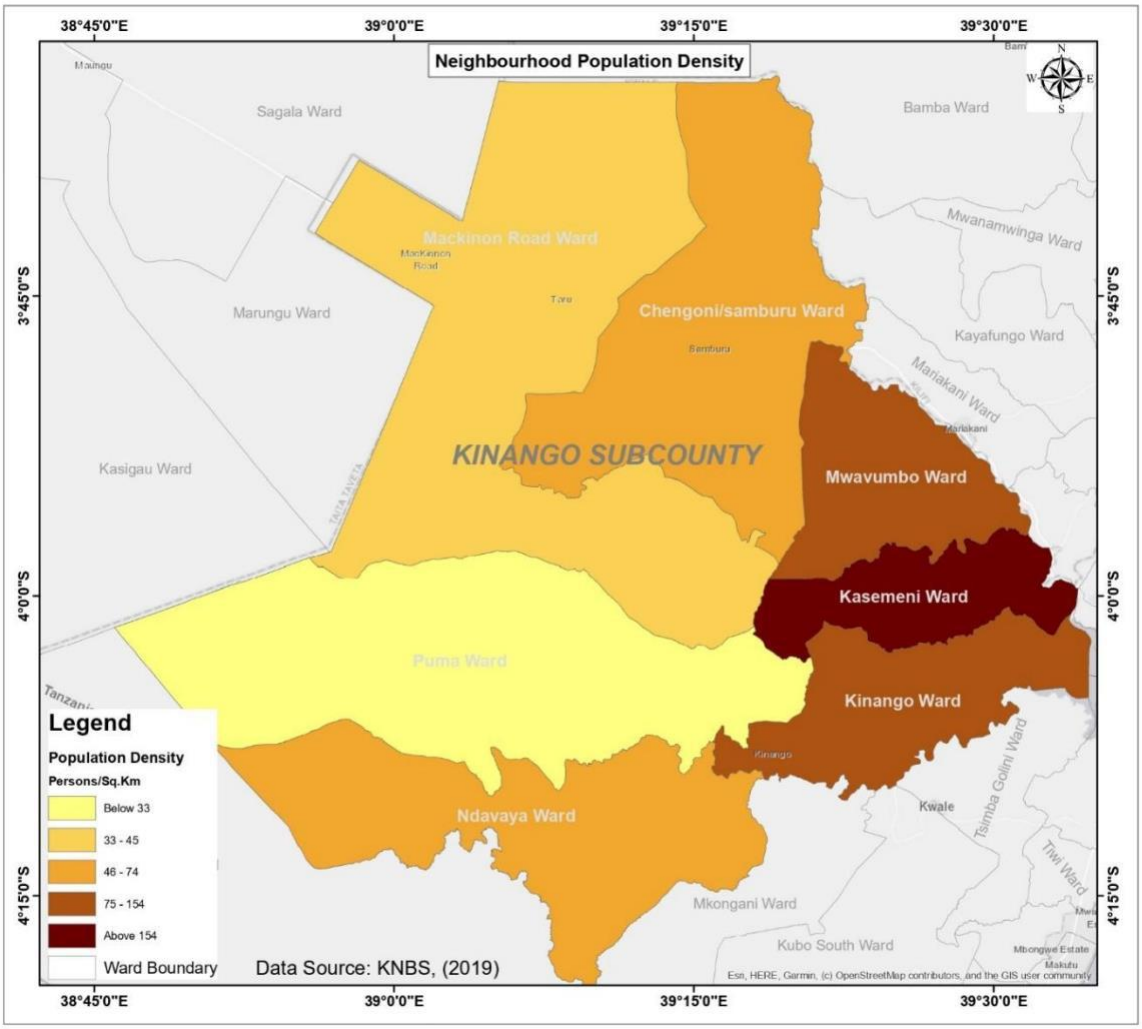

Figure 3: Project area population density

According to the household survey conducted by the ESIA team, majority of the residents (74%) who have settled in Kasemeni area are from within Kwale county. Slightly more than a quarter (26%) mentioned to come from the neighbouring Mombasa County. Statistics further point out that majority of the residents are within the productive

age group; 20-30 years (14.9%), 30-40 years (28.4%), 40-50 years (34.6%) and above 50 years (22.1%). See figure 1 below:

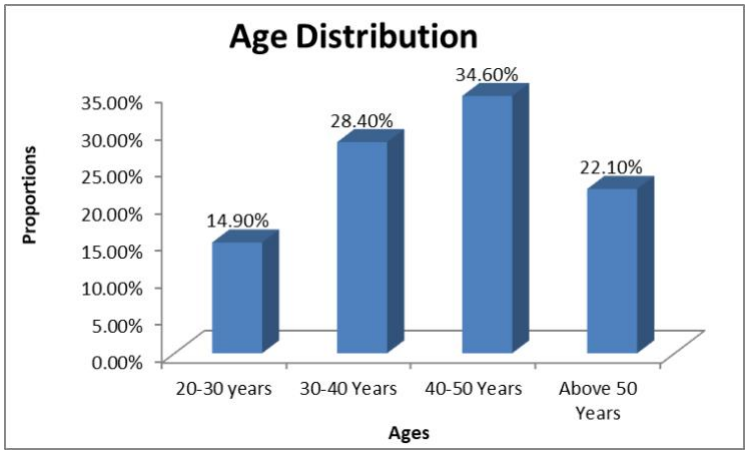

Figure 4: Age Distribution of residents within the Bonje area

These findings coincide with the observation during the public participation where it was indicated that there is a large labour force locally to provide workforce needed during construction and operation of the company. The area is dominated with male headed households (66.8%) who are also the breadwinners. Only 33.2% of the respondents indicated to be living in female headed households. The average household size comprises 6 members with some having as high as 15 members.

2. Livelihoods of Residents

There is a high level of livelihood unreliability within the project area with slightly more than a quarter (29.3 %) of the respondents who participated in the ESIA household survey relying on peasant farming as the main source of income. This however constitutes the highest proportion of the population, an indicator of income instability in the area. The farming practiced is rain-fed with low incomes due to unreliable weather patterns. Large tacts of land remain unutilized (rangelands). Other main sources of income reported include: employment (23.1%), business (20.7%), informal sector (6.3%) and self-employment (20.2%). 0.1% of the respondents were uncertain about their incomes. Majority of those employed (46.3%) worked within the private sector illustrating the critical role private investments play in sustaining livelihoods and the local economy of the area (See figure 2 below). Thus the proposed investment will be very vital in boosting employment creation and income generation for the local residents.

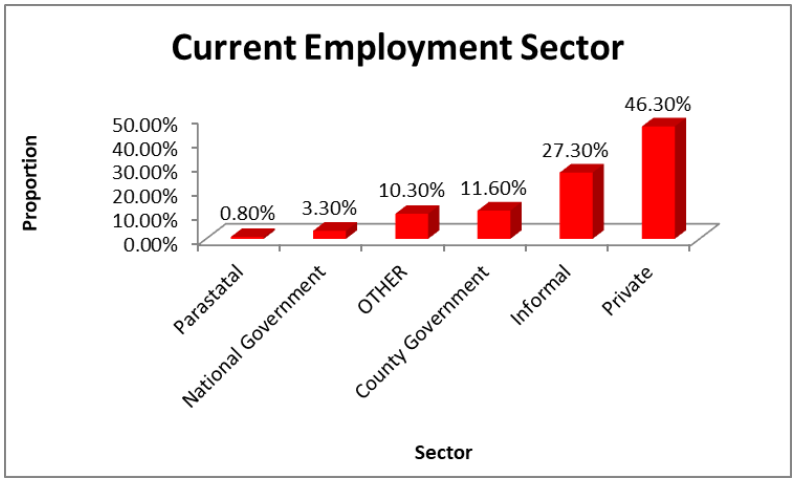

Figure 5: Employment Sector of respondents in the Project area

The main challenge remains the low wage rates received by employees. From the ESIA household survey, respondents indicated that on average an employee is paid Kshs. 14,850. These income levels are viewed as

inadequate for the household relative high cost of living in an urbanizing area. This is similar to the observation made during the public participation where the residents called upon the proponent to be considerate on the welfare of his employees (to be) and pay at least the recommended minimum wage.

3. Poverty Levels

Majority of the residents in the project area struggle with meeting basic needs due high poverty level attributable to unreliable livelihoods and low incomes. According to the ESIA household survey, majority of the respondents are unable to afford renewable sources of energy and have resolved to use of firewood (75.2%) and charcoal (77%) which are fairly affordable. Only 25.4% and 26.8% agreed to be using electricity and LPG respectively. There is an increasing uptake use of solar energy (42.1%) mainly for lighting purposes. Majority of the households (82.3%) also indicated that their children attended public schools in comparison to those learning in private schools (less than a quarter – 17.7%). This could be a possible indicator of inability of parents to pay school fees in private schools. It is thus evident that there is need to stimulate economic growth in the project area in order to alleviate poverty and enhance the livelihoods of residents. By the proponent investing in the area, economic growth of the locality will be boosted.

4. Anticipated Project Impacts

Positive Impacts

Majority of the residents (78%) believe that the project will be beneficial to them (see figure 3 below). When inquired of the benefits they expected from the proposed project, 76% of respondents were optimistic about securing job opportunities both during construction and the operation phase of the company. Tables 1 below summarizes the benefits anticipated by the residents as expressed during the ESIA household survey. The respondents held that it is for these reasons that they were in full support of project implementation.

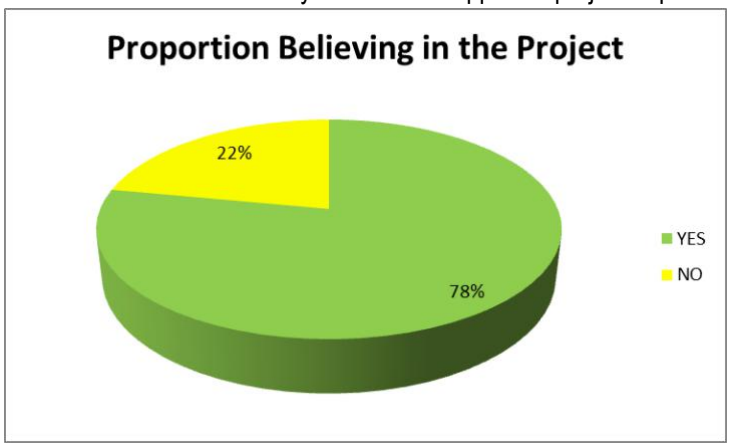

Figure 6: Proportion of the interviewed residents who Believed in the Proposed Project

Among those who were of the opinion of not supporting the project, the majority (77.42%) believed that there will be no job opportunities given to them. Other reasons mentioned include: Corruption (6.45%), Racism and nepotism (6.45%) and fear (9.68%). It can be concluded that by the proponent ensuring inclusivity, the proposed project can be guaranteed full community support.

Table 2: Reasons for the Local residents supporting the Proposed Project

Reason for supporting	Proportion
Business growth	2.56%
Community Development	7.69%

Reason for supporting	Proportion
Employment opportunities	72.65%
Enhanced Income	0.85%
Improved Living standard	10.26%
Security	1.71%
Quality Tea	4.27%

When asked about the effect of factory on business and farming, majority (49.02%) of the respondents felt that there will be value addition on their products. 3.92% anticipated an increase in business. Cost of rent was also expected to rise due to increased demand.

Negative Impacts

The ESIA team also asked the local residents whether there were any challenges faced that could be attributed to the growth of Colfax Business Park. More than half (63.9%) of the residents confirm having faced problems near Colfax Business Park. According to the ESIA household survey, the major forms of problems faced by residents are threat of eviction (37.3%), insecurity (34%) and waterborne disease (7.2%).

With regard to the proposed project, the three main concerns expressed by the respondents as the major negative aspects of the project are; low crop production (23.8%), immoral behavior (22.9%) and insecurity (22.9%). Table 2 below summarizes the potential negative impacts as identified during the survey.

Table 3: Potential Negative Impacts posed by the Proposed Project

Negative Impact	Proportion
Air Pollution	3.8%
Displacement	3.8%
Diseases	2.9%
Immoral Behavior	22.9%
Insecurity	22.9%
Low crop production	23.8%
Low Income	9.5%
Low Marketing	2.9%
Noise Pollution	5.7%
Reduced Business	1.9%

The ESIA survey also revealed that the residents were concerned how the welfare of their children would be impacted by the establishment of the company in the locality. The effects mentioned were linked to those children who would have to be relocated from their schools as a result of migration of their parents either due to displacement or shifting residence to move closer to the workplace. The effects include: school disorientation (14.95%), security issues (16.49%), lack of water and food (6.19%), diseases (3.09%), health concerns (2.58%), lack of worshiping places (2.58%), immorality (2.06%) and school distance (31.96%)

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3 ENVIRONMENTAL POLICY, LEGAL & INSTITUTIONAL FRAMEWORK

Table 4: Environmental policy, legal & institutional framework

	LEGISLATION	**Relevance to the project**
1.	The Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2016 It deletes and substitutes the Fifth Schedule (fees) of Environmental (Impact Assessment and Audit) Regulations, 2003.	The developer will fully comply; the proposed project being a high-risk project, the developer will pay an ESIA processing fee of Ksh. 626,206/=
2.	Environmental Management & Co-ordination (Waste Management) Regulations 2006:	Ensure there exists proper contractual agreement with NEMA licensed solid waste handlers and that solid wastes are collected in a timely manner and disposed of responsibly.
3.	Air Quality Regulations, (Legal Notice No. 34 of 2014):	The proponent will ensure that operations at the site do not generate dust, particulates and other emissions beyond allowable limits especially during construction by deploying efficient dust screens, PPE and other dust suppression measures.
4.	Legal Notice No. 120, Environmental Management & Co-ordination (Water Quality) Regulations 2006:	Any discharges to the surface water courses during operation phases to be monitored for conformance with the standards. The contractor/proponent will handle hazardous substances in a manner that is not likely to cause water pollution. The proponent should ensure that effluent meets the standards set out under Schedule III of Legal Notice No. 120 of 2006.
5.	The Environmental Management and Coordination (Controlled Substances) Regulations, 2007: .	The proponent will comply with the Regulations by not using Ozone Depleting Substances
6.	The Environmental Management and Co-ordination (Wetlands, Riverbanks, Lake Shore and Sea Shore management) Regulations, 2009.	It will be the duty of the developer to ensure no wastes from this development end up into water bodies.
7.	Environmental Management & Co-ordination (Noise & Excessive Vibration Pollution control) Regulations 2009: .	Sound level limits of 60dB(day) and 35dB (night) to be observed during operations License to emit noise/vibrations in excess of permissible levels to be acquired if necessary.

	LEGISLATION	**Relevance to the project**
8.	Legal Notice No. 31, Environmental Management and Coordination, (Noise and Excessive Vibration Pollution) Regulations 2009:	The contractor shall be required to implement these measures, ensure that all machineries are in good working condition to reduce noise. Also, construction activities shall be restricted between 0800Hrs-1700Hrs to ensure that the neighbours are not disturbed.
9.	Environmental (Impact Assessment & Audit) Regulations, 2003 Amended 2019:	The EIA to be carried out in accordance to the regulations
10	EMCA (Fossil Fuel Emission Control) Regulation, 2006	Only approved substances are to be used as a fuel catalyst if the substance improves fuel economy, enhances combustion and reduces harmful emissions that adversely affect human, animal and plant health and degrade the environment
11	Use of Poisonous Substances Act Cap 247: An Act of Parliament to provide for the protection of persons against risks of poisoning by certain substances, and for matters incidental thereto and connected therewith	Section 3 of the Act casts a duty on all employers of protecting their employees against the risk of poisoning by poisonous substances.
12	The Water Act (Act No.8 of 2002) revised in 2016.	A permit will be required from WRA for any water borehole construction works and an abstraction license
13	Water Resources Management Rules 2007: Provides for application by all those intending to abstract ground water	Depending on the proposed source of water for construction activities, permits may be required
14	The Physical and Land Use Planning Act, No. 13 of 2019	The proposed project has physical planning approval from the Kwale county government. Provisions of the Act regarding development control shall be strictly adhered to. All developers within the project area must strictly adhered to requirement of the Act regarding plot coverage and reservation of land for public utilities

	LEGISLATION	**Relevance to the project**
15	Public Health Act (Cap. 242):	Health issues will be integrated into the project to ensure environmental health is appropriately addressed. Contractors will also manage solid waste arising from facility related activities in compliance with provisions of this Act.
16	Penal Code Act (Cap. 63): Chapter XVII strictly prohibits the release of foul air into the environment which affects the health of the persons.	Waste disposal and other project related activities shall be carried out in such a manner as to conform to the provisions of the code. It is the responsibility of the contracted licensed waste handler to ensure that all kinds of wastes are disposed appropriately as per the legal provisions.
17	The Workmen's Injury and Benefits Act, 2007	Contractor will have insurance for workers on the site & the employer will also procure insurance for staff working at the warehouses.
18	The Employment Act, 2007:	Contractor to be strictly advised not to engage any underage persons (under 18 years of age) to perform any form of work at the site during construction. The proponent shall also ensure that the contractor is conversant and adheres to all the provisions of the Employment Act
19	The Traffic Act, Cap 203:	Vehicles will be used to transport humans and equipment during the entire project life, and their registration and licensing will be required to be compliant.
20	The Standards Act Cap 496:	Proponent has to ensure all materials and equipment in use during construction as well as operation of the facility adheres to the highest standards and do not pose any human health and safety risk. Tea & Rice products from the warehouses must also be certified by KEBS.
21	Occupiers Liability Act Cap 34	Ensure safety of workers during construction and possible decommissioning phases and occupants upon occupation of the buildings.
22	Occupational Safety and Health Act 2007	The contractor will continuously improve the safety and health standards at the construction site. All requisite trainings, approval and permits including Workplace Registration Certificate shall be procured by the proponent / contractor
23	Factories & Other Places of Work (Noise Prevention & control rules,2005:	Noise emitted during the operation of the machinery in the warehouse.

	LEGISLATION	**Relevance to the project**
		requires provision of PPE to workers & minimization of noise exposure to the public
24	Electricity Power Act No. 11 of 1997	Electricity power installation and usage should be done in a manner that seeks to protect the health and safety of the project employees; the local and other potentially affected communities as well as the environment. Liaison with relevant agencies such as KPLC should be sought where necessary.
25	The Energy Act 2019	Electrical installation to service the proposed project should be done by a licensed electrician under ERC
26	The Environment and Land Court Act, 2011	The project proponent should abide to all the provisions of this Act
27	National Construction Authority Act No. 41 of 2011	The proponent will comply with the Act by ensuring that the site and project contractors are registered and certified by NCA. A site board is place at the project site with details of the project
28	Kwale County Government by-laws	Ensure adherence to the by-laws provisions and acquire the necessary approvals and permits
29	Solid Waste Management Act 2022	Provision of waste segregation receptacles at the warehouses Awareness creation of segregation of solid waste
30	Climate Change Act Chapter 387A	Project will strive for minimization of GHGS emission by operation activities by use of renewable energy such as solar for lighting & back up power for some of the equipment
31	Export Processing Zone Act, Chapter 517	Proponent will register the facility as an export processing zone so as to qualify for incentives provided under this regime.

4 PROJECT DESCRIPTION

4.1 Introduction

Wilson & Smithett (EPZ) Ltd intends to construct 2 interconnected warehouses, an office block and boundary wall on a 7.73 acre industrial plot at Colfax Industrial Park in Bonje. The warehouses EPZ 1 & EPZ 2 will measure a total of 11,534 square meters and the office block will be a 3 storey block with a total floor area of 2,422 square meters.

THe main thrust of this project is to expand & centralise their tea blending and branding operations for the export market from the current operation site at Shimanzi industrial area in Mombasa to a purpose built facility at Colfax industrial park,in Bonje- Kwale County.

The proposed site offers several advantages including:

- Proximity to the gate 18 Port of Mombasa
- Access to SGR & MGR lines
- Access to high capacity road network to & from the hinterland
- Large space for expansion
- Lower local authority levies
- Proximity to a large labour pool
- Proximity to financial institutions & allied services

Components of EPZ 1 warehouse complex -11,648m2

Raw Material Warehouse
Packaging Material warehouse
Finished Product warehouse
Blending / Compiling area
Engineering store
Power utility area
Supervision offices
Employee lockers & changing room & sanitary facilities
Cold storage
Palletizing area
Flavor blending

Components of EPZ 2 warehouse complex - 4,712m2

Raw Material Warehouse
Packaging Material warehouse
Finished goods warehouse
Manual Blending area
Blending & compiling area
Workshop
Compressor room
Canteen

The architectural drawings for the buildings and boundary wall are annexed with this report.

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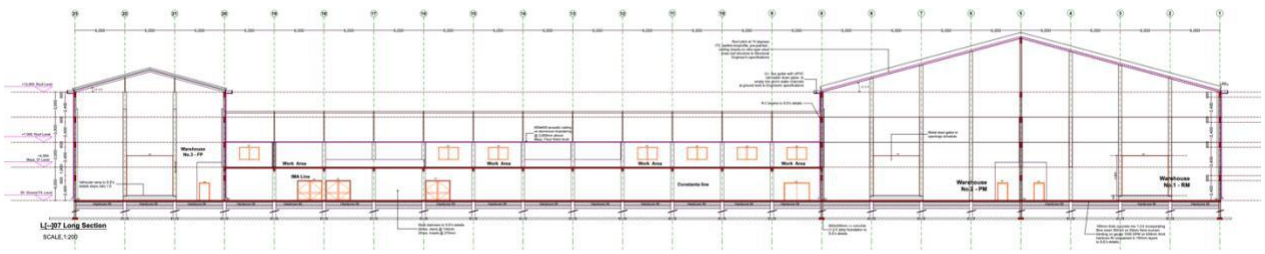


Plate 1 Side Elevation of the tea warehouses for EPZ activities

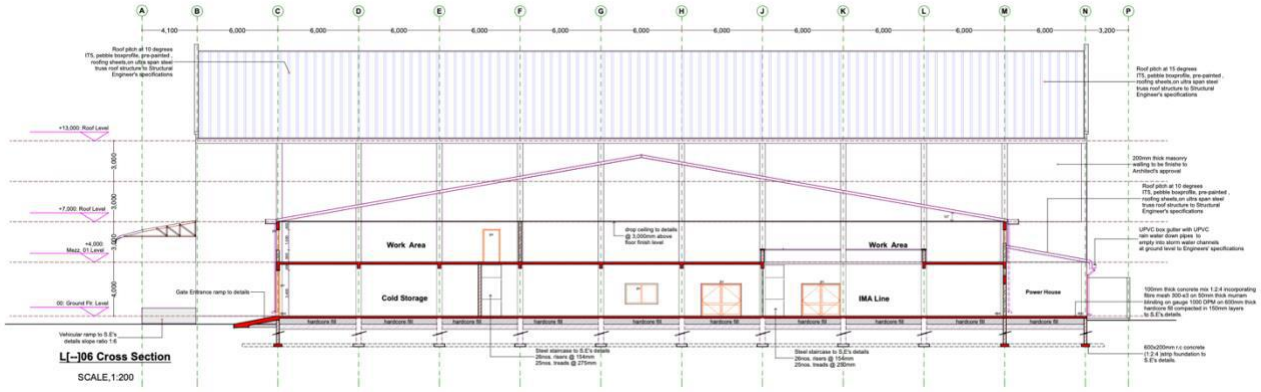


Plate 2 Alternate elevation of EPZ Tea warehouse & packing

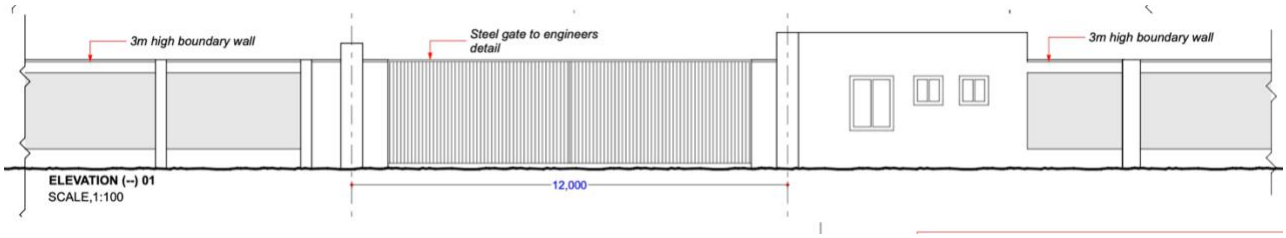


Plate 3 Boundary wall & Gatehouse

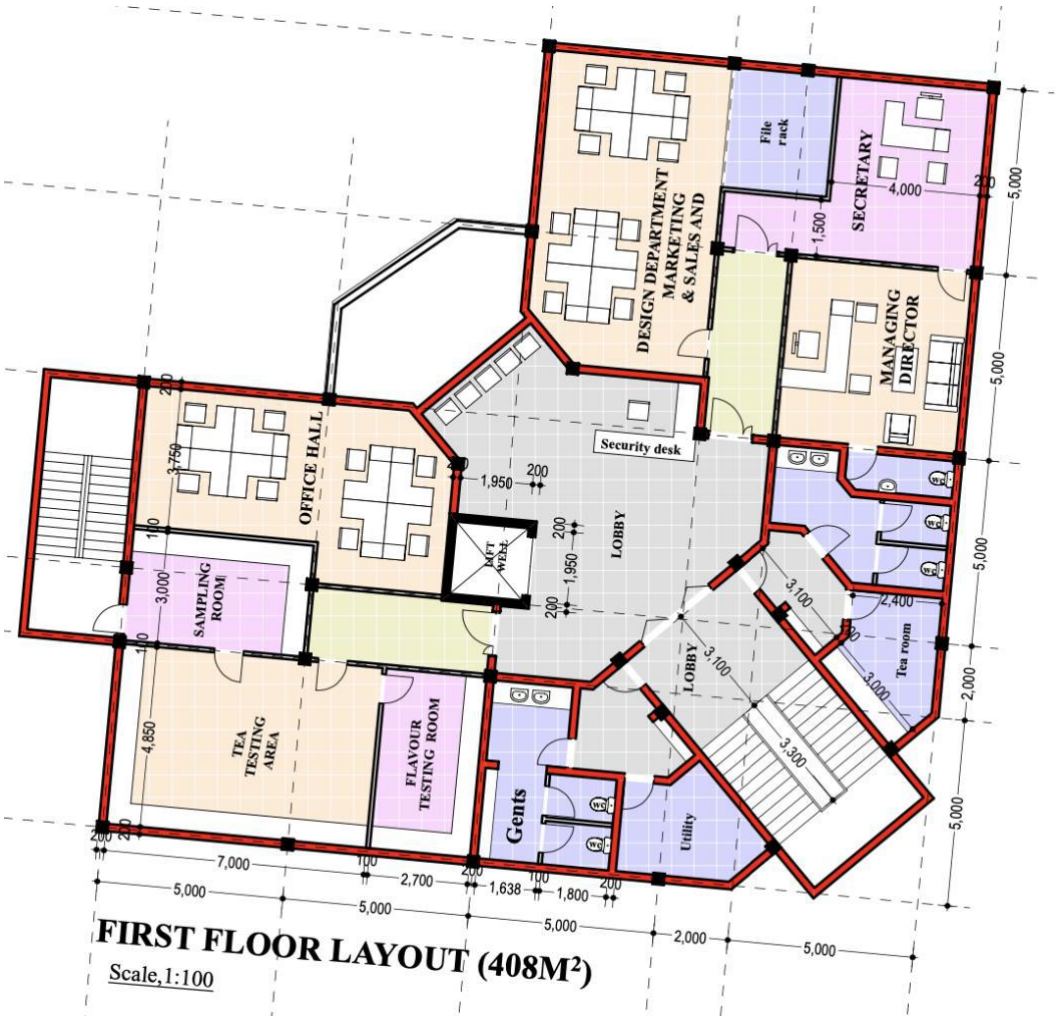


Plate 4 Office Block plan for 1st floor

Functional spaces allocated for the office block include:

37 parking spaces are provided for the office block.

Floor	Functions
Ground (408m2)	IT infrastructure room, Shipping department, security office, Conference hall, meeting room, Human Resource offices, kitchenette, toilets including disabled toilet & a utility closet.
1st - (408m2)	Tea & flavour testing rooms , Sampling room, Open office plan, office spaces for Marketing & director, security station and sanitary facilities & kitchenette.
2nd - (389m2)	Accounts offices, Archives & record rooms, Meeting room, directors offices, sanitary facilities, kitchenette & utility closet.

3rd -(389m2)	Gym for employees, Dining hall & Kitchen, Training hall, locker room for gym users, and toilets

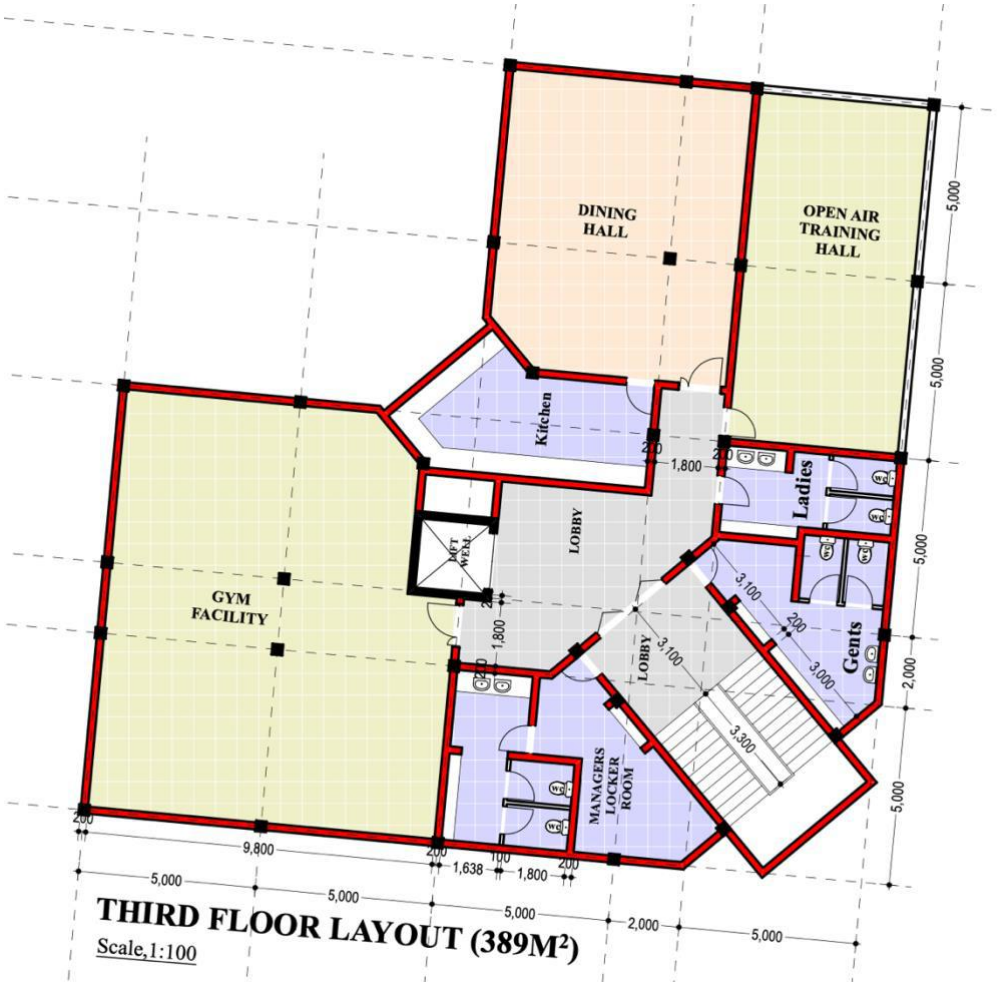


Plate 5 Office Block will have staff welfare facilities on the 3rd floor

Construction Inputs

The project inputs will include the following:

i) The materials that shall be used will include stones, cement, sand, crushed rock (gravel/ballast), ceramic fixtures, reinforcement bars, wood/timber, glass, painting materials, plastic, electrical and mechanical fixtures. All these materials shall be obtained from licensed dealers who have complied with the environmental management guidelines and policies and approved by Kenya Bureau of Standards (KEBS).

ii) Several machines shall be used which will include earth moving equipment (excavators, loaders, wheel loading shovels and backhoe), material handling equipment (cranes and hoists), construction equipment (concrete mixers and vibrators) and engineering vehicles (trailers, tippers and dumpers).

iii) The project will also require labour forces of both skilled and unskilled workers. The skilled personnel will include the project consultants (architects, engineers, quantity surveyors and environmental experts) and a contractor with a team of foreman, masons, plasterers, carpenters, plumbers, welders, electricians, glaziers, painters and casual labourers.

Other construction inputs will include wastewater and sewer disposal, water services, power and electricity connectivity and supply from the main power grid or provided by generators.

4.2 Description of the Project's Construction Activities

4.2.1 Mobilization of Building Materials

The proponent plans to source several building materials locally and expressed the confidence that the materials can be procured locally. The great emphasis laid on procurement of building materials from within the local area makes both economic and environmental sense since it reduces negative impacts of transportation of the materials to the project site through reduced distance of travel by the materials transport vehicles. Building materials are transported to the project site from their extraction, manufacture, or storage sites using transport trucks. There is adequate road linkage for the purpose of smooth transport of building materials into the project site.

4.2.2 Storage Materials

Building materials will be stored on site according to their need. Bulky materials such as rough stones, ballast, sand and steel will be carefully piled and covered on site. Materials such as cement, paints and glasses among others are to be stored in temporary storage rooms conveniently within the project site for this purpose

4.2.3 Masonry, Concrete Work and Related Activities

The construction of the proposed houses will involve a lot of masonry work and related activities. General masonry and related activities will include stone shaping, concrete mixing, plastering, slab construction, construction of foundations, and erection of building walls and curing of fresh concrete surfaces. These activities are known to be labour intensive and will supplement machinery such as concrete mixers.

4.2.4 Structural Steel Works

All the beams and floors shall be reinforced with steel metals to enhance the stability of the proposed building. Structural steel works will involve steel cutting, welding and erection.

4.2.5 Roofing and Sheet Metal Works

Roofing activities will include iron sheet cutting, raising the roofing materials such as structural timber to the roof and fastening the roofing materials to the roof. Proper planning and measuring must be done before procurement of the sheets to ensure not much solid waste is generated after roofing is completed.

4.2.6 Electrical Work

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

4.2.7 Plumbing

Installation of pipe work for water supply and distribution will be carried out from the existing supply and then to associated facilities. In addition, pipes will be installed to connect sanitary facilities with the existing Mombasa County sewerage system serving the area, and for drainage of stormwater from the rooftop into the peripheral drainage system. Plumbing activities will include metal and plastic cutting, the use of adhesives, metal grinding and wall drilling among others.

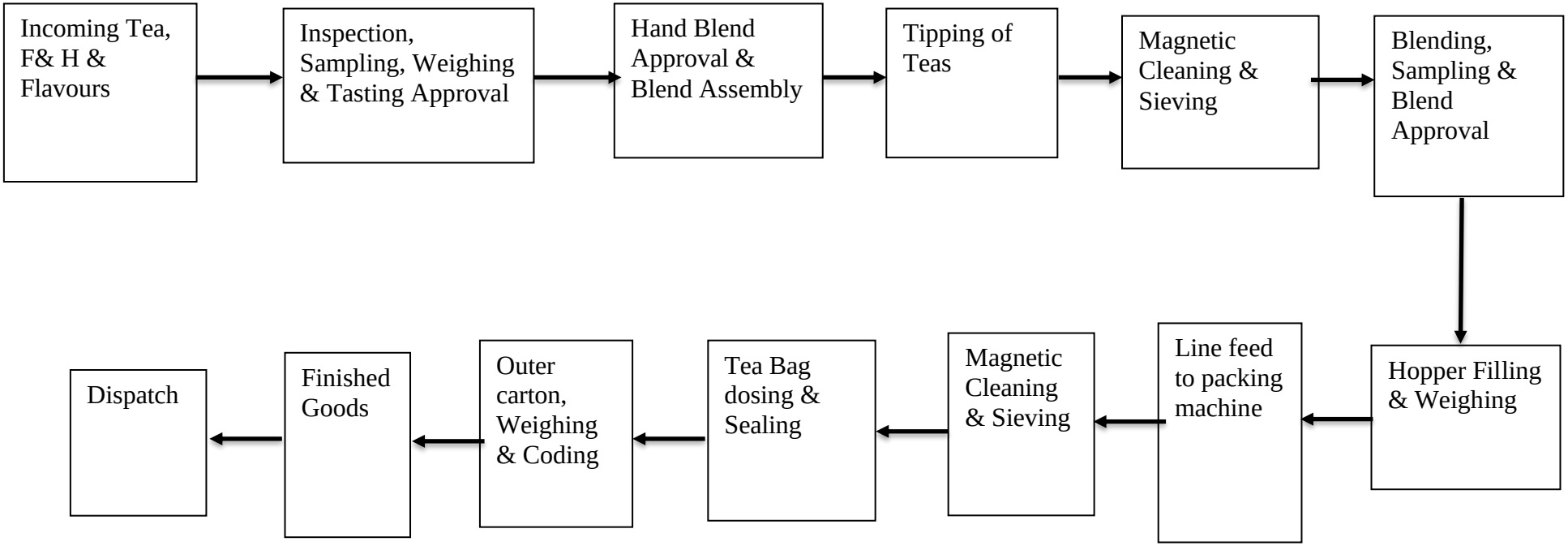
1. Landscaping

To improve the aesthetic value or visual quality of the site once construction is complete, the proponent will carry out extensive landscaping especially at the front and rear parts of the buildings that shall involve establishment of small and attractive flower gardens. It is noteworthy that the proponent will use plant species that are available locally and fast growing for the landscaping.

4.3 Description of the Project's Operational Activities

- **Tea Processing Workflow**

1. Teas are received in the factory from various gardens that have been bought in the KTDA auction.
2. Once the tea is received, tea is inspected by the Quality Supervisors, sampling is done and accepted after the weight checking if it meets our set standards.
3. Received tea is stored in the raw material warehouse.
4. Blend sheet is prepared by the tasting department for different grades.
5. Different grades of teas from various gardens are compiled at the tea compiling zone to prepare for blending of teas as per blend sheets issued and approved by the tasting department.
6. Teas are tipped into the blending machine and blended as per blend sheet. Various quality assurance measures are taken while blending the team and the same is monitored by the team of Quality Controllers.
7. Blended teas are transferred into the mobile hoppers through packet elevators on the top mezzanine floor and teas are fed into the tea bagging machines through gravity.
8. Tea bags are packed, and packing is completed in the outer cartons after coding and weighing followed by all the quality checks.
9. Finished goods are stored/loaded from the finished goods warehouse as per the orders


Incoming Tea, F& H & Flavours
Inspection, Sampling, Weighing & Tasting Approval
Hand Blend Approval & Blend Assembly
Tipping of Teas
Magnetic Cleaning & Sieving
Blending, Sampling & Blend Approval
Hopper Filling & Weighing
Line feed to packing machine
Magnetic Cleaning & Sieving
Tea Bag dosing & Sealing
Outer carton, Weighing & Coding
Finished Goods
Dispatch

4.3.1 Solid Waste management

The developer has proposed to contract a licensed company responsible for solid waste handling for the defect period of the operational phase of the tea warehouses. Solid waste generated within the premises during its operation phase, from where a NEMA licensed contracted company will be responsible for collecting and disposing off these wastes to a designated dumpsite approved by the relevant authority.

4.3.2 Cleaning

Once the proposed development is complete a management company operated by the warehouse operator..

4.3.3 General Repairs and Maintenance

Throughout the operational phase of the development project, general repairs will be carried out to ensure normal functioning of the buildings infrastructures, components and avoid any hazard, injury or accident to the occupants. Such activities will include repair of floors, repairs and maintenance of electrical gadgets and equipment, repairs of leaking water pipes, painting, maintenance of flower garden and replacement of worn out materials among others.

5 ANTICIPATED ENVIRONMENTAL IMPACTS

5.1 Positive impacts

Potential positive impacts from the proposed redevelopment will be both short term and long term. This will include but not limited to the following: -

5.1.1 Employment opportunities

During the construction phase, job opportunities to both skilled and casual workers will be available. Several workers including casual labourers, masons, carpenters, joiners, electricians and plumbers are expected to work on the project site from the project start period to its completion date. Apart from casual labour, semi-skilled and unskilled labour and formal employees are equally expected to obtain gainful employment opportunities during the project construction phase. Employment opportunities are one of the long-term major impacts of the proposed tea packing EPZ that will be realized after the construction phase and during the operation and maintenance of the facility.

5.1.2 Development of local infrastructure;

The implementation of the proposed project will lead to opening up the area by adding more residential space that ensures optimal land use as compared to the current use or any perceived future use of the said plot.

5.1.3 Revenue to government;

There will be gains in the local and national economy. Through consumption of locally available building materials including concrete tiles, timber and cement. The consumption of these materials, fuel oil and others will attract taxes including VAT which will be payable to the government.

5.1.4 Enhancement of other businesses:

The proposed project will improve income/economic status of people within the project neighbourhood. There will be gains in the local and national economy. Through consumption of locally available building materials including concrete tiles, timber and cement. The cost of the materials will be payable directly to the producers.

5.1.5 Improved security in the area:

This is going to be realised through employment of security guards both during construction and operational stages of the proposed project. Lighting of the project area and its environs will also help boost the security of the area during night hours.

5.1.6 Optimal use of land

By building the units the design has incorporated an optimal use of the currently undeveloped land.

5.2 Negative Impacts & Mitigation Measures

5.2.1 Surface Run-off & Storm Water Drainage

The proposed project construction phase will lead to increased release of stormwater into the drainage system. The building roofs and pavements may lead to increased volume and velocity of stormwater or run-off flowing across the area covered by the buildings. This can lead to increased amounts of storm water entering the drainage systems, resulting in overflow and damage to such systems.

Potential Mitigation Measures

1. After completion of construction, the proponent shall embark on comprehensive landscaping.

2. Construct gently sloping drains to convey water at non-erosive speed.
3. Drainage channels shall be covered; say with gratings, to avoid occurrence of accidents and entry of dirt.
4. Semi permeable materials will be used for construction of pavements.

5.2.2 Traffic Impact

Increased road traffic in and out of the project area will be experienced during all the phases of the project. Traffic increase is anticipated both from vehicular & non-motorised sources. This traffic will be highly dependent on the traffic activity on the project site access road. During construction of the facility there will be an increase of car trips (construction workers) and truck movements. Most construction workers will arrive on site before 7am which is before the morning peak period. A large majority of the site work force will complete work by 4pm so their return trips will be outside of the evening peak traffic period. There will be little traffic related to construction throughout the day.

Truck arrivals are distributed throughout the day with no defined peak. There will be few arrivals after 4pm since when a truck arrives on site; enough time has to be allowed for unloading the truck prior to the site closing also with sufficient time for the driver to return to the depot before close of business.
The following traffic control plans will help minimise traffic impact:

- Pedestrian management plan to ensure that pedestrians are aware of the construction driveways
- Signage indicating the presence of truck turning to and from construction site from and to the project access road

Most construction transport accidents result from the inadequate separation of pedestrians and vehicles. This can usually be avoided by careful planning, particularly at the design stage, and by controlling vehicle operations during construction work. The following actions will help keep pedestrians and vehicles in the construction site and on the access road apart:

- Entrances and exits - provide separate entry and exit gateways for pedestrians and vehicles;
- Walkways - provide firm, level, well-drained pedestrian walkways that take a direct route where possible;
- Crossings - where walkways cross roadways, provide a clearly signed and lit crossing point where drivers and pedestrians can see each other clearly;
- Visibility - make sure drivers driving out onto public roads can see both ways along the footway before they move on to it;
- Obstructions – do not block walkways so that pedestrians have to step onto the vehicle route; and
- Barriers - think about installing a barrier between the roadway and walkway.

Potential Mitigation measures

1. The timing of the truck arrivals and departures will largely be outside of the commuter peak periods
2. Warning signs will be placed to advise pedestrians and manage their safety when walking across the construction driveways.
3. During activity periods of high traffic volume (such as excavation and concrete pours), pedestrians will be guided walking across the construction driveways exit by traffic controllers.
4. The use of public transport and carpooling will be actively encouraged.
5. Vehicle access to neighboring properties will be retained.
6. No machinery or material will be stored on the footpath or verges or on public areas.
7. All materials handling will be done on site.

5.2.3 Solid Waste Generation

Solid waste will consist of construction debris, cement bags, wood, broken glasses, containers, metal, sharp objects such as nails, organic waste, paper, and plastic among others during the development construction phase.
Potential Mitigation Measures

1. Efficient use of building material to reduce waste and recycling/reuse where feasible.

2. Engage the services of registered waste handlers to collect and transport waste to designated disposal sites.
3. Provision for waste management rooms at strategic places within the development facility.
4. Segregation of waste at the source during the project cycle.
5. To manage waste in line with the Waste Management Regulations, 2006.
6. Use of an Integrated Solid Waste Management System (ISWMS); through a hierarchy of options: source reduction, recycling, composting and reuse, will facilitate waste handling during the operation phase.

5.2.4 Air Pollution, Particles & Dust Emission

Air pollution will be among the major negative impacts during the site preparation and construction phase as a result of increase in amounts of dust emanating from the excavation, construction activities and stockpiled earth materials. Air pollution may also be as a result of emission of fumes and particles or combustion of fossil fuels from the construction machinery.

Potential Mitigation Measures

1. Ensure no burning of waste such as paper and plastic containers on sites/non-designated areas.
2. Minimize exposed areas through the schedule of construction activities to enable dust control.
3. Minimize the period for idling of machinery and construction vehicles.
4. Monitor the air pollution levels regularly as per the Air Quality regulations.
5. Onsite dirt piles or other stockpiled material should be covered, wind breaks installed, water and/or soil stabilizers employed to reduce wind-blown dust emissions.
6. All staff employed at the construction site and visitors must be provided with dust masks and other PPEs.
7. All waste must be transported off-site for processing, not burnt or stored for any longer than is absolutely necessary.
8. Machines must not be left idling for unnecessary periods of time.
9. Alternatively, fuelled construction equipment shall be used where feasible
10. Perform construction at times that persons are expected to be at work and school.
11. All raw materials where possible must be sourced as close as possible to the construction site thus reducing the emissions from vehicular traffic.
12. Regular and prompt maintenance of construction machinery and equipment to minimize generation of hazardous gases.
13. Regular sprinkling of water on work areas to prevent fugitive dust violations.
14. Restricting heights from which materials are to be dropped, as far as practicable to minimize the fugitive dust arising from unloading/loading.
15. Use environmentally friendly fuels such as low sulphur diesel.
16. Buffer area of trees and other vegetation will serve as natural windbreaks.
17. Use of dust nets/screens around the construction site to contain and arrest dust.
18. Where a vehicle leaving a construction site is carrying a load of dusty materials, the load shall be covered entirely by clean impervious sheeting to ensure that the dusty materials will not leak from the vehicle.

5.2.5 Dust pollution

The expected air pollutants from the proposed project will include dust, particulate matter and gaseous emissions from construction materials and equipment. Dust will be generated from the excavations and materials delivery. Particulate matter will be generated from dry materials including sand, cement, gravel, etc. Smoke, hydrocarbons and nitrogenous gases will be emitted from machinery exhausts. These will be expected to increase slightly and will be localized hence expected to be experienced within 30m radius of the project. Air pollution is expected to be experienced during the construction period.

Potential Mitigation Measures

1. Spray stockpiles of earth with water

2. Avoid pouring dust materials from elevated areas to ground
3. Cover all trucks hauling soil, sand and other loose materials
4. Provide dust screen where necessary
5. Sensitize workforce including drivers of construction vehicles

5.2.6 Increase Generation of Effluent/Liquid Waste

There will be an increase in the generation of liquid waste as a result of an increase in working population within the project site both during the construction and operation phases of the development.

Potential Mitigation Measures

1. All drain pipes passing under buildings should be of heavy-duty PVC pipe tube encased in concrete surround.
2. All manholes should have heavy-duty covers set and double sealed airtight as approved by specialists.
3. Installation of two biological sewer treatment plants for treating wastewater discharged form the development during operation phase.
4. Ensure regular maintenance of foul water drainage works at the premises to prevent clogging and fore-stall breakdowns.
5. Proper decommissioning of the sanitary facilities shall be carried out once construction is complete.
6. Provision of adequate and appropriate sanitary facilities for the workers during construction phase and tenants during the operation phase of the facility.
7. Sanitary facilities shall be kept clean always through regular cleaning.
8. The design of the internal sewerage system and the biological sewer treatment plants shall consider the estimated discharges from individual sources and the cumulative discharge of the entire project, that is, it will have the capacity to consistently handle the loads even during peak volumes.

5.2.7 Socio-economic Impacts Potential Mitigation Measures

1. Persons from the nearby communities should be employed to work on the construction site.
2. Designate the roles and responsibilities of biological sewer treatment plants, which will enable a clear chain of command in the event of an accident and allows persons to be aware of their responsibilities in the event of such occurrences.
3. Place several fully equipped first aid kits on the project sites.
4. Ensure that some workers are trained in basic first aid practices.
5. Signs must also be placed around the construction site displaying the numbers of the person responsible for handling emergencies on the site
6. Develop and implement a Health and Safety Training Manual for employees;
7. Identify a specific area on the project site for vending type activities
8. Purchase goods and supplies from suppliers within the area

5.2.8 Noise & Excessive Vibrations

Noise pollution during construction will be as a result of use of heavy machinery and vehicles during transportation of materials to and from the site. Vibrations will be experienced during the concrete vibration during concreting of the structural elements and hacking of the walls and building elements during plastering of the structure.

Potential Mitigation Measures

1. All machines and equipment shall be maintained regularly to reduce frictional noise.
2. All noisy activities shall be scheduled concurrently during the construction period to reduce the exposure period to sensitive receptors
3. All workers shall be trained and provided with PPEs such as helmets, earmuffs, dust mask, etc. which will always be used when operating within the site area.

4. Billboard shall be erected at the construction site entrance to notify of the construction activities and timings.
5. Construction works shall be carried out only during the day from 0800hrs to 1800 hrs.
6. Drivers delivering materials shall avoid unnecessary horning of the trucks/vehicles.
7. Equipment installed with noise abatement devices shall be used as much as practicable.
8. Noise shields shall be used on noisy equipment, such as corrugated iron sheet structures, to minimize the exposure to the neighbours and other workers within the site
9. Regular monitoring of noise levels at the site as per the regulations.
10. The construction vehicles and machinery shall be switched off when not in use to reduce idling time.
11. Install portable barriers to shield compressors and other small stationary equipment where necessary
12. Silenced machinery and instruments should be employed to reduce the impact of noise on the existing neighbours and workers.
13. Equipment such as drills, graders and cement mixers should also be used when the least number of neighbours can be expected to be affected
14. Those working with machinery, vehicles and instruments that emit high levels of noise should be provided with ear plugs and earmuffs

5.2.9 Water Demand & Usage

The demand and usage for water will increase during the project cycle. During construction, water will be required for activities such as cement mixing, curing of concrete, sprinkling of water on dusty areas to suppress dust and drinking water for workers. During the operation phase, water will be needed for bathing, washing, cleaning, drinking and cooking. This will place strain on the existing water supply by Kwale & Water Sanitation Company (KWSCO).
Potential Mitigation Measures

1. Prompt detection and repair of all the water fixtures and fittings to reduce water wastage
2. Provide notices and information signs to sensitize on means and needs to conserve water resource i.e. “Keep/Leave the Tap Closed”, etc. This will awaken the civic consciousness of the workers and residents with regard to water usage and management.
3. Provision of adequate underground and roof tanks for water storage that covers two days’ water demand.
4. The contractor shall use water bowers and tankers to bring in water for construction activities i.e. during periods of high-water demand (i.e. during slab formation). Water fetching shall however be subject to authorization by the relevant authority.
5. Use water efficient appliances and fixtures for conservation of water during the project cycle.

5.2.10 Energy Demand & Usage

The proposed project will lead to increased demand and use of energy during the construction stage (fuel for running machinery and other equipment) and during operation phase (electricity used by the occupants of the units).
Potential Mitigation Measures

1. Exterior lights shall be controlled by a programmable timer.
2. Generator should be provided as a full backup energy source throughout the development.
3. Install and routine maintenance of energy efficient appliances e.g. LED bulbs etc.
4. Monitor energy use during construction and set reasonable limit.
5. Put off all lights immediately when not in use or are not needed.
6. The water booster set will contain inverter pumps for energy saving and precise control of flow and pressure rate.
7. Turn off machinery and equipment when not in use.
8. Use of solar energy as an alternative source of energy.

5.2.11 Emergence & Spread of Social Vices

The proposed development will lead to potential for employment opportunities and access to new services which will draw people to the area more specifically the project site. This factor will further lead to a temporary increase in economic activities and employment of skills for the development. This will lead to population influx which might lead to changes in or unwanted behaviors in the area. This unwanted or change in behaviour may be in the form of loose morality, an increase in school drop-out due to cheap labour, child labour, drug use and abuse, theft/robbery and increased incidences of HIV/AIDS and related infections/diseases and other communicable diseases.

Potential Mitigation Measures
To minimize project effects on local social set up, the proponent will;

1. Conduct periodic sensitization forums for employees on ethics, morals, general good behavior and the need for the project to co-exist with the neighbours.
2. Ensure enforcement of relevant legal policy on sexual harassment and abuse of office.
3. Contractor employs workers from the immediate area where possible to avoid social conflict
4. Offer awareness, guidance and counselling on HIV/AIDS and other STDs to employees;
5. Provide safety tools such as condoms to employees

5.2.12 Occupational Health & Safety

Waste material such as pieces of glass and nails left lying on the ground may cause injuries/accidents to the workers on site. Food for the construction workforce is usually provided by mobile individuals, most of which operate without licenses. This can compromise the health of the workers especially if such foodstuffs are prepared in unhygienic conditions. During the construction phase, there will be increased air and noise pollution which are considered harmful to human health. The neighbours and workforce involved shall be subjected to this noise.
Potential Mitigation Measures

1. All workers shall use properly fitting PPEs to avoid injuries and illness which include working boots, overalls, helmets, goggles, earmuffs, masks, gloves etc.
2. Comply with OSHA 2007 and all other relevant regulations governing health and safety of workplaces.
3. Ensure proper solid waste disposal and collection facilities
4. Ensure dustbin cubicles are protected from animals, rains and are well covered
5. Proper handling and disposal of solid waste
6. Proper treatment of wastewater
7. Construction activities must therefore be limited to the hours of 8:00 a.m. and 6:00 p.m.
8. Local individuals preparing food for the workers at the site shall be controlled, monitored and evaluated to ensure that food is hygienically prepared.
9. Provide adequate and functional sanitary facilities for the workers.
10. Provide appropriate signage and warnings in work areas to avoid injuries to the workers and occupants.
11. Provide first aid facilities and ensure that workers are trained on emergency response such as first aid skills.
12. Safety awareness may be gained through regular safety meetings, safety training or personal interest in safety and health.
13. The contractor shall adapt a suitable emergency response plan to manage occurrence of anticipated hazards during construction phase.
14. Workers shall always be sensitized on social issues such as drugs, alcohol, diseases such as HIV/AIDS and STIs etc.
15. The developer should incorporate trees that are used by bird species for foraging to attract bird species to the area

6 PUBLIC CONSULTATIONS & ENGAGEMENT

6.1 Introduction

Consultation with various stakeholders and public participation was done throughout the Environmental Impact Assessment Project Report preparation and compilation. This was in line with the requirements of Legal Notice No. 101, Kenya Gazette Supplement No. 56 of June 13th 2003, the Environmental (Impact Assessment and Audit) Regulations, 2003. Consultations and public participation were encompassing, interactive and intensive, to ensure that as many stakeholders as possible and the public were reached. Special attention was paid to the general public, especially those drawn from the proposed project site, and the immediate neighbourhood in Kasemeni ward. Views, comments, concerns and opinions of stakeholders concerning the proposed project were sought. The consultation was vital as it served to;

- Inform all stakeholders of the proposed development within their locality.
- Explain to the stakeholders the nature of the proposed project, its objectives and scope.
- Give stakeholders a forum to present their views, concerns and issues regarding the proposed development.
- Obtain suggestions from stakeholders on possible ways that potential negative impacts can be effectively mitigated.

The consultation was in the form of household interviews, site visits, questionnaire surveys and public baraza.

6.2 Public Consultation schedule

Public consultation barazas were organised through the office of the Deputy County Commissioner (DCC) Kinango Sub-County & County Director of Environment -Kwale. The public barazas were held on the proposed project site on 26th , 27th and 28th March 2024. Once the dates and venues of the meetings were confirmed, public notices and invitation letters were sent out 7 days before the 1st day of the meetings, public notices on A3 sizes were printed and put up at strategic places in the project area . A copy of the public notice was shared on the various villages within the Bonje area.

Table 5 Schedule of ESIA public barazas

Meeting Venue	Date	No. of attendees	Chairman	Secretary
Project site	26th March 2024	60	ACC Kinango	Victor Odende
Project site	27th March 2024	49	ACC Kinango	Victor Odende
Project site	28th March 2024	79	ACC Kinango	Victor Odende

Plate 6 Residents of Bonje area attending public consultative meeting at the project site (Colfax Industrial Park)

Plate 9 EIA expert responding to comments raised on project proposal

Plate 7 EIA Expert expounding on project proposal to Bonje residents

Plate 8 Area ACC & leaders from the Kasemeni Ward area taking note of meeting proceeding

Plate 10 EPZ Authority representative explain the role of the agency in the project approval

Summary of Concerns raised during the Public Participation

1. The youth in the area should be provided with employment opportunities during construction. There should be inclusivity during employment
2. A consideration is to be made to provide tender for garbage collection from the establishment to the already existing service providers in the area.

6.3 Summary of issues raised from the consultation process

DAY 1: 26/3/2024

Issues/Concerns Raised

1. Local residents to be prioritized for employment opportunities which should be equally shared incorporating also women and youths. The Area chief to be engaged in the recruitment process to help in identification of local residents. The community is highly secluded from employment opportunities in other industries in the area.
2. All Construction workers and company employee to be provided with personal protective equipment's (PPEs) to their safety during both construction and operation phases
3. The proponent considered provision of amenities such as health facilities for employees, ECDE and day care facilities as part of its corporate social responsibility (CSR). Residents proposed improvement of a local primary school's sanitation facility as a priority.
4. There was fear of emissions from the development which is likely to cause environmental hazards that would impact negatively on the health of local residents. Residents called for mitigation measures to be instituted and regular monitoring be conducted
5. Health and safety of employees to the company to be given high priority including conducting regular Medical examinations during employment and even when they are leaving the company.
6. The local administration and community leadership to be actively involved in critical decisions by the company management especially those that impact on the community so as to ensure representation and follow up on the agreements settled for.
7. The proponent to appoint one community member to serve as a liaison person between the community and the developer.

DAY 2: 27/3/2024

Issues/Concerns Raised

1. There should be transparency when offering employment opportunities in order to minimize conflicts with the community. That a large labour force from the community; both skilled semi-skilled and unskilled which should all be considered by the proponent. The proponent should liaise with the local administration to help facilitate effective communication and information sharing, fair recruitment and inclusion.
2. The company management should abide by the promise made by the proponent to provide medical insurance cover to all staff insurance, canteen for all workers among other benefits geared towards ensuring efficiency in service delivery.
3. The Local administrator applauded the proponent for the decision to invest in Kwale county and urged for maintaining good rapport with the community during the construction and operation phases of the company in order to sustain community support which will make its running smooth and efficient. This was retaliated by the Assistant County Commissioner
4. There should be proper handling and management of waste from the company to avoid polluting the local environment and causing nuisance.
5. A local resident suggested that a committee be established to help address any arising issues including employment concerns so as to reduce biases. The committee should comprise the village representation to help in vetting of locals

DAY 3: 28/3/2024

Issues/Concerns Raised

1. There should be adequate measures to mitigate the potential dust/air and noise pollution during construction activities. It was proposed that construction activities be confined to day time and within working hours. The proponent also highlighted that the construction site will be fenced with only authorized access to enhance security.
2. There should be measures to control and monitor emissions from the facility and emergency medication services provided for any eventualities of breathing problems among employees. The proponent assured that the company operates a clinic to offer emergency medical services and will coordinate with neighbouring hospital for referral of cases that require critical attention.
3. A call for prioritizing local residents during employment was put forth and all genders are considered. It was suggested that a committee be formed to deal with selection of local for employment
4. Employees' rights should be upheld by the company including fair payment (not below the minimum wage as stipulated in the law). The payments should be timely and allowances provided for overtime working hours
5. A resident suggested that the company management should also consider and run an internship program with a small stipend for the trainees to promote skill development and gaining experience among student in the local community graduating from school
6. There should be enough security for the employees during working hours.
7. A concern was raised on how the welfare of individuals employed at the company will be addressed. The proponent assured that all regulations governing employment will be adhered to. Additionally, despite the fact that the company is scheduled to operate 24 hours, employees shall work in three shifts and not employee shall work more than 60 hours per week. Additionally, there would be a staff development program aimed at reskilling employees to effectively deliver and work better. Safety precautions shall be put in place including ensuring personal protective equipment (PPE) are provided to all the employees. The company shall also run a small canteen where employees can get snacks and food at subsidized prices.
8. It was suggested that the company support community development through a social corporate responsibility (CSR) program facilitating provision of amenities such as hospitals for all cadres of employees, ECDE and day care centers

Table 6: ***Summary of Issues/Concerns Raised from the Consultation Process***

Item/Theme	**Issues/Concerns/Views Raised**
Livelihoods	● Local residents are to be prioritized for employment during both construction phase and operation phase. The process should ensure inclusivity and equity incorporating also women, youths and PWDs
Construction Worker/Employee Safety and Welfare	● All Construction workers and company employee to be provided with personal protective equipment's (PPEs) to their safety during both construction and operation phases ● Health and safety of employees to the company to be given high priority including conducting regular Medical examinations during employment and even when they are leaving the company. The proponent assured that the company shall operate a clinic to offer emergency medical services and will coordinate with neighbouring hospitals for referral of cases that require critical attention. ● Employees' rights should be upheld by the company including fair payment (not below the minimum wage as stipulated in the law). The payments should be timely and allowances provided for overtime working hours ● The proponent assured that all regulations governing employment will be adhered to. Additionally, despite the fact that the company is scheduled to operate 24 hours, employees shall work in three shifts and no employee shall work more than 60 hours per week. ● Additionally, there would be a staff development program aimed at reskilling employees to effectively deliver and work better. ● The company shall also run a small canteen where employees can get snacks and food at subsidized prices.
Project Implementation and Operation	● There should be adequate measures to mitigate the potential dust/air and noise pollution during construction activities. It was proposed that construction activities be confined to day time and within working hours. ● There was fear of emissions from the development which is likely to cause environmental hazards that would impact negatively on the health of local residents. Residents called for mitigation measures to be instituted and regular monitoring be conducted ● There should be proper handling and management of waste from the company to avoid polluting the local environment and causing nuisance.
Community Relations, Support and Conflict Resolution	● The proponent considered provision of amenities such as health facilities for employees, ECDE and day care facilities as part of its corporate social responsibility (CSR). Residents proposed improvement of a local primary school's sanitation facility as a priority. ● A resident suggested that the company management should also consider and run an internship program with a small stipend for the trainees to promote skill

Item/Theme	Issues/Concerns/Views Raised
	development and gaining experience among student in the local community graduating from school ● The local administration and community leadership to be actively involved in critical decisions by the company management especially those that impact on the community so as to ensure representation and follow up on the agreements settled for. ● It was suggested that a committee be established to help address any arising issues including employment concerns so as to reduce biases. The committee should comprise the village representation to help in vetting of locals ● The company management should abide by the promise made by the proponent. There should be transparency when offering employment opportunities in order to minimize conflicts with the community.
Security	● There should be enough security for the employees during working hours. ● The proponent highlighted that the construction site will be fenced with only authorized access to enhance security.

6.4 Potential Project Impacts

6.4.1 Positive Impacts

1. Job opportunities. In case of job opportunities during the construction stage like drivers, construction site casual laboures, and project operation stage like cleaners, maids, caterers, the local communities should be considered first.
2. A boost to business. The proposed project will provide more clientele to other already established businesses
3. The project proponent is a good neighbour and construction of the proposed tea warehouses will reduce the rate of insecurity in the area.

6.5 Consultations beyond ESIA Process

In order to ensure that the development runs smoothly, consultations should be structured to aid the completion of the project implementation. These consultations should therefore be preceded by further engagement of various stakeholders under the following stages:

- Construction phase and reported through the Initial Environmental Audit; and
- Operation phases and reported through the Statutory Environmental Audit of the project.

The consultation should address pertinent issues including the sustainability and suitability of the operation and maintenance to ensure acceptable standards

6.6 Grievance redress mechanism

Grievance redress mechanisms are necessary avenues for allowing the project's host community members to voice concerns as they arise and, if necessary, for corrective action to be taken promptly. Such mechanisms are important to achieving transparency in resolving disputes, especially between communities, among community members and the contractor. Therefore, the Consultant proposes that all the grievances to be logged, filed and addressed immediately as they arise and the local community be given an assurance of deserved consideration.
A well-functioning grievance mechanism:

I. Provides an acceptable, transparent, and credible process to all parties, resulting in outcomes that are seen as fair, effective, and lasting;
II. Enables more systematic identification of emerging issues and trends and facilitates corrective action.
III. Ensures timely redress of grievances for satisfactory implementation of resettlement and completion of the project interventions as scheduled.

The factors to be considered in the design of an effective grievance procedures include the following:

- A grievance redressal mechanism which is simple, accessible, affordable, and accountable.
- Provide suggestions on how information is made available to the local community.
- The proposed structures have capacity and knowledge to address grievances and would need to be given the authority to resolve complaints.
- A Complaints Form be introduced and should be duly filled by the involved parties.

Therefore, this ESIA has identified procedures that will enable the local community to lodge a complaint or a claim without cost and with the assurance of a timely and satisfactory resolution of that complaint or claim in which case, the dialogue will always suffice.

6.6.1 Grievance Redress Structure

Majority of the complaints resolution would be most appropriate if undertaken at the local level for convenience in terms of time and cost. In addition, the GRM proposed should be credible and acceptable to the local community for acceptability of resolutions made thereof. In the proposed grievance redress structure the aggrieved people will report their grievances, either verbally or in writing, to the Construction Engineer (directly or through the community representative). The complaint will be logged and the established committee will convene to resolve the complaint to the satisfaction of the complainant(s). If the matter cannot be addressed to the satisfaction of the complainant within the prescribed period, the complainant may refer the issue to the chief's office for consideration and if the issue is not resolved to the satisfaction of the complainant, the complainant has the right to seek redress from the Court of law.

6.6.2 Determination of Corrective Action

The grievance team will hold a meeting based on grievances received and deliberate on the raised issue to come up with a resolution within 7 working days. The action will be recorded in the grievance register and verdict reported back to complainants. If more time is required for investigation, this will be clearly communicated verbally and in writing to the aggrieved person in advance.

6.6.3 Mechanisms for Adjudicating Grievances and Appealing Judgments

The nature of the grievance will ascertain the period (not exceeding 7 working days) necessary for the GRC to address the grievance. Where resolution is not reached at the level of the GRC or if the complainant does not receive a response or is not satisfied with the outcome within the agreed time he/she can escalate/appeal to the

Chief's Office. Where the complainant still feels unsatisfied with the response to the appeal from the office of the chief, he/she as a last resort may submit the complaint to a court of law.

6.6.4 Closure of a grievance

All grievances shall be disposed of within 21 days of its receipt and a final reply shall be sent to the complainant. A grievance shall be considered closed when:

- The complainant has shown verbal or in-writing acceptance of the resolution;
- The complainant has not responded within 21 days after receipt of the resolution;
- The complaint has not been appealed within 14 days after receipt of the resolution

7 PROJECT NEED & ANALYSIS OF ALTERNATIVES

Analysis of project alternatives of the TEA WAREHOUSES EXPORT PROCESSING ZONE considered three possible alternatives/options namely:

Alternative 1: NO Project" Option
Alternative 2: the "YES" alternatives
Alternative 3: Alternative use of warehouses

7.1 The "no project" alternative

This option will mean that the project will not be undertaken. This implies that the proposed project will not be undertaken. This implies that the investor would have to seek alternative locations for the project development. The project area would also remain as a vacant industrial plot. In analysing this option, the following was considered;

- ✓ Foreign exchange earnings; The primary product from this project will be value added tea for the export market. By setting up the blending & packaging to happen in Kenya, the tea exported will be of a higher value to the end customer and will be paid in the major international trading currencies - primarily the dollar. Strong exports of tea will strengthen the shilling against the dollar as well as improve Kenya's balance of payment.
- ✓ **Contribution to tea value addition;** it is the government policy to encourage value addition of our agricultural output to enable farmers and value chain actors to earn more from our produce. Kenyan tea is exported to other countries for blending other less valuable teas for various brands. This project domesticates these jobs in the blending and packaging industry. One way of achieving this is by encouraging private sector involvement in contribution in meeting rising demand for Kenya tea in the rest of the world. The no project alternative will negate this potential gain from the proposed project if implemented.
- ✓ **Employment creation**; - the current government policy on employment and wealth creation aims at creating as many jobs as possible to meet the ever-increasing employment demand in the country. If the 'no option project' was to be considered, then this government target may not be realized.
- ✓ **Investor attraction; -** if the no option is considered it will not be consistent with the government aim of attracting investments in the country and especially encouraging local private investment in the agriculture produce value addition sectors.
- ✓ **Financial investment:** -The 'no' option will mean that Kwale county's economy will have to forego half-a-billion shillings investment in the agricultural produce value addition sector.

Therefore, if no option will be pursued it is likely that we may lose more than what is to be gained if the proposed project is to be implemented.

7.2 The 'yes' project alternative

This was considered to be a viable option. This option was considered viable as opposed to the 'no option' because the yes project alternative implies that the project be implemented and once implemented there will be a number of gains that will be realised including the following;

- ✓ Employment creation at the local level
- ✓ Increased tea exports
- ✓ Boost on investor confidence in the manufacturing sector.
- ✓ Development and improvement of local infrastructure.
- ✓ Increased revenue in the form of taxes to the government.

7.3 Alternative Use of Warehouses

The project proposes to put up a warehouse complex of 11,534 square meters of floor space. These warehouses will be registered as an export processing zone for tea produce. Alternatively, these warehouses could be utilized for storage agricultural produce under the warehouse receipting system.

7.4 Solid Waste Management Alternatives

A lot of solid waste will be generated from the proposed project throughout its three phases (construction, operational and decommissioning) and an Integrated Solid Waste Management System (ISWMS) is recommended for its management. The following shall be given preference in descending order:

1. The developer shall give priority to waste reduction at the source of the materials. This option will demand a solid waste management awareness programme in the management and the residents.
2. Secondly, Reducing, Recycling, Reuse and composting of the waste. This calls for a source separation programme to be put in place.
3. The third priority in the hierarchy of options is combustion of the wastes that are not recyclable.
4. Finally, sanitary land filling will be the last option for the developer to consider.

8 ENVIRONMENT, SOCIAL MANAGEMENT & MONITORING PLAN

8.1 Introduction

The EMP is the key outcome of the Environmental and Social Impact Assessment (ESIA) process for the proposed Tea warehouses export processing zone. In real meaning, the ESMP is a mechanism to meet the recommended environmental and social mitigation measures. The ESMP is an instrument that will allow the proponent, developers and other key stakeholders to integrate environmental components during implementation, operation and decommissioning phases of the project.

8.1.1 Scope and Objectives of the ESMP

The Environmental Management Plan will focus on mitigating the impacts identified during the environmental and social assessment. It is an instrument that will allow developers, beneficiary communities and other key stakeholders to integrate environmental components during the various phases of the project. This plan is meant to establish measures and procedures to control the analysed impacts and monitor their progress. It will achieve the following in the long run:

(i) Provide the National Environment Management Authority (NEMA) with a tool to ease the evaluation of the objectives at different phases of the project, taking into account the Kenyan environmental legislation;
(ii) Provide clear and mandatory instructions to the proponent, beneficiary communities and other key stakeholders with regard to their environmental responsibilities in all phases of the project;
(iii) Ensure continuous compliance of proponent, beneficiary communities and other key stakeholders with Kenyan legislation and policies regarding the environment;
(iv) Assure the regulators and interested and affected parties the satisfaction of their demands in relation to environmental and social performance.

8.1.2 Applicable Legislation

The developed ESMP will be in line with legislation applicable to the project. International normative instruments concerning the environment, as well as international best practice have also been considered.

8.1.3 Principles of Environmental Management Plan

The project should be implemented taking into account the need to minimize potential negative impacts and maximize its potential positive impacts on the biophysical and socio-economic environment as well as health and safety of workers and the public. This commitment must be made at various levels, from the senior management level of the proponent to the levels of all parties involved in the implementation of the project.

8.2 Recommendations/Commitments of the ESIA

The ESIA document contains a series of recommendations related to mitigation measures, monitoring and management. A key role of the ESMP is to put them all in a single framework. For each identified impact in the ESIA, the ESMP provides in a tabular format the following:

(i) A list of mitigation measures (activities) that Wilson Smithett EPZ Ltd and other key stakeholders will implement in accordance with each phase and activity of the project, to ensure that the mitigation objectives are met in full;
(ii) The role and responsibility of each of the stakeholders to ensure full implementation of mitigation measures; and
(i) The timetable of implementation/monitoring activities.

8.3 Responsibility

The proponent assumes full responsibility for implementing and monitoring the required measures to mitigate or enhance the environmental impacts. The effectiveness of mitigation measures should be evaluated by the proponent and the contractor.

8.4 Environmental Awareness

The proponent will be sensitive to the needs of the environment so as not to degrade (or degrade to a minimum) the existing environmental conditions. It is the proponent's primary responsibility to ensure that all parties that are directly involved in the construction and operation phases of the project, including managers and employees, are aware of the need to prevent or minimize environmental degradation. The awareness activities will be guided by the following issues:

(i) Prevention of pollution of surface water and groundwater;
(ii) Prevention of air quality degradation;
(iii) Prevention of increased noise levels;
(iv) Prevention/reduction of social and economic disruptions;
(v) Prevention of risks to health and safety of workers and the general public.

8.5 Mitigation

All activities related to the lifecycle of the project will be subjected to appropriate mitigation measures to ensure that negative impacts are properly mitigated and managed. Mitigation involves identifying the best options to be adopted to minimize or eliminate negative impacts, highlighting the benefits associated with the proposed project and the protection of public and individual rights.

Practical measures are therefore sought to reduce adverse impacts or enhance the beneficial impacts of the project.

8.6 Monitoring

The key objectives of monitoring are:

(i) To ensure that the EMP is implemented;
(ii) To evaluate the effectiveness of the mitigation measures;
(iii) To verify predicted impacts;
(iv) To provide feedback to licensing authorities.

8.7 CONSTRUCTION PHASE EMP

Table 7 CONSTRUCTION PHASE ENVIRONMENTAL MANAGEMENT PLAN

Environmental Impact /Activity	Mitigation Measures	Responsibility	Cost (Kes)	Indicators
Commissioning of the Construction Works	1. Site hand-over and Groundbreaking	Project team (Lead Consultant/Architect, contractor /proponent)	Part of/Covered in the Project Cost	Presence of the project Team
Housing for Construction / Site staff	2. Construction of a Camp	Contractor	200,000	Presence of a Camp
Security for Construction Material	3. Construction of Site Stores 4. Construction materials are to be delivered in small quantities to minimize storage problems	Contractor	100,000	Presence of Site store
Extraction & Use of Building Materials	1. Availability and sustainability of the extraction sites as they are non-renewable in the short term 2. Landscape changes	Contractor/Proponent/project team	Part of/Covered in the Project Cost	Material site rehabilitation
Collapse of Building during Construction	1. Ensuring Building Strength and stability 2. Use of appropriate construction materials and reinforcements as per specifications 3. Ensuring building components are as per designs 4. Proper supervision **5.** Ensure proper timelines are followed e.g. curing time	Contractor/project team	Part of/Covered in the Project Cost	Presence of the project Team

Environmental Impact /Activity	Mitigation Measures	Responsibility	Cost (Kes)	Indicators
Disturbance of Traffic flow during construction	1. Proper signage 2. Awareness creation 3. Education for materials truck drivers	Contractor/Project team and general public	100,000	Presence of site Noticeboard /Hoarding. Presence of Security guards to control traffic Presence of warning signs and education materials
Soil Erosion	1. Create and Maintain soil traps and embankments. 2. Landscaping after completion of construction	Contractor/Proponent Architect/Site Engineer Landscape Architect	400,000	Lack/Absence of Soil Erosion
Soil Excavation leading to site disturbance	1. Excavate only areas to be affected by buildings 2. Dumping of excess excavated materials to sites designated by NEMA and Council 3. Restoration of sites Excavated	Contractor	200,000	Landscaping after completion of construction
Noise Pollution and Vibration	1. Ensure the use of serviced and greased equipment 2. Switch off engines not in use 3. Construction work to be confined to between 8 am to 5 pm 4. Ensure the use of earmuffs by machine operators	Proponent and Contractor	Part of the Routine operation procedure	Lack of complaints
Risks of Accidents and Injuries to Workers	1. Education and awareness to all construction workers 2. Ensure the use of appropriate personal protective clothing 3. Provide First Aid Kits on site 4. Ensuring Building Strength and Stability **5.** Proper supervision	Proponent Contractor	Part of the Routine operation procedure	Presence of a well-equipped First Aid kit, Security Guards

Environmental Impact /Activity	Mitigation Measures	Responsibility	Cost (Kes)	Indicators
				& register on the site
Health and Safety	1. Provide First Aid Kits on site 2. Proper signage and warning to the public of heavy vehicles turning 3. Ensuring Building Strength and Stability 4. Provide clean water and food to the workers 5. The contractor is to abide by all construction conditions	Proponent Contractor	Part of the Routine operation procedure	Presence of a well-equipped First Aid kit, Security Guards & register on the site
Solid Waste Generation	1. Ensure waste materials are disposed of on Council and NEMA-approved sites 2. Ensure re-use of materials that can be re-used 3. Use of the 3rs – Reduce, Re-use, Re-cycle	Proponent Contractor	200,000 annually	Absence of Solid waste on the site
Traffic	1. All material handling will be done on-site.	Proponent Contractor		The presence of ample parking on the premises
Energy Consumption	1. Use electricity sparingly since high consumption of electricity negatively impacts these natural resources and their sustainability **2.** Use of Standby Generators	Proponent Contractor	100,000 annually	Presence of KPLC power lines Presence of Generators
Excessive Water Use	1. Excessive water use may negatively impact on the water source and its sustainability	Proponent Contractor	50,000 annually	Presence of KWSCO water lines Metering of water

8.8 OPERATIONAL PHASE EMP

Table 8 OPERATIONAL PHASE ENVIRONMENT MANAGEMENT PLAN

Environment Aspect	Mitigation Measures	Responsibility	Cost (Kes)	Indicators Of Success
Traffic	2. Provide adequate parking facilities within the project site 3. Provide separate access points for pedestrian traffic 4. Keep the footpaths or verges or on public areas well-maintained & clear of any obstructions.	Proponent	Routine operation procedure	The presence of ample parking on the premises
Solid Waste Generation and Management	5. Regular inspection and maintenance of the waste disposal systems during operation phase 6. Establish a collective waste disposal and management system	Proponent	70,000 monthly	Presence of NEMA-registered waste management companies Presence of waste handling bins Absence of wastes
Liquid Waste Generation & Management	7. Regular inspection and maintenance of the waste disposal systems during the operation phase 8. Connection to Sewer system/septic tank/ digester	Proponent Facilty Managers	400,000 monthly	Effective WWTP Sludge disposal records Register of licensed sludge handler
Increased loading on Infrastructure services	9. Have paved local access road and walkway system 10. Encourage rainwater harvesting 11. Provision of increased water storage capacity 12. Provide adequate stormwater drainage system	Contractor Proponent/ Factory operator	Contract cost	Absence of run-off Presence of good roads Pavements and drainage channels
Community wellbeing	13. Increased economic activities 14. Active CSR program supporting health & education within the project catchment area	Contractor Proponent		

Environment Aspect	Mitigation Measures	Responsibility	Cost (Kes)	Indicators Of Success
Storm Water impacts	15. Provide roof gutters to collect and direct roof water to drains 16. Construct drains to standard specifications 17. Develop a storm water drainage system and link it to existing storm water drain at the industrial park	Proponent Contractor	340,000	Absence of Flooding and dampness in the building
Disruption of existing natural environment and modification of micro-climate	18. Development restricted to follow zoning policy/approved density – building line, plot coverage and plot ratio. 19. Careful layout and orientation of buildings to respect wind and sun direction. 20. Adequate provision of green and open space planted with grass, shrubs and tree cover. 21. Minimum use of reflective building material and finishes for roof, wall and pavement.	Kwale County Government Project team (Contractor Proponent, Architect Or Lead Consultant	50,000	Proper orientation Planted trees/Landscaping Adherence to building master plan

TABLE 11: CONCEPTUAL DECOMMISSIONING PLAN

Environmental Concern	Mitigation Measures	Responsibility	Cost (Kes)	Indicators
Building Safety	1. Assess the condition of buildings to ascertain their usefulness	Engineer/Proponent	230,000	Engineer and Tests on the building
Land and Building use	2. Ascertain the Planning development policy	Local Authority Physical Planner	50,000	Consultants present
Accidents/Injuries	3. Securing the Site by fencing off	Contractor/Proponent	0	Existing boundary wall

Environmental Concern	**Mitigation Measures**	**Responsibility**	**Cost (Kes)**	**Indicators**
Undisconnected Utilities	4. Ensure disconnection of all services 5. Remove all surface and underground cables & wiring	Contractor	600,000	Absence of cabling
Solid Waste Generation (demolition waste)	6. Ensure waste materials are disposed of on Council and NEMA-approved sites 7. Ensure re-use of materials that can be re-used 8. Use of the 3rs – Reduce, Re-use, Re-cycle	Proponent/Contractor	200,000	Absence of Debris
Noise and Vibration	9. Deploy adequately serviced equipment 10. Switch off engines not in use 11. Demolition work is to be confined to between 8 am to 5 pm 12. Ensure the use of earmuffs by workers	Proponent/Contractor	80,000	Lack of complaints from the neighbours

9 CONCLUSION & RECOMMENDATIONS

9.1 Conclusion

The proposed tea warehousing export processing zone is a project intended to increase value addition of tea for export markets. The project will enable the proponent to leverage economies of scale to pack higher volumes of tea and improve logistics of their production processes. This is in line with BETA of creating jobs through manufacturing and value addition. The impacts of the project proposal are moderate-to-low since it is being implemented in an area zoned for industrial activity.

9.2 Recommendations

The project is in alignment with the country's development framework. To increase the social acceptability of the project the following proposals are advanced:

1. Adhere to all licensing conditions for the project at county and national level
2. Install & operate an adequately sized biodigester to handle effluent from the plant.
3. Ensure that all warehouse have a rodent proof design to deter rodent damage
4. Implement an integrated traffic management plan for the project with Colfax Industrial park management
5. Adopt green infrastructure design principles to handle stormwater from the project site.
6. Have an active/resources community liaison committee to assist contractors share opportunities equitably with the local community and deal with grievances during the construction phase
7. Plan the project so that construction of tea warehouses takes the shortest time possible;
8. Ensure that worker's occupational health and safety standards are maintained through capacity building, proper training, and providing protective clothing and equipment.
9. Annual environmental audits should be carried out on the project to ensure compliance of the project with the mitigation measures outlined in the Environmental Management Plan (EMP),
10. All activities concerning construction and maintenance such as work execution and site inspection shall be strictly monitored by an engineer or a designated official. Engineers and/or designated officials shall be trained and experienced enough to judge the appropriateness of the work executed to carry out the monitoring properly.
11. Upon completion, engage services of waste handling companies registered by NEMA in compliance with Environment Management and Coordination (Solid Waste) Regulations 2006.

4. REFERENCES

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5. APPENDICES

Annex 1 Copy of Titles for the project site
Annex 2 Certificate of Incorporation & PIN of proponent
Annex 3 EIA/EA practicing licenses of Experts
Annex 4 ESIA terms of reference approval letter
Annex 5 Approvals & Architectural drawings for the development
Annex 6 Minutes of public participation meetings (3 meetings)

Annex 1 Copy of Land document for the project site

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