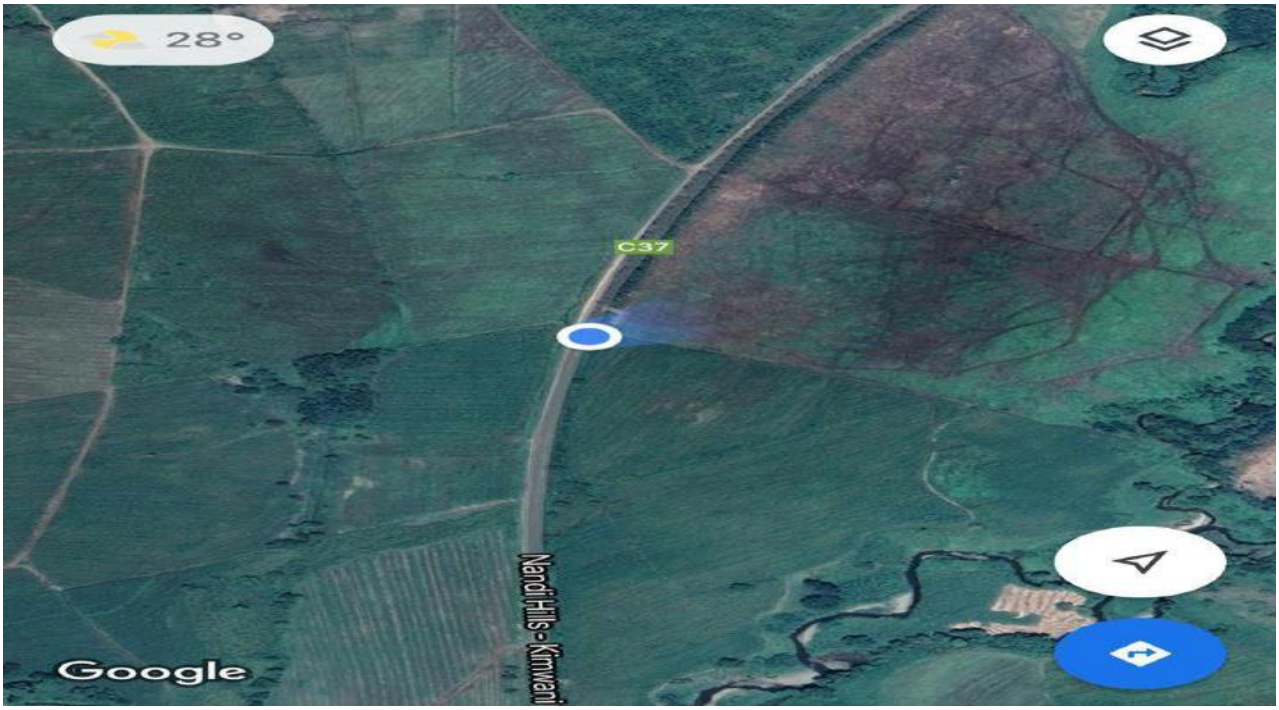
TIRYO SUGAR MILLS

ENVIRNMENTAL AND SOCIAL IMPACT ASSESSMENT STUDY REPORT

FOR

THE PROPOSED DEVELOPMENT OF TIRYO SUGAR MILL LOCATED ON L.R NO. 21959/4 (PART) ALONG NANDI HILLS- KIMWANI ROAD IN KIMWANI, NANDI COUNTY



Cover Photo: Google map of the Proposed Site (Source: Field Survey, 2021)

GPS Coordinates: Latitude: 0^0 01'04.6" N and Longitude: 35^0 11'41.1" E.

PROPONENT:

TIRYO SUGAR MILL

C/O MR. PETER MAGUT

P.O.BOX 1610 ELDORET.

SUBMITED TO:

THE DIRECTOR GENERAL, NEMA

HEADQUARTERS- NAIROBI

REPORT PREPARED AND SUBMITTED BY:

LEAD EXPERT NAOMI C. AARON

NEMA/TOR/5/2/488

DECLARATION

The following ESIA project report has been prepared with authority from the proponent for presentation to the National Environment Management Authority (NEMA)- Head Quarters.

ASSIGNMENT: To carry out a full Environmental Study and prepare an ESIA project Report for the proposed development of a Sugar Mill in compliance with legal requirements.

REPORT TITLE: Environmental and Social Impact Assessment Study for the Proposed Development of Tiryo Sugar Mill located on L.R NO. 21959/4 (Part) along Nandi Hills- Kimwani Road in Kimwani, Nandi County.

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EXECUTIVE SUMMARY

This ESIA project Study is prepared on behalf of Tiryo Sugar Mill Limited, herein referred to as the *"*proponent*".* The project proponent intends to develop a Sugar Milling Factory together with their associated facilities such as milling plant, administrative offices, store, sanitary facilities, connection to a septic tank and electricity, landscaping, parking area and walkways. Other activities will include drilling and installation of water storage tanks. The proposed sugar mill will be located on L.R NO. 21959/4 (Part) along Nandi Hills- Kimwani Road in Kimwani,Nandi County.

Environmental Impact Assessment (EIA) is a decision- making tool which aims at identifying, predicting, evaluating and mitigating the biophysical, social and other relevant environmental effects of development proposals prior to commencement of a project. It aims to:

Ensure that environmental considerations are explicitly addressed and incorporated into the development decision-making process;

Anticipate and minimize or offset the adverse significant biophysical, social and other relevanteffects of development proposals;

Protect the productivity and capacity of natural systems and the ecological processes which maintain their functions; and promote development that is sustainable, optimizing resourceuse and management opportunities

Environmental Management and Coordination Act cap #87 provides for legal and institutional framework forenvironmental management in Kenya. Under this Act the National Environmental Management Authority (NEMA) and mandated to oversee and coordinate environmental management in Kenya. Among its dutiesNEMA reviews all environmental impact assessment reports of projects listed under the second schedule ofthe Act and issues an EIA license approving the projects.

Section 58 (1) of EMCA 1999(revised 2015) states "*Notwithstanding any approval, permit or license granted under this Act or any other law in force in Kenya, any person, being a proponent of a project, shall before for an financing, commencing, proceeding with, carrying out, executing or conducting or causing to be financed, commenced, proceeded with, carried out, executed or conducted by another person any undertaking specified in the Second Schedule to this Act, submit a projectreport to the Authority, in the prescribed form and giving the prescribed information".*

In compliance, the project proponent has engaged a team of experts to carry out an Environmental and Social Impact Assessment, prepare a full study report and submit the subsequent report to NEMA for approval and licensing.

This study report has been prepared in accordance with provisions of EMCA, cap 387 and Environmental Impact Assessment and Audit regulations 2003. During the ESIA process, potential anticipated environmental impacts were accessed; measures to mitigate the negative ones were proposed while positive aspects of the project were enhanced. The consultants also undertook to gather the views of members of the public through structured questionnaires, oral interviews and conducted a public baraza. During he process of public participation no major issues nor objection of the project were raised.

This ESIA is aimed at ensuring and guaranteeing the sustainability of the project and compliance with the setenvironmental laws. Other objectives are;

Determine whether the proposed Sugar mill project will have adverse impacts on the environmentand recommend mitigation measures for any adverse impacts identified

Find out the positive socio-economic and environmental impacts and benefits associated with the proposed project for the purpose of enhancement;

Analyze possible project alternatives in terms of site, designs and other criteria and seek justificationfor the preferred options;

Seek the views and inputs of neighbors and members of the public in carrying out the proposed development;

Promote environmentally and ecologically friendly development;

Identify health and public safety concerns associated with the implementation of the proposed project and provide an action plan for managing public health and safety;

Provide an Environmental Management Plan for managing the negative environmental impacts of the proposed development during and after the implementation of the project;

Enable Tiryo Sugar Mill Limited comply with the requirements of the Environmental Management and Coordination Act (EMCA) and other relevant Acts of parliament that supports the compliance to EMCA.

Key Environmental Issues and Potential Impacts

The following are the expected positive and anticipated negative impacts of the project on the biophysical andsocioeconomic conditions of the surrounding.

Positive Impacts

Several benefits are expected to accrue from the project during its implementation among the benefits include;

- Provision of both casual and professional jobs opportunities in all phases of the project be it construction, operation or decommissioning.
- Provision of an agriculture based industry to the farmers which shall boost farming;
- Expansion of business opportunities in the area;
- Income to the proponent;
- Earning the National and County Governments revenue in form of taxes;

Key Potential Negative Impacts

The ESIA identified the following negative impacts during various stages of the proposed sugar Mill project:

- Minimal air and noise pollution
- Possibility of environmental degradation in material extraction sites especially quarries andsand harvesting river banks.
- Minimal impacts on soil erosion
- Possible occurrence occupation health and safety risks to the workers at the site such as fallingand injuries.
- Solid waste generation at all phases of the project
- Waste water generation most of which will be at operation stage inform of gray water from sanitary facilities and cleaning of sugar cane
- Increased traffic flow during construction and operation since vehicles and machines will beparked at the proposed sugar mill.
- Possible minimum oil spillages from such machines and vehicles
- Possibility of water and energy wastage if utilization is not controlled.
- Minimal Disturbance of flora and fauna
- Proposed Environmental and Social Management Plan

An elaborate ESMP is provided in this report to act as a guide during project implementation, construction, operation and decommissioning. The comprehensive ESMP considers the full life cycle of the proposed development by considering the following stages:

- Pre-construction activities;
- Construction activities
- Commissioning, operation, maintenance; and
- Decommissioning.

- Recommendation

In view of the ESIA findings, the proposed project was considered as environmentally sound. Further, the project proponent has committed to full implementation of the proposed mitigation measures appended in this report inform of Environmental and Social Management and Monitoring Plan and further adhere to directions and advice issued by NEMA. In this regard it is the view of the consultant's team that the project to be approved and issued with an EIA license.

Acronyms

CO- Carbon monoxide

EA- Environmental Audit

EIA- Environmental Impact Assessment

EDL- Effluent discharge License

EMCA- Environmental Management and Coordination Act

EMP- Environmental Management Plan

ETP- Effluent Treatment Plant

GOK- Government of Kenya

KLPD- Kilo Liter per Day

NEMA- National Environmental Management Authority

PPE- Personal Protective Equipment

SHE- Safety Health and Environment

TCD- Tons Crushed per Day

WRA Water Resources Authority

CHAPTER ONE: INTRODUCTION

1.1 Background and Rational for an Environmental and Social Impact Assessment

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

As such, a policy framework was developed in 1996 for achieving Industrialisation by the year 2020. Recently another Policy, Kenya Vision 2030: "Economic Recovery Strategy for Wealth and Employment Creation" was unveiled in 2008. Kenya Vision 2030 is the country's new development blueprint covering the period 2008 to 2030. It aims to transform Kenya into a newly industrializing, "middle-income country providing a high quality life to all its citizens by the year 2030". The Vision is based on three "pillars": the economic, the social

and the political. The adoption of the Vision by Kenya comes after the successful implementation of the Economic Recovery Strategy for Wealth and Employment Creation (ERS) which has seen the country's economy back on the path to rapid growth since 2002, when GDP grew from a low of 0.6% and rising gradually to 6.1% in 2006.

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

Sugar cane is a tropical crop widely grown in most tropical countries for industrial production of crystal sugar and allied products including steam and electricity. Sugar cane crop produces the highest quantity of sugar per unit area of land and the cheapest sugar per unit weight. It produces over 80% of the world's sugar supply. Sugar cane production and processing project is the world's highest employer per shilling invested in the developing countries and the most effective source of technology and development capital transfer per capita to the rural areas. Of all community- based development programs, Sugar cane production project has the highest socio-economic impact with highest absolute poverty reduction capacity in a rural set up.

The by- products include: bagasse, filter cake, effluent water and flu-gases. Depending on available and affordable developed technologies, all of the mentioned byproducts can and should be further processed into more finished goods or production inputs for sugar cane or aquaculture for sales.

The agro-ecological conditions under which sugarcane crop is grown in Kenya at large are unique. Unlike other regions of the world where sugar mills operate for only 6months of the year, cane can be supplied to the mills for more than 300 days of the year. This provides a unique opportunity for longer utilization of the factory plant per year, hence good capital investment as compared to other regions of the world.

However, this very situation demands for greater sustained operation efficiencies in both field, factory and the essential back up internal and external support services so as to exploit the opportunity profitably.

The project proponent intends to develop a sugar Milling Factory together with their associated facilities such as the sugar mill facility, administrative offices, store sanitary facilities connection a septic tank and electricity, landscaping,parking area and walkways. The proposed sugar mill will be located on L.R NO. 21959/4 (Part) along Nandi Hills- Kimwani Road in Kimwani,Nandi County.

Since environmental concerns now need to be part of the planning and development process and not an afterthought the proponent opted to expose the proposed development to an Environmental Impact Assessment to ensure environmental care within the life cycle of the proposed development. Given that the proposed project will not result into adverse environmental effects and it is in line with the resources and projects within the project site an Environmental Impact Assessment project report was seen to be adequate whereby an Environmental Management Plan was developed to advice the proponent on environmental issues and to assist NEMA in advising the proponent in line with the provisions of EMCA, cap 387

1.2 Terms of Reference

The Terms of Reference for this assessment are based on the Environmental Impact Assessment and Audit Regulations dated June 2003. The TOR was submitted to NEMA and given reference number NEMA/TOR/5/2/488 which was reviewed and approved by NEMA. A copy is attached.

1.3 Scope, objective and criteria of the ESIA

1.3.1 Scope

The Kenya Government policy on all new projects, program or activities requires that an environmental impact assessment be carried out at the planning stages of the proposed undertaking to ensure that significant impacts on the environment are taken into consideration during the design, construction,

operation and decommissioning of the facility. The scope of this Environmental and Social Impact Assessment, therefore, covered:

- The baseline environmental conditions of the area,
- Description of the proposed project,
- Provisions of the relevant environmental laws,
- Identification and discussion of any adverse impacts to the environment anticipated fromthe proposed project,
- Appropriate mitigation measures,
- Provision of an environmental management plan outline

1.3.2 Objectives

The objective is to develop a sugar mill together with their associated facilities such as administrative offices, store sanitary facilities, connection to a septic tank and electricity, landscaping, parking area and walkways.

1.3.3 Purpose and terms of reference

The purpose and terms of reference developed for this study is to assess the impacts that may arise during the construction, operational and decommissioning phase of the proposed development. These are the impacts of noise, dust, effluent and smoke onto the natural environment. Other impacts include accidents, occupational hazards, health and safety aspects that may also arise at any phase of the development.

The terms of reference developed for this study therefore covered the following;-

- To ascertain regulatory compliance;
- The objectives of the project
- Describe to details the baseline condition of the project area
- Give a detailed outline of regulatory and legislative framework related to the project
- To describe the potential impacts that may occur during both construction and occupation phase;
- The impact imposed on existing infrastructure;
- The demand put on natural resources;
- To describe the potential effects of the development on both the natural and human environment taking into account health and safety matters;
- Propose suitable mitigation measures for identified impacts;
- Develop a comprehensive environmental management plan;

- Provide a decommissioning plan, and,
- Offer conclusion and recommendation
- Such other matters as the Authority may require.

1.4 Data Collection Procedures

First, the Consultant undertook environmental screening and scoping to avoid unnecessary data. The data collection was carried out through questionnaires/standard interview/public meetings schedules, use of checklists, observations and photography, site visits and desktop environmental studies, where necessary in the manner specified in Part V (section 31-41) of the Environmental (Impact Assessment and Audit) Regulations, 2003.

1.5 Organization and Structure

The ESIA study was carried out to full completion within a period of twenty (21) days from the date of undertaking. The Consultant (Lead Expert) coordinated the day-to-day functions and any related institutional support matters. Otherwise, all formal communications were directed to NEMA through the proponent.

1.6 Reporting and Documentation

The Environmental and Social Impact Assessment Project Report from the findings was compiled in accordance withthe guidelines issued by NEMA for such works and was prepared and submitted by the proponent for consideration and approval. The Consultant ensured constant briefing of the client during the exercise. Description plans and sketches showing various activities are part of the Appendices.

1.7 Responsibilities and Undertaking

On the site of the proposed sugar mill development project, the proponent provided a contact person(s) to provide information required by the consultant. The proponent also provided site plan(s) showing roads, service lines, buildings layout and the actual sizes of the sites, details of raw materials, proposed process outline and anticipated by-products, future development plans, operation permits and conditions,land-ownership documents and site history. The output from the consultants includes the following:-

An Environmental and Social Impact Assessment Study Report comprising of an executive summary, study approach, baseline conditions, anticipated impacts and proposed mitigation measures,

An Environmental and Social Management Plan outlines which also forms part of the report recommendations.

1.8 Methodology Outline

Given the proposed project will not result into adverse effects and it is in line with the resources and projects within the project site. An Environmental and Social Impact Assessment Study Report was seen to be adequate. The general steps followed during the assessment were as follows:

Environment screening, in which the project was identified as among those requiringenvironmental impact assessment under schedule 2 of EMCA, CAP 387

Environmental scoping that provided the key environmental issues

Desktop studies and interviews

Physical inspection of the site and surrounding areas

EIA Public participation via the use of questionnaires and public meetings

Reporting.

1.8.1 Environmental screening

This step was applied to determine whether an environmental and impact assessment was required and what level of assessment was necessary. This was done in reference to requirements of the EMCA, CAP 387 and specifically the second schedule. Issues considered included the physical location, sensitive issues and nature of anticipated impacts.

1.8.2 Environmental scoping

The scoping process helped narrow down onto the most critical issues requiring attention during the assessment. Environmental issues were categorized into physical, natural/ecological and social, economic and cultural aspects.

1.8.3 Desktop study

This included documentary review on the nature of the proposed activities, project documents, designs policy and legislative framework as well as the environmental setting of the area among others. It also included discussions with managers and design engineers as well as interviews with neighbors.

1.8.4 Site assessment and public participation

Field visits were meant for physical inspections of the site characteristics and the environmental status of the surrounding areas to determine the anticipated impacts. To ensure adequate public participation in the ESIA process, questionnaires were administered and public meetings held to the project site neighbours andthe information gathered was subsequently synthesized and incorporated into the report.

1.8.5 Reporting

In addition to constant briefing of the client, this environmental impact assessment project report was prepared. The contents were presented for submission to NEMA as required by law.

CHAPTER TWO; PROJECT DESCRIPTION

2.0 Introduction

The proposed project is located in Kimwani Area in Tinderet Sub- County, Nandi County on L.R NO. 21959/4 (Part) along Nandi Hills- Kimwani Road. It is marked by

Latitudes 0^0 01'04.6" N and Longitude 35^0 11'41.1" E.

2.1 Project Capacity

The primary objective of this project is to set up a sugar milling factory of 1000 TCD which will start with a milling capacity of 800 TCD. Other associated facilities include administrative offices, store, sanitary facilities, connection to a septic tank and electricity, landscaping, parking area and walkways. Other activities will include drilling and installation of water storage tanks. Other facilities to be set up include a 45 KLPD Distillery and a 5 Megawatts Co-Generation Power Plant which will be incorporated in the future and an EIA wii be conducted for the same.

The project is estimated at Kshs 357,840,000 and is expected to occupy a 20 Ha land.

2.2 Project Layout

The project is an integrated industrial project which comprises of various units like plant & machinery, administrative building, residential colony, garden etc. This project contains environmental features like ETP.

2.3 Manufacturing Process

2.3.1 Sugar Manufacturing Process

Sugar cane is the raw material for manufacture of sugar. Juice is extracted from sugar cane, which is then processed to recover sugar. Bagasse, which is the left-out fiber material after extraction of juice from sugar cane, is used as fuel in boiler to produce steam. Steam is used for evaporation of sugar juice and for generation of electric power.

Crushing of Sugarcane

Sugarcane is harvested in the fields and then supplied to factories through Lorries and tractor trailers. Crushing takes place mainly in two stages; first the preparation and then milling. Preparation is done in a leveler, cutter and fibrizer. The prepared cane is then crushed by passing through mills. Hot water is added in the course of crushing as imbibition ‘s water for better extraction of juice from sugarcane. After crushing, the bagasse is sent to boiler as fuel and juice is sent for purification and recovery of sugar.

Juice Clarification

The weighed quantity of juice is primarily heated 70-75 ^{0}C in juice heaters and then treated with lime solution. The juice is heated again to 100-105 ^{0}C in another set of juice heaters. The hot juice is sent to clarifier. Clarified juice is decanted out and sent for evaporation in a set of multiple effect evaporator bodies. The juice at 15% is concentrated in the evaporators in to syrup of 60% concentration.

Crystallization

The syrup is sent to the pan floor for further concentration in vacuum pans. The syrup collected in supply tanks is taken to pans for boiling where the syrup concentrates and attains super saturation stage. In such a condition sugar grain are formed in the syrup. The syrup mass with sugar particles is called massecuite. The massecuite is dropped in crystallizers and cooled to complete the crystallization.

Centrifuge

Massecuite is taken into the high-speed centrifugal machine. Sugar crystals are separated form mother Liquor and sent to driers. Non crystallizable matter from the syrup, called molasses, is drained out from the centrifuge. The molasses is weighed and sent to storage tank

Drying Grading and Bagging

Sugar is dried in the vibrating hopper and graded by passing though standard sieves. The graded sugar is bagged, weighted for 50 kg.

2.4 Utilization of solid waste

Distillation residue – Will be mixed with Bagasse & burnt in boiler

Incineration Boiler Ash - Will be used as soil manure

Bagasse ash – Bagasse ash will be mixed in press mud cake & distributed to farmers as soil conditioner

Molasses – Molasses will be used to produce ethanol

Filter Cake – filter cake will be composted along with treated effluent and given or sold off to farmers

2.5 Co- Generation Unit

Cogeneration or Combined Heat and Power (CHP) is defined as the sequential generation of two different forms of useful energy from a single primary energy source, typically mechanical energy and thermal energy. Mechanical energy may be used to drive an alternator for producing electricity, or rotating equipment such as motor, compressor, pump or fan. Thermal energy can be used either for direct process applications or for indirectly producing steam, hot water, hot air for dryer or chilled water for process cooling.

2.6 Distillery Plant

The main raw material in this unit is molasses. Here, continuous fermentation takes place to produce alcohol and other by-products like glycerin, succinic acids etc. This shall be done in future and an EIA process shall be carried out.

2.7 Project Implementation

The project will be implemented in the three phases: equipment installation, operation and decommissioning.

2.7.1 Design Phase

This phase is the concept of the planned development and the designing of a structure which was envisaged to be functional and to take care of every environmental concern such as liquid and solid wastes and security.

2.7.2 The Equipment Installation Phase

This phase has already begun and will be based on the building standards, code and all other relevant regulations applicable in Kenya. All the proposed works will follow standard environmental guidelines, health and safety measures.

2.7.3 Equipment Installation Activities

i. Construction activities

This will have to be undertaken to provide support and shelter for the additional equipment to be installed. The construction of the building walls, foundation, floor pavement, and drainage system, among other component of the project will involve minimal masonry works and related activities. General masonry and related activities will include concrete mixing, plastering, and slab construction, construction of foundation and curing of fresh concrete surfaces. These activities are known to be labor intensive hence may be supplemented by machinery such as concrete mixers.

ii. Roofing and sheet metal works

Roofing activities will include laying of iron sheets, and structural steel to the roof and fastening the roofing materials to the roof.

iii. Electrical Works

Electrical work during both construction and operation will involve installation of electrical gadgets and appliances including electrical cables, lighting apparatus, sockets etc.

Equipment to be installed

The proponent intends to achieve its objectives by installing the following equipment:

1. Shredder

The shredder is designed to achieve very fine preparation of sugar cane by separating the fibers and opening the cell wall efficiently. This allows the subsequent extraction process to maximize the removal of the sucrose bearing juice from the prepared cane.

2. Cane carrier

Completely made from steel, the cane carriers will have adequate column and support hence facilitating to feed the required cane capacity.

3. Pressure feeders

The pressure feeders will have built-in overload protection, to ensure smooth and safe operation.

4. Installation of boilers.

The sugar mill boiler is used for steaming sugar canes in the process. As one kind of environmental protection industrial boiler, currently, biomass fired boiler is widely used in sugar factories which uses bagasse hence saving fuel costs.

5. Evaporator

The evaporator concentrates the juice coming from the purification station and sends the concentrated juice (syrup) to the crystallization station. The way an evaporator plant works has a crucial impact on the heat economy of sugar factories and refineries. Perfectly tailored to the overall process, it allows effective action to increase the energy efficiency of upstream or downstream process steps. Evaporators that will be installed will have a higher juice distributor dome, making them easier to inspect and clean. Whenever necessary, the juice distributor and heating tubes can be cleaned with a high-pressure water jet from the top tube plate, without opening the dome flange.

6. CVP-Continuous vacuum pan

The new CVP design produces high massecuite exhaustion, consistent crystal size and improves energy efficiency. The Continuous Vacuum Pan designs are suitable for A, B and C massecuite and are configured to optimize upstream and downstream plant capabilities. Importantly, the pan's vapor demand is surge-free and consistent with steady-state boiler operation and evaporator performance for extended periods.

7. Grader

Grader to be installed will provide vital grading functions that help in maintaining sugar cane quality and are known to improve the efficiency in grading processes. The grader shall be highly durable, corrosion resistance and will require low maintenance, thereby improving services and bringing greater efficiency in production.

8. Molasses tank

Additional tanks shall be installed. These will be specially designed to suit the storage of molasses. The tanks will come complete with an inspection lid / manway access, and good ventilation (to reduce condensation and bacterial growth).

9. Centrifugal machine

The centrifugal machine will provide real and sustained process advantages to the user as they are more efficient and reduce processing costs through lower electrical power consumption and improved recovery of crystals from the massecuite.

2.8 Decommissioning Phase

At the end of the construction phase, all the equipment and waste materials from the construction/equipment installation will be removed from the site. The materials that can be reused will be separated and used for other construction work and others disposed of appropriately. The areas not intended for parking of vehicles will be landscaped and planted with beautiful vegetation to improve the aesthetics of the surrounding.

CHAPTER THREE: BASELINE INFORMATION

3.0 Introduction

This section describes the area where the proposed project is to be established. It will describe in detail the biological, physical and socio-economic environment of the project area.

The proposed site is currently under agricultural use with maize and sugarcane plantations.

3.1 Physical Environment

3.1.1 Topography and Climate

The hilly and undulating topographical features of Nandi County overlap with a spatial distribution of ecological zones that define agricultural and overall economic development potential of the regions. The Northern parts receive rainfall ranging from 1,300mm to 1,600mm per annum. The Southern half is affected by the Lake Basin atmospheric conditions, thus receiving as high as 2,000mm per annum. Generally, the County receives an average rainfall of about 1200mm to 2000mm per annum. The long rains start in early March and continue up to end of June while short rains start in mid-September and end in November. In Nandi it is rare for a month to pass without some rainfall. The dry spell is usually experienced from end of December to mid-March. The lowest rainfall is experienced in the Eastern and North eastern 11 parts of the county, while the highest is recorded in the Kobujoi-Tindinyo area in Aldai Division. Across Nandi, the highest rains are experienced in Kaptumo in Nandi South, Nandi Hills, Kapsabet and Kobujoi.

3.2 Biological Environment

The site is dominantly covered by maize and sugarcane plantations. Fauna on site include small mammals such as rodents and various bird species and fauna such as snakes, frogs, and lizards

3.3 Road and Access

The proposed site can be accessed along the C37 Nandi Hill-Kimwani Road near Kimwani Secondary School. The road is tarmac and in good accessible state. It is one of the major roads enhancing connectivity between Chemelil and Nandi Hills as well as other neighboring areas.

3.4 Electricity and Water

Electricity from the national grid is within reach and the proponent will easily connect to the same when need arises. The site and much of the area is not connected to any piped water system. The proponent will therefore drill a borehole to provide water for use within the facility. An existing stream at the lower side of the property will also be used as a water source upon approval by the concerned authorities including WRA and NEMA.

3.5 Waste Management

Since the site is presently without much developments, little, if any, waste is generated. With the implementation of the proposed development, a proper waste management plan will be developed to prevent occurrence of nuisance and pollution of the environment particularly for the industrial waste with a key focus on waste recycling and waste reduction at point source. Additional waste transportation and dumping at NEMA designated site is highly encouraged.

For sanitary facilities and other manageable sewerage waste, a septic tank will be constructed for convenience. Other waste will be periodically burned and composted

Storm water channels are not available along the major road. The responsible authority is advised to provide the same to prevent flooding and for ease of storm water flow.

3.6 Telecommunication

The network coverage by the various telecommunication service providers is clear and facilitates transfer of information.

CHAPTER FOUR: REVIEW OF EXISTING POLICIES, LEGAL, REGULATORY ANDINSTITUTIONAL FRAMEWORKS

4.0 Introduction

This chapter presents a review of policy, legal and regulatory frameworks applicable to environmental management of the proposed Tiryo Sugar Mill Factory Project at National and international levels. Kenya Government has a wide range of policy, institutional and legislative frameworks to address the major causes of environmental degradation on ecosystems emanating from industrial and economic development programs. However, they are spread over several sectors. In spite of this, the Kenya legal and institutional framework is currently undergoing several changes to be aligned with the requirement of the new constitution. The literature reviewed in this section puts into consideration the anticipated changes and the current laws that govern natural resource sharing, management, utilization and protection.

EIA studies are carried out in order to identify potential positive and negative impacts associated with the proposed project with a view to taking advantage of the positive impacts while providing effective mitigation measures for the negative effects. The requirements on EIA are contained in sections 58 to 67 of the Act.

According to section 68 of the environmental management and coordination Act (EMCA) 1999, reviewed 2105) the Authority shall be responsible for carrying out environmental audits on all activities that are likely to have a significant effect on the environment.

Environmental auditing (EA) is a tool for environmental conservation and has been identified as a key requirement for existing facilities to ensure sustainable operations with respect to environmental resources and socio-economic activities in the project neighborhoods. The government has established regulations to facilitate the process on ESIAs and environmental audits. The regulations are contained in the Kenya Gazette Supplement No. 56, legislative supplement No. 31, and legal notice No. 101 of 13th June2003.

4.1 Policy Frameworks

4.1.1. Kenya Vision 2030

Vision 2030 is geared towards transformation of Kenya into an industrialized middle-income country by 2030. The blueprint recognizes that Kenya is a water scarce country and further that the economic and social development envisaged in the vision 2030 will require more high-quality water supplies. The water and sanitation sector goal in line with the Vision 2030 is “to ensure that improved water and sanitation are available and accessible to all”.

It is based on the 3 pillars of political, social and economic advancement and it aims to transform the economy and achieve sustainable growth. Environmental considerations of development are contained within the social and economic pillar just like for Agriculture. The vision aims at reducing poverty through creating opportunities for the poor by making institutions stronger.

It recognizes Agriculture as the mainstay of the country's economy with predominantly small-scale farmers who accounts for over 75% of agriculture output. The government on the other hand remains committed to improving agricultural productivity for food security, poverty reduction, employment and wealth creation. Vision 2030 further point out that food crop production makes significant contribution to food security and Gross Domestic Product. However, the levels of productivity are below potential and over-dependency on rain-fed agriculture was identified as being one of the causes and therefore intensification and expansion of irrigation is critical to increasing agricultural productivity in Kenya.

One of the strategies proposed is to construct water and sanitation facilities to support industries and the growing urban population. Regarding environment, the Vision states that Kenya aims to be a nation living in a clean, secure and sustainable environment by 2030. The goals for 2012 are: (i) to increase forest cover from less than 3% at present to 4%; and (ii) to lessen by half all-environment related diseases. Specific strategies involve: promoting environmental conservation for better support to the economic pillar flagship projects and for the purposes of achieving the Millennium Development Goals (MDGs); improving pollution and waste management through the design and application of economic incentives; and the commissioning of Public-Private Partnerships (PPPs) for improved efficiency in water and sanitation delivery.

Tiryo Sugar Mill project is in line with Vision 2030 in that it is geared towards promoting environmental conservation for better support to the economic pillar flagship projects and for the purposes of achieving the Millennium Development Goals (MDGs). The factory shall have a catchment management component, which aims at combating climate change.

4.1.2 Sustainable Development Goals (SDGs)

Sustainable Development goals which were initiated by world leaders in 2015 as an advancement of the Millennium Development Goals (MDGs) provide concrete, numerical benchmarks for tackling extreme poverty in its many dimensions. The SDGs also provide a framework for the entire international community to work together towards a common end making sure that human development reaches everyone, everywhere. If these goals are achieved, world poverty will reduce by half, tens of millions of lives will be saved, and billions more people will have the opportunity to benefit from the global economy.

The proposed project will contribute towards alleviating rural poverty by increasing means of livelihoods and enhancing food security. This ESIA study report will ensure that the proposed project reflects Environmental Sustainability especially during construction and implementation.

4.1.3. National Environmental Action Plan (NEAP)

According to the Kenya National Environment Action Plan (NEAP, 1994) the Government recognized the negative impacts on ecosystems emanating from industrial, economic and social development programs that disregarded environmental sustainability. Under the NEAP process Environmental Impact Assessments were introduced targeting the industrialists, business community and local authorities.

The Sugar Factory is abiding by this policy guideline by ensuring that the environmental and social baseline surveys are carried out and then an ESIA written that will develop an Environmental and Social Management and Monitoring Plan to manage the environment and ensure that the post project period will have better environment than it was before the project.

4.1.4. National Policy on Water Resources Management and Development

While the National Policy on Water Resources Management and Development (1999) enhances a systematic development of water facilities in all sectors for promotion of the country's socio-economic progress, it also recognizes the by-products of this process as wastewater. It, therefore, calls for development of appropriate sanitation systems to protect people's health and water resources from institutional pollution.

Industrial, business and large-scale agricultural development activities, therefore, should be accompanied by corresponding waste management systems to handle the wastewater and other waste emanating there from. The same policy requires that such projects should also undergo comprehensive EIAs that will provide suitable measures to be taken to ensure environmental resources and people's health in the immediate neighborhood and further downstream are not negatively impacted by the discharges. As a follow-up to this, EMCA 1999 requires annual environmental audits to be conducted in order to ensure that mitigation measures and other improvements identified during EIAs are implemented.

The key objectives of the Policy include:

● To ensure that from the onset, all development policies, programs and projects take environmental considerations into account,

● To ensure that an independent environmental impact assessment (EIA) report is prepared for any industrial venture or other development before implementation,

● To come up with effluent treatment standards that will conform to acceptable health guidelines.

Under this paper, broad categories of development issues have been covered that require a "sustainable development" approach. These issues relate to waste management and human settlement. The policy recommends the need for enhanced reuse/recycling of residues including wastewater, use of low or non- waste technologies, increased public awareness raising and appreciation of a clean environment. It also encourages participation of stakeholders in the management of wastes within their localities. Regarding human settlement, the paper encourages better planning in both rural and urban areas and provision of basic needs such as water, drainage and waste disposal facilities among others.

The proposed project is in line with this sectoral policy.

4.1.5. The National Poverty Eradication Plan (NPEP) and the Kenya Poverty Reduction Strategy (KPRS)

The NPEP has the objective of reducing the incidence of poverty in both rural and urban areas by 50 percent by the year 2015 as well as strengthening the capabilities of the poor and vulnerable groups to earn an income. The paper further aims at narrowing the gender and geographical disparities as well as creating a healthy, educated and more productive population. This plan has been prepared in line with the goals and commitments of the World Summit for Socio Development (WSSD) of 1995. Just like the main objectives of improving the irrigation schemes in the project area, the plan focuses on the four WSSD themes of poverty eradication, reduction of unemployment, socio integration of the disadvantaged people through improved agricultural productivity and food security.

The PRSP on the other hand has the twin objectives of poverty reduction and economic growth. The paper articulates Kenya's commitment and approach to fighting poverty; with the basic rationale that the war against poverty cannot be won without the participation of the poor themselves.

The proposed development is seen as setting an enabling environment for robust and intensive crop production that will lead to improved incomes and hence better living standards. Thus, viable strategies have been considered in the design to ensure that the proposed Project yields maximum benefits to the Proponent and the local communities.

4.1.6. Land Policy

The National Land Policy in section 3.4 on Environmental Management Principles provides for the policy actions for addressing the environmental problems such as the degradation of natural resources, soil erosion, and pollution of air, water and land. The policy advocates for environmental assessment and audit as a land management tool to ensure environmental impact assessments and audits are carried out on all land developments that may degrade the environment and take appropriate actions to correct the situation. Public participation has also been indicated as key

in the monitoring and protection of the environment. Section 3.4.3.3 advocates for the Implementation of the polluter pays principle which ensures that polluters meet the cost of cleaning up the pollution they cause, and encourage use of cleaner production technologies. In section 131 (d) the government undertakes to provide mechanisms for resolving grievances arising from human/wildlife conflicts for sustainable management of land based natural resources.

The proposed project works shall implement the Environmental and Social Monitoring Plans to ensure that no rivers and streams within the project area are polluted by the subsequent activities during construction and operational phases.

4.1.7. Principles of Land use

From the constitution of Kenya 2010, Land in Kenya shall be held, used and managed in a manner that is equitable, efficient, productive and sustainable, and in accordance with the following principles--

a. Equitable access to land;

b. Security of land rights;

c. Sustainable and productive management of land resources;

d. Transparent and cost-effective administration of land;

e. Sound conservation and protection of ecologically sensitive areas;

f. Elimination of gender discrimination in law, customs and practices related to land and property in land; and g. Encouragement of communities to settle land disputes through recognized local community initiatives consistent with this Constitution.

These principles shall be implemented through a national land policy above developed and reviewed regularly by the national government and through legislation. The development of the Sugar Mill Factory project shall observe the above principles in its entire project cycle.

4.1.8. National Food and Nutritional Security Policy 2011

Food and Nutritional Security Policy recognizes that over 25% of Kenya's population suffers from chronic food insecurity and poor nutrition. Food availability and access are influenced by the ability of individuals and households to produce their own food in sufficient quantity and to generate income to purchase food, the adequacy of infrastructure, effectiveness of food distribution systems and the affordability of food prices.

Improving food security and nutritional situation in the country is faced by high poverty levels and food shortage. The policy therefore addresses existing food insecurity and poor nutrition through synergy with other sectoral policies and strategies. The government through the policy is committed to increase the quality and quantity of food by improving its availability, accessibility and affordability. To achieve these, it aims to improve and diversify food production, improve storage and value addition, maintain strategic reserves, improve the food market and trade in both rural and urban areas, create employment opportunities, improve the regulatory and institutional framework. The Project key stakeholders need to ensure the implementation of the policy through supporting agricultural production in the project area and distribution of the products to support the government's efforts in meeting food and nutritional security.

The project is in line with this policy and is geared towards improved food production and diversity hence improving people's health.

4.1.9. Sessional Paper No. 6 (1999)

The key policy objectives of Sessional Paper No. 6 of 1999 include:

Ensuring that all development projects at the inception stage and programs, as well as policies, consider environmental conditions;

Ensuring that an EIA report is prepared for any undertaking or development project before implementation; and

Coming up with effluent treatment standards that will conform to acceptable health guidelines;

It is important to note that issues of waste water management and human settlements are given prominence and, therefore, the policy recommends re-use and recycling of residues (i.e., waste water), use of low waste generation technologies and increasing public awareness on the benefits of a clean environment. It also recognizes the role of stakeholders in all these initiatives within their localities.

The paper encourages better planning in rural and urban areas in the provision of needs, i.e., water, drainage system, waste disposal facilities, etc.

This assessment has been undertaken to be in line with this sessional paper that requires EIA for proposed projects so that impacts can be identified and mitigated.

4.2 LEGAL FRAMEWORKS

4.2.1. Constitution of Kenya, 2010

Environmental management and natural resources utilization is enshrined in the Kenya constitution 2010 under several articles.

In article 69 of the Constitution of Kenya, 2010, the State clearly undertakes to carry out the following:

Ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits;

Work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya;

Protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities;

Encourage public participation in the management, protection and conservation of the environment;

Protect genetic resources and biological diversity;

Establish systems of environmental impact assessment, environmental audit and monitoring of the environment;

Eliminate processes and activities that are likely to endanger the environment; and

Utilize the environment and natural resources for the benefit of the people of Kenya.

The constitution in article 42 emphasizes the need for a clean and healthy environment through management of substances that may pollute the environment or cause harm to human health. The right to a clean environment is further enforced by article 70. Article 186 and the fourth schedule allocate functions of natural resources management and environmental protection to both the national and county governments. In article 2 of the fourth schedule, the national government governs the use of international waters and water resources.

The county government on the other hand shall Control air pollution, noise pollution and other public nuisances as stipulated in article 3 of the fourth schedule and in article 10, the county government shall implement specific national government policies on natural resources and environmental conservation. Some of the development impacts will be a concern to the county government hence need for collaboration between NELSAP, the contractor and the local government.

The principles of land policy that ensure land is held, used and managed in a manner that is equitable, efficient, productive and sustainable is set out in article 60 of the constitution.

In regard to environmental protection and natural resources management, article 62 sub-article 1 stipulates what constitutes public land. These include water courses and high flood areas that are common in the project area. The

public land areas are held by the national government in trust for the people of Kenya and shall be administered on their behalf by the National Land Commission as stated in article 62 sub-article 3. The land commission shall also monitor and have oversight responsibilities over land use planning throughout the country regardless of the classification as stated in article 67-2(h).

For the purposes of this project, the constitution of Kenya provides for sound environmental management and sustainability and therefore this study provides one of the tools through which this can be achieved.

4.2.2. The Environmental (Impact Assessment and Audit) Regulations, 2003

The Environmental Impact Assessment guidelines require that a study be conducted in accordance with the issues and general guidelines spelt out in the second and third schedules of the regulations. These include coverage of the issues on schedule 2 (ecological, social, landscape, land use and water considerations) and general guidelines on schedule 3 (impacts and their sources, project details, national legislation, mitigation measures, a management plan and environmental auditing schedules and procedures. The Act further stipulates that *No* licensing authority under any law in force in Kenya shall issue a license for any development project for which an environmental impact assessment is required under the Act unless the applicant produces to the licensing authority a license of environmental impact assessment issued by the NEMA. The project proponent was also required to pay mandatory fees that are due before processing of EIA or EA license but NEMA no longer charges for these services.

This report process and structure/format has adhered to this regulation

4.2.3. Environmental Management and Coordination Act, 1999

The main objectives of EMCA (1999) and the related regulations are to provide for the establishment of an appropriate legal and institutional framework, including procedures for the management of the environment in Kenya. The Act further aims to improve the legal and administrative coordination of the diverse sectoral initiatives in the field of environment, to enhance the national capacity for its effective management. In addition, the Act seeks to harmonize all the sector specific legislation touching on the environment in a manner designed to ensure protection of the environment. This is in line with national objectives and sustainable development goals enunciated in Agenda 21 of the Earth Summit. As such, in terms of environmental management, EMCA (1999) provides a comprehensive and an appropriately harmonized legal and institutional framework for the handling of all environmental issues in Kenya, and supersedes all sectoral laws.

Part VI of EMCA (1999) makes provision for the carrying out of EIA. It is mandatory for any proponent of a project to submit a project report to NEMA in a prescribed format. After reviewing the proponents‟ report, and NEMA is

satisfied that the proposed project is likely to have significant negative impacts in the environment, it will direct the proponent of the project to undertake at his or her own expense an environmental impact assessment study and prepare a report. NEMA shall publish such a report and invite comments thereon from the public before deciding to issue an environmental impact license. NEMA, at any time after issuing the environmental impact assessment license, may direct the proponent to submit a fresh environmental impact study, where there is substantial change in the project or where environmental threats, not earlier foreseen, have emerged.

4.2.5 Water Quality Regulations, 2006, (Legal Notice No.121)

Water Quality Regulations apply to water used for domestic, industrial, agricultural and recreational purposes; water used for fisheries and wildlife purposes; and water used for any other purposes. Different standards apply to different uses. These regulations provide for the protection of lakes, rivers, streams springs, wells and other sources. The overriding objective of the regulations is to protect human health and the environment. Proper enforcement of the regulations can lead to marked reduction in water-borne diseases. The regulations provide guidelines and standards for the discharge of poisons, toxins, radioactive and other pollutants into the aquatic environment. Standards have also been set for discharge of effluent into the sewer and aquatic environment. The National Environment Management Authority regulates discharge into the aquatic environment.

The regulations provide for the creation of a buffer zone for irrigation schemes of at least fifty (50) meters in width between the irrigation scheme and the natural water body. The First and the Ninth Schedule of the Regulations stipulates standards for sources of domestic water supply and irrigation water respectively (Annex 1 and 2). Persons (real or legal) discharging effluent into the environment are required to submit quarterly discharge monitoring records to NEMA.

The proponent will ensure that the sources of water for Tiryo Sugar Mill Factory meet the specified standards provided in these regulations.

4.2.6 Environmental Management and Coordination (Air Quality) Regulations, 2008

The objective is to provide for prevention, control and abatement of air pollution to ensure clean and healthy ambient air. It provides for the establishment of emission standards for various sources, such as mobile sources and stationary sources.

The proponent and contractor will ensure mitigation measures are put in place to control dust and exhaust emissions especially during construction of the project infrastructure.

4.2.7 The Environmental Management and Coordination Act (Noise and Excessive Vibration Pollution) Regulations, 2009

These regulations were published as legal Notice No. 61 being a subsidiary legislation to the Environmental Management and Co-ordination Act, 1999. The regulations provide information on the following:

Prohibition of excessive noise and vibration;
Provisions relating to noise from certain sources;
Provisions relating to licensing procedures for certain activities with a potential of emitting excessive noise and/or vibrations; and
Noise and excessive vibrations mapping.
According to regulation 3 (1), no person shall make or cause to be made any loud, unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment.

Regulation 4 prohibits any person to (a) make or cause to be made excessive vibrations that annoy, disturb, injure, or endanger the comfort, repose, health, or safety of others and the environment; or (b) cause to be made excessive vibrations that exceed 0.5 centimeters per second beyond any source property boundary or 30 meters from any moving source.

Regulation 5 further makes it an offence for any person to make, continue or cause to be made or continued any noise in excess of the noise levels set in the First Schedule to these Regulations, unless such noise is reasonably necessary to the preservation of life, health, safety or property. The First and Second schedules of the regulations have set standards for maximum permissible noise levels at construction sites and intrusive noise levels respectively.

Part II section 3(I) of these Regulations states that: no person shall make or cause to be made any loud, unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. Section 3(2) states that in determining whether noise is loud, unreasonable, unnecessary or unusual, the following factors may be considered;

Time of the day,
Proximity to residential area,
Whether the noise is recurrent, intermittent or constant,
The level and intensity of the noise,
Whether the noise has been enhanced in level or range by any type of electronic or mechanical means, and

Whether the noise can be controlled without much effort or expense to the person making the noise.
Part II Section 4 states that: except as otherwise provided in these Regulations, no person shall (a) make or cause to be made excessive vibrations which annoy, disturb, injure or endanger the comfort, repose, health or safety of others and the environment; or (b) cause to be made excessive vibrations which exceed 0.5 centimeters per second beyond any source property boundary or 30 meters from any moving source.

Part III, Section 11(1) states that any person wishing to (a) operate or repair any machinery, motor vehicle, construction equipment or other equipment, pump, fan, air-conditioning apparatus or similar mechanical device; or (b) engage in any commercial or industrial Activity, which is likely to emit noise or excessive vibrations shall carry out the Activity or Activities within the relevant levels prescribed in the First Schedule to these Regulations. Any person who contravenes this Regulation commits an offence.

Section 13(1) states that except for the purposes specified in sub-Regulation (2) hereunder, no person shall operate construction equipment (including but not limited to any pile driver, steam shovel, pneumatic hammer, derrick or steam or electric hoist) or perform any outside construction or repair work so as to emit noise in excess of the permissible levels as set out in the Second Schedule to these Regulations. These purposes include emergencies, those of a domestic nature and /or public utility construction. It is expected that the regulations will be relevant to the project during implementation and constructions works or decommissioning phase where construction machinery and vehicles involved will lead to emission of noise and vibrations

The Proposed Sugar Mill Project during construction activities will generate noise and vibrations. The contractor will be required to ensure compliance with the above regulations in order to promote a healthy and safe working environment throughout the construction phase.

4.2.8 The Environmental Management and Coordination (Wetlands, River Banks, Lakeshores and Sea Shore Management) Regulations, 2009

The regulations provide for the conservation and sustainable use of wetlands and their Resources. It further in part III provides for the sustainable utilization and conservation of resources on river banks, lake shores, and on the seashore by and for the benefit of the people and community living in such areas. To achieve the intended aim, the regulations enshrine community participation in the management of such designated riparian resources to prevent pollution and siltation. The wetlands, River Banks, Lake Shores and Sea Shore Management Regulations in part II and III has set principles that should be adhered to, to manage wetlands and that EIA/EA is mandatory for all Activities that are likely to affect the wetlands.

The minister (now Cabinet secretary under the new constitution) for environment can declare an area a protected wetland depending on its significance. Therefore, Activities in such a protected area will be controlled in accordance to such wetland management plan. Cultivation is among those Activities allowed in wetlands but is subject to determination of the impacts of such Activities to the wetland. However, the regulation in section 12 requires acquisition of a permit before commencement of such Activities from relevant institutions.

NEMA for that matter in consultation with other lead agencies is obligated to develop a wetland management inventory nationally. But regardless of the ownership of the wetland, the regulations stipulate that the land owner or users have an obligation to observe the integrity of the wetland. The regulations further in part III articulate those special measures should be taken to prevent soil erosion siltation and pollution for management of river banks, lake shores and sea shore.

The Proposed Sugar Factory project in operation will continuously abstract water from a nearby stream and will also drill a borehole. In abstracting water from the stream, the proponent will be required to acquire approvals from WRA and conduct an EIA when drilling the borehole.

4.2.9 The Environmental Management and Coordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006(Legal Notice No. 160)

The regulations prohibit any person from engaging in Activities that could be detrimental to ecosystems integrity, introduction of alien species in local environment or unsustainable utilization of natural resources without an EIA license issued by NEMA. NEMA on the other hand in consultation with other lead agencies is obligated to develop an inventory of biological diversity resources. The Regulations further provides for monitoring of biological diversity and protection of environmentally significant areas, access to genetic resources, benefit sharing and offences and penalties.

These regulations aim at enhancing preservation of biodiversity and safeguarding of endangered and rare plant and animal species within any human activity area. Section 4 of the legislation expressly prohibits any activity which may have adverse effects on any ecosystem, lead to introduction of alien species in a given area or result in unsustainable utilization of available ecosystem resources.

4.2.10 Environmental Management and Coordination (Fossil Fuel Emission Control) Regulations 2006

These regulations are described Legal Notice No. 131 of the Kenya Gazette Supplement no. 74, October 2006 and apply to all internal combustion engine emission standards, emission inspections, the power of emission inspectors,

fuel catalysts, licensing to treat fuel, cost of clearing pollution and partnerships to control fossil fuel emissions. The fossil fuels considered are petrol, diesel, fuel oils and kerosene.

Tiryo Sugar Mill will follow the regulations applicable to equipment and machinery used by the contractor during the infrastructure construction.

4.2.11. The Water Act, 2016

This Act provides the guidelines for proper management of water, conservation and control of water resources to ensure the water resources are sustainable. Under this Act waste water, storm water, sewage systems and drainages are supposed to be put in design drawings in the building plan of the project components; This Act also prohibits water pollution by a developer in his/her area of jurisdiction.

The proponent shall ensure relevant water abstraction permits are obtained from WRA.

4.2.12. Public Health Act (Cap 242)

The Public Health Act is the principal instrument for ensuring the health and safety of the people. Its core function is the prevention of disease, treatment and care of the sick (curative services) and control of nuisance. The Act therefore makes regulations and lays standards for a healthy living environment. Part XI Section 129 of the Act places the responsibility of protecting water supplies on the local authorities. The Ministry of Health is in charge of administration of the Act, with the Director of Medical Services as the Principal Officer. However, where a municipality is capable of discharging responsibilities under the Act, such a municipality is designated as a local health authority. In such a situation, the relevant powers under the Act are delegated to the municipality, but the Director of Medical Services may take over if the Authority is in default. During the execution of the proposed project, this Act is relevant in various ways.

Section 115

During construction, nuisance is prohibited especially for all conditions liable to be injurious or dangerous to health.

Section 118

Section 118 outlines nuisance liable to be dealt with, i.e., accumulation or deposit of refuse, offal, manure or any other material that is offensive or injurious or dangerous to health, and an accumulation of stone, timber or other machine likely to harbor rats or rodents.

Section 126 rule 62 – Drainage and Latrine Rules

It is a statutory requirement that drainage, latrines, septic and conservancy tanks and any other pretreatment methods of sewage effluents seek written permission or/and approval from the local authority, and be built in conformity to provisions of sub-rules (a) to (e) of this section.

The project construction and operation activities are bound to expose both workers and members of the general public to situations injurious to health. All activities of the project are thus expected to abide by this act to ensure a healthy environment.

The implementation of the sugar mill project will make sure that no waste is disposed into the environment to cause nuisance to the public.

4.2.13. Forest Act, 2005

The Forest Act, 2005 was enacted in November 2005 to repeal the Forest Act, Cap 385 and awaits the Minister to gazette the commencement date. The Act provides for the establishment, development and sustainable management, including conservation and rational utilization of forest resources for the social economic development the country, recognizing that forests play a vital role in the stabilization of soils, ground water, protecting water catchments, and moderating climate by absorbing greenhouse gases, among other things. Its provisions apply to all forests and woodlands on state, local authority and private land of the country declared as provisional forest by the Minister. The administration of forests is headed by the established Kenya Forest Service, managed by a board. Community participation is integrated through forest community associations and forest user associations. The Act also establishes the forest management and conservation fund headed by a finance committee. The Act requires sustainable management of indigenous forests and woodlands and presidential decree for protection of trees can be issued. Variation of forest boundaries or revocation of state or local authority forests and state forest concession is subject to an independent EIA and public consultation.

Section 42 of the Act states that (1) The conditions on which a license for mining and quarrying, or any other activity carried out in the forest, shall, where the activity concerned is likely to result in the depletion of forest cover in any forest, include a condition requiring the licensee to undertake compulsory re-vegetation immediately upon the completion of the activity. It further states that re-vegetation shall be undertaken in consultation with the Kenya Forestry Service, which shall determine the seeds and seedlings proposed to be used in such re-vegetation. The Director of Kenya Forest Service (KFS) is required to maintain register of all licenses issued under the Act.

Provisions of part VI and part XII of EMCA 1999 shall apply mutatis mutandis to and in respect of a license under this Act, and any EIA as well as reference to the National Environment Tribunal required under this Act. The provisions of EMCA 1999 regarding reference to the Tribunal established under that Act shall apply to the settlement of disputes arising under the Forest Act, 2005. Offences under the Act are punishable under the law, and citizens can petition the High Court for a declaration of contravention of the Act provisions. Thus, the Act directs, regulates and harmonizes development and use of forests in the country. In addition, the Act provides a vital link with the Environment Management and Coordination Act.

The implementation of Tiryo Sugar Mill Project will not interfere with any gazette natural forest.

4.2.14. Agricultural Act CAP 318 Revised 2012

An Act of Parliament to promote and maintain a stable agriculture, to provide for the conservation of the soil and its fertility and to stimulate the development of agricultural land in accordance with the accepted practices of good land management and good husbandry.

During the entire course of the project, there will be need for practice of good crop husbandry as well as soil fertility maintenance as a vital component of enhancement of agricultural output. Following the provisions in the Act, legally acceptable practices will have to be upheld by all farmers for sustainable production out of their farms.

4.2.15. Penal Code, Cap. 63

Section 191–Fouling Water

The management shall ensure that no foul water of any public spring or reservoir is rendered unfit for the purpose for which it was ordinarily used for by the community.

Section 192–Dwellings and Neighborhood

The operation phases of the project shall ensure that health of persons in general dwellings or carrying on business in the neighborhood or passing along a public facility are protected.

4.2.16. Legal Notice 40 (Building, Operation & Work of Engineering) Rules 1984

These rules require the contractor to ensure health, safety and welfare of employees and states. It further requires the main contractor to notify the chief inspector within 7 days of commencing or undertaking building operation or works of engineering.

The rules require that walls of excavations deeper than 1.2m be reinforced with timber of suitable quality or with other suitable material to prevent so far as is reasonably practicable the danger or injury resulting from a fall or dislodgement of earthwork. A first aid box shall also be provided and be distinctively marked „FIRST AID" and placed under the charge of a responsible person whose name shall be plainly indicated in a prominent place or near the box.

The proponent has taken cognizance of the applicable legal obligations pertaining to this proposed development by demonstrating full commitment to compliances with applicable laws and regulations applicable to the implementation of this proposed project.

4.2.17. Occupational Health and Safety Act, 2007

This legislation provides for protection of workers during construction and operation phases. The Act applies to all workplaces whether temporarily or permanently with an aim of securing safety, health and welfare of persons at work and non-workers. During project implementation, operation and decommissioning stages, the safety of people who will be hired or in constant interaction within the working area need to be ensured. The project proponent and the contractors will guarantee safety within the project area at different stages of the project cycle. The project proponent in consultation with the contractors are required to prepare a safety and health policy statement with respect to safety and health at work places of workers and any other person in the vicinity (section 7). In the event that there will be more than twenty employees at site, the project proponent or contractor should establish a safety and health committee at the workplace. In spite of this, workers on the other hand are responsible of their own safety and should bring to the attention of the person in charge any dangerous situation. Regular auditing of the workplace should be done annually to establish the state of health and safety at site.

The Act requires that all workplaces must be registered with the director. Occupational health and safety officer on notification has power at any time to enter examine or inspect a workplace. Safety of workers therefore should be ensured at all-time including using personal protective gears. People will be hired during project implementation, operation and decommissioning stages and their safety should be ensured according to the provisions of this Act. However, it is sometimes challenging to monitor implementation of safety at workplaces and most often steps are taken after an incident. For instance, there are no air quality standards in Kenya and also capacity to determine air quality levels.

Sufficient and suitable sanitary conveniences for persons employed in the factory/ workplaces shall be provided, maintained and kept clean, and effective provision shall be made for lighting the conveniences, and where persons of both sexes are, such conveniences shall afford proper separate accommodation for persons of each sex.

The contractor will have to fulfill this legislation during the entire project implementation and during its operational phase all workers shall be provided with the necessary PPEs and the facility shall be registered with DOSHS.

4.2.18. Energy Act of 2006

This is an Act of Parliament passed to amend and consolidates the law relating to energy, to provide for the establishment, powers and functions of the Energy Regulatory Commission and the Rural Electrification Authority and for connected purposes. The Energy Act of 2006 replaced the Electric Power Act of 1997 and The Petroleum Act, Cap 116. The Energy Act, amongst other issues, deals with all matters relating to all forms of energy including the generation, transmission, distribution, supply and use of electrical energy as well as the legal basis for establishing the systems associated with these purposes.

The Energy Act, 2006, also established the Energy Regulatory Commission (ERC) whose mandate is to regulate all functions and players in the Energy sector. One of the duties of the ERC is to ensure compliance with Environmental, Health and Safety Standards in the Energy Sector, as empowered by Section 98 of the Energy Act, 2006.

Licensing and authorization to generate and transmit electrical power must be supported by an Environmental and Social Impact Assessment Study Report (ESIA) approved by NEMA.

4.2.19. The County Government Act, 2012

The Kenya constitution 2010 provides for two tier government levels. Local area planning and development will be controlled at county government level. The county government Act provides local governance principles, guide planning and development process as well as community participation. Section 5 of the Act stipulates the functions of the county governments as provided for in the constitution.

The Act in part VIII on the other hand indicates the significance of community participation in decision making. It articulates how the local people can be involved in the management of the county government affairs and decision-making process. In Part IX and X, the Act compels the county governments to provide adequate information and public civic education as a way of capacity building to ensure meaningful participation.

To ensure integrated and sustainable development at both national and county government level, the Act in part XI states the principles of county planning and development process. Section 102 in particular outlines the principles of planning and development facilitation in a county. One of the objectives of county planning is to harmonize between national, county and sub-county spatial planning requirements as stated in section 103(a) of the Act.

Section 104 in subsection 2 on the other hand states that such planning framework should integrate economic, physical, social, environmental and spatial planning.

The county planning unit is responsible of coordinating all integrated development plans within the county. However, Counties are required to prepare a five-year integrated development plan as stipulated in section 108. Such plans will be informed by among other things, all known projects, plans and programs to be implemented within the county by any organ of state (Section 108, (2b) iii). Therefore, the project proponent should liaise with the county planning unit during project implementation process to ensure the project is in line with the goals and objectives of the integrated development plan.

For the project to be implemented it has to be acceptable and it has to be in line with their development agendas.

4.2.20. Physical Planning Act, Cap 286

The protection of the environment, the conservation of the natural resources and pollution are basically tied up with the question of the permitted use of land. The land planning law in Kenya is found in the Physical Planning Act, Cap 286. The main purpose of the physical planning legislation is to control the use of land, which is of great importance since it affects the environment. When an owner seeks to develop a plot of land, which is within the jurisdiction of the local authority, approval from the Director of Physical Planning is mandatory. The Act defines „Development" to mean any material change in the use or density of any building or land. Section 36 specifically provides that in connection with a development activity, which will have an injurious impact on the environment, the applicant shall be required to submit together with the application an Environmental Impact Assessment Study Report (EIASR). Section 29 of the Act allows for prohibition or control of the use and development of land and buildings in the interest of proper and orderly development of an area. Section 30 of the Act states that any person who carries out development without permission will be required to restore the land to its original condition, and that no other licensing authority shall grant license for commercial and industrial use or occupation of any building without development permission granted by the local authority. Section 36 states that where the project will be injurious to the environment, the developer shall be required to submit an Environmental Impact Assessment Report and thereafter, an Environmental Audit every year.

This act guides the implementation of projects. The act zones areas as agricultural and industrial. The project area has been zoned as agricultural land and hence the proponent will be required to do a change of user report.

4.2.21. Work Injury Benefits Act (WIBA), 2007

It is an act of Parliament (No. 13 of 2007) to provide for compensation to workers for injuries suffered in the course of their employment. It outlines the following:

Employer's liability for compensation for death or incapacity resulting from accident;
Compensation in fatal cases;
Compensation in case of permanent partial incapacity;
Compensation in case of temporary incapacity;
Persons entitled to compensation and methods of calculating the earnings;
No compensation shall be payable under this Act in respect of any incapacity or death resulting from a deliberate self-injury; and
Notice of an accident, causing injury to a workman, of such a nature as would entitle him for compensation shall be given in the prescribed form to the director.
During construction period, the contractor will need to abide by all the provisions of WIBA. Similarly, the same will be required of the proponent during operation phase.

4.2.22. The Wildlife Conservation and Management Act, 2013

This Act became operational on 10 January 2014. One of its guiding principles is the devolution of conservation and management of wildlife to landowners and managers in areas where wildlife occurs, through in particular the recognition of wildlife conservation as a form of land use, better access to benefits from wildlife conservation, and adherence to the principles of sustainable utilization. Section 25 of the act provides for compensation for injuries and site ages caused by wildlife (species listed in its third schedule) to humans and their properties respectively.

The act in its sixth schedule list various animal and tree species that are nationally considered as critically endangered, vulnerable, nearly threatened and protected. It also lists in its seventh schedule, national invasive species for which control is required. Section 48 restricts activities involving the above listed species without a permit from KWS. KWS can make recommendations to the responsible cabinet secretary, to prohibit carrying out of any activity which: is of a nature that may negatively impact on the survival of species listed in sixth schedule; or is specified in the notice or prohibit the carrying out of such activity without a permit issued by KWS.

Any critically endangered, vulnerable, nearly threatened or protected species found within the project area will have to be managed in line with this Act.

4.2.23. The Kenya Roads Act of 2007

The act stipulates the legal and institutional aspects of the road sub-sector policy. The Act provides for the establishment of three independent Road Authorities, namely:

Kenya National Highways Authority (KeNHA), responsible for the administration, control, development and maintenance of all class A, B and C roads in Kenya,

Kenya Rural Roads Authority (KeRRA), responsible for rural and small-town roads including class D, E roads and Special Purpose Roads; and

Kenya Urban Roads Authority (KURA) responsible for all City and Municipal Roads.

The Authorities fall under the Ministry responsible for infrastructure and retains the role policy formulation and general oversight of public roads including regulatory aspects such as technical standards.

The proponent will require liaison with these institutions in the improvements existing and development of any new roads within the project area.

CHAPTER FIVE: PROJECT ALTERNATIVES

5.0 The Proposed Alternatives

This section discusses the potential impacts (both positive and negative) and proposes alternatives to the execution of the project based on the information generated by the analysis of the anticipated environmental issues.

5.1 Site Alternative

Alternatives for siting of the project may be limited to land ownership and appropriateness of the area. The current location provides a most suitable place. The relocation option to a different site is an option which might not be favorable. Alternatives for siting of the project may be limited to land ownership and appropriateness of the area. The current location provides a most suitable place. This alternative will have minimal impact on the physical environment and has considered the necessary measures to almost eliminate the identified issues. The project is also in line with contemporary needs of the proponent and the adjacent community.

5.2 Alternative Technologies

The design of the ETP has taken into account measures that can be implemented to minimize wastewater production through recycling, treatment and reuse. Its capacity shall be enhanced should it not be capable of handling larger amounts of effluent. No discharge of effluent shall be made to the environment before satisfactory treatment. Sewage arising from the workforce at the plant will also be discharged into septic tanks. Equipment for the development were preferred with reference to available capital, and function. The design of the facility was undertaken with a view to providing the most suitable, modern and practical facilities for the expected users. The client will also incorporate the use of a biodigester and a documentation is attached.

5.3 Alternative Equipment

Equipment for the development were preferred with reference to available capital, and function. The design of the facility was undertaken with a view to providing the most suitable, modern and practical facilities for the expected users.

5.4 “No Project” Alternatives

The No Project alternative would be a loss to the expected gap that would be filled by with the increase in sugar production at the sugar factory. The no project expansion alternative in respect to the proposed Project implies that the status quo is maintained. Under the no project expansion alternative, the proponent’s proposal would not receive the necessary approval from NEMA. The proposed sugar factory project would not be constructed and the expectations attached to the Project would not be met. The no project construction alternative is the least preferred from the socio-economic perspective.

5.5. Preferred Option

For this project, there are limited alternatives for the project site because the proponent already operates a sugar plant. Therefore, emphasis is now placed on the technological approaches that the proponent will adopt in constructing and managing the proposed development.

CHAPTER SIX PUBLIC PARTICIPATION AND STAKEHOLDERS' CONSULTATION

Overview.

Public participation and Stakeholders Consultation in ESIA is a systematic way of involving the public and stakeholders in the planning, development and decision-making process. Publicparticipation aims at improving project design, environmental soundness and social acceptability. It provides opportunity for public involvement in scoping, ESIA review and monitoring.

6.1Categorization of Community Participants and stakeholders

Key informants were consulted where a stakeholders meeting was organized on 21st September 2021 at the proposed project site. The forum served to obtain their views, input andsectoral concerns about the proposed project. Those in attendance and consulted in this exerciseincluded:

Local administration (Assistant chief)

Local administration (Chief

Area Village elders

Vulnerable and marginalized group members

County Government of Nandi

Kenya Sugarcane growers Association organizing Secretary

Physical planning officer

Farmers 'Cooperative Societies

Lead Sugar Consultant in the project

Methodology of Public Participation

The members of the public were involved in this ESIA process. Views from the 'would be affected' people were sought from the public through 2 different Public Barazas held on 21st December 2021 and 23rd September 2022. Both Public Participation exercise were chaired by the area chief and the Area MCA on the two respective dates. The data collection was carried out through structured questionnaires where 50 questionnaires were administered in December meeting. Out of these, 50 were filled and returned. Another set of 40 questionnaires was administered on September 2022 and all questionnaires filled and returned. (*See attendancelist)*

The exercises were conducted by a registered environmental expert. The objective of the consultation and public participation was to:-

Disseminate and inform the stakeholders about the project with special reference toits key components and location

Gather comments, suggestions and concerns of the interested and affected parties

Propose solutions and mitigation measures to the various concerns

Incorporate the information collected in the ESIA study

In addition, the Environmental Impact Assessment public consultation exercise enabled: -

The establishment of a communication channel between the general public and the Lead Expert, the project proponents and the Government.

The purpose for such interviews was to identify the positive and negative impacts andsubsequently promote and mitigate them respectively. It also helped in identifying any other miscellaneous issues which may bring conflicts in case project implementation proceeds as planned.

The Consultation and Public Participation (CPP) Process is a policy requirement by the Government of Kenya and a mandatory procedure as stipulated by EMCA 1999 section 58, onEnvironmental Impact Assessment for the purpose of achieving the fundamental principles ofsustainable development.

Issues raised by the community during public Participation

Improved infrastructure

It was acknowledged by the local community that the construction of a sugar factory in this neigborhood may improve infrastructure around the project site such as construction and regular maintenance of roads, storm water drainages and power lines among other facilities.

Job opportunities

During the exercise, it was noted that the proposed project is bound to create employment opportunities, especially to casual workers during construction phase. Apart from casual labourers, semi-skilled and skilled labourers are expected to obtain gainful employment duringthe period of construction and operational phases of the project. Skilled manpower will also berequired for operation of sugar factory.

Population increase

As a result of the proposed project taking place, population increase will be experienced in thearea. This will be as a result of workers directly employed at the factory and persons engaged in other activities related to tea processing.

Air pollution

Air pollution was noted as a possible cause of concern. Potential impacts on the air quality during the construction stage will be due to the fugitive dust and the exhaust gases generated in and around the construction site by use of heavy vehicles and machinery/equipment at the construction site. These emissions can have significant respiratory and cardio-pulmonary effects on the local population and thus adequate mitigation measures should be implemented.During operation phase, it was identified the sugar factory is likely to emit air pollution such as sulfur dioxide, carbon monoxide and nitrogen oxide that can be a nuisance. The expert explained that proper control measures will be put in place to ensure emissions are trapped andno harmful emissions will be allowed to escape.

Noise and Vibration

There was concern over the possibility of high noise and vibration levels in the project site as a result of excavation, construction works. The source of noise pollution will include transportvehicles, construction machinery and metal grinding and cutting equipment. Although the levelof discomfort caused by noise is subjective and relies mainly on the distance between the noise source and recipients, the real impact of noise on the area's residents will depend on

the natureof equipment used and the timing of their use. Excavations will cause vibrations; however, theproponent will take appropriate steps to minimize noise impacts including provision ofappropriate protective equipment to construction workers, planning and minimizing the frequency materials transport and ensuring that all equipment are well maintained. During operation phase, noise will be mainly from operations and vehicles e.g trucks ferrying sugar cane.

Water Shortage

Although a nearby stream was identified to be permanent, there was still uncertainty over the prevailing water condition in the area in the site. The proponent was requested to ensure that water storage tanks are put in place as a back-up system in case of water shortage problems orconsider drilling a borehole. The expert explained that WRA had indicated that the water is sustainable for downstream users considering that the proponent wants to abstract a maximumof $30M^3$. He added that borehole drilling was already considered as the main alternative by theproponent.

Dust Generation

The participants expressed concern over possibility of generation of large amounts of dust within the project site and surrounding areas as a result of demolition, excavation works and transportation of building materials. The proponent will ensure that dust levels at the site are minimized through sprinkling water in areas being excavated and along the tracks used by thetransport trucks within the site. Additional mitigation measures presented in this report will befully implemented to minimize the impacts of dust generation.

Effluent Discharge

The community expressed their interest in how the effluent generated by the sugar factory will be managed. They recommended that the proponents to consider an efficient effluent treatmentmethod during their planning. The Director of the proposed factory assured them that a modernETP that will be very effective has been incorporated in the design and that there should be worry about that.

Environmental Aesthetics

It was seen that the aesthetics of the area would be affected negatively during construction. It is proposed that the proponent should ensure high hygiene standards within the premise and surrounding areas during construction possibly by landscaping. More so via the prescribed EMP, the proponent shall put in place several measures aimed at ensuring high standards of hygiene and housekeeping within the building and surrounding areas.

Social and Economic effects

The participants agreed that the project have some levels of impacts including the followingbut were contented with the proposed mitigation measures suggested:

Business competition will intensify;

Neighbors will be affected by too much noise and exhaust fumes from the parking lot; The expert read the proposed mitigation measures among them shutting down engines while offloading and restrict hooting. He assured them that if mitigation measures are followed, noisewill easily be controlled.

Fears of ground water contamination were expressed; It was suggested that the proponent toalways ensure that the ETP are functioning. Also, periodic checks by WRUAs on the facility compliance.

Human traffic jam will be experienced more especially in the morning and evening for thosewho will be working in the factory;

Cases of HIV and AIDS will increase as a result of influx of people in the project area; Thecommunity agreed to withhold good morals as this is a social issue.

Suggestions made by the Participants

The welfare and comfort of the community and neighbours should be considered seriouslyby the developer.

The proponent to have an Efficient Effluent Treatment Plant (ETP) to handle effluent fromthe factory

The proponent should consider employing local construction workers.

The environment and public health should be protected from degradation.

The proponent should consider supporting the local Schools or health centres when theproject is operational.

The community requested that the proponent should spare some baggase and give to thefarmers for use as manure in improving agricultural lands.

: Photos of ongoing Public Participation Exercise

Figure 6,6.1: First public consultation meeting held at the site on 21/12/2021

Figure 5.5.2: The Expert addressing stake holders at a public participation meeting on 21/12/2021 chaired by the area Chief.

Figure 5.5.3: Residents actively participating in consultations during the second public participation meeting held on 23/8/2022 chaired by the area MCA

Summary of Sectoral Concerns Raised by Key Stakeholders

The concerns and views of the Key stakeholders raised during the Key stakeholders meetingare summarized below:

- Project will reduce post-harvest sugarcaneloss
- Project will reduce sugarcane transportcosts to factory
- 1200 jobs likely to be created directly
- Corporate Social Responsibility activitiesare envisaged
- Have worked closely with the existing County Government in formulating theproject.
- Reduction of rural urban migration
- Alternatives for the project must beinterrogated
- Feasibility study is necessary/ alreadydone
- Project requires full ESIA disclosures
- EIA license is not a blank cheque – proponent may need an environmentalconsultant on site.
- At least two public barazas necessaryduring consultation
- Stakeholder mapping should adopt the MIKE (Mandate, Interests, Knowledge and Effects) approach
- To write letter to ACC for convening ofpublic consultation meetings
- Tree cover and agro-forestry should beconsidered
- Green technologies e.g. water harvesting.Natural lighting, solar energy, green buildings should be considered
- Riparian/wetlands conservation should beincorporated in the project

Conclusion from Public Participation and Stakeholders Consultation (PPO&SC) From the various public consultations undertaken by the EIA study team, it is obvious that theproject is very welcome in Kimwani and in Nandi County. The local community pointedhow they will stand to gain from the project as most of their land is lying idle and it has highpotential for cane production. Those with sugarcane have been suffering great loss due to longdistance travelled from Weighbridge and closure of Chemelil Sugar Factoryall the way to Western Kenya factories. Thecommunity unanimously welcomes and supports the project without any single objection. Thestakeholders too led by the County Government of Nandi have agreed that the project isimportant and all key stakeholders have welcomed the proposed project as well.

CHAPTER SEVEN: ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

7.0. Impact description & mitigation

This chapter presents an assessment of environmental impacts from the proposed project design and activities while proposing mitigation and management measures to prevent and control these impacts.

7.1 Construction and Equipment installation

Key aspects to be considered during construction are:

- Procurement of construction materials
- Installation of services and interiors of the building
- Use of heavy and light machinery.
- Energy utilization, major energy consuming activities include:
- Lighting;
- Excavation;
- Transportation;
- Hauling and hoisting of materials;
- Mixing raw materials;
- Waste handling trucking and disposal;
- Testing and commissioning of the development.
- Energy sources for these activities include grid electricity and diesel or petrol fuel for machinery/vehicles
- Water utilization, including use for the following activities:
- Washing of machinery and equipment;
- Preparing of mixtures, including water-based emulsion paints;
- Concrete works, including curing;
- General cleaning;
- Landscaping;
- Controlling dust on site;
- Domestic utilization (sanitary facilities).

7.2 Anticipated Impacts and Proposed Mitigation Measures during Pre- Construction, Construction and Installation Phase

7.2.1 POSITIVE IMPACTS DURING CONSTRUCTION PHASE

A number of positive impacts are associated with the proposed sugar milling plant during construction and installation phase. These are as discussed below:-

7.1.2.1 Employment opportunities

The proposed Project will directly and indirectly create employment for a big number of workers, especially casual workers within Kimwani Area and the larger Nandi County. However, the exact number cannot be predetermined at this stage. All in all, the services of the following groups of people will be required during the construction phase:

- Contractor;
- Casual laborers;
- Site manager;
- Foremen;
- Masons;
- Carpenters;
- Electricians;
- Plumbers;
- Painters;
- Transporters;
- Security agents; and
- Landscapers.

Though the employment will be temporary, those who will be employed will earn income hence use the money to satisfy some of their needs.

Provision of market for supply of building materials

The Project will require supply of large quantities of building materials most of which will be sourced locally in Nandi and in the surrounding counties. Producers and suppliers of materials

such as building stones, timber, electrical cables, paint, sand, and cement will thus get market for their goods. This provides ready market for building material suppliers such as quarrying companies, hardware shops and individuals with such materials. However, the hard rocks that will be excavated from the site during construction will also be reused.

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

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

7.2.1.4 Improvement in local business

There is a likelihood of different types of businesses being set up in Kimwani Area and its environs. Such businesses will include housing, transport, hotels, restaurants and shops, among others. In addition, since the area will open up, there is a high possibility of more investments including educational tours to see the factory which eventually could boost the local ecotourism sector in a significant way. The influx of population will require accommodation in the vicinity as well as food stuff therefore creating demand for agricultural produce.

7.2.1.5 Industrial development in Nandi County

The success of this project will offer other diverse benefits to Nandi County including the upgrading of its industrial sector as an important economic and employment sector in the country. This is also in line with the Vision 2030 economic development agenda of refurbishingand expanding the manufacturing industries in Kenya.

7.2.1.6 Enhancement conservation

The proponent will ensure spectacular landscaping which will uplift the general aesthetic outlook of the area. The proponent will also support reforestation and agro-forestry in the area.

Negative Construction and Installation Impacts

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

Local increase of construction traffic

The construction of the proposed milling plant will make local increase of construction traffic inevitable. This is as a result of the movement of the construction vehicles and machines in andout of the construction site. The site will be located along Nandi Hills- Kimwani Road causing a lot of traffic.

Mitigation Measures

The proponent through the contractor will put measures in place to mitigate the local traffic jam that will occur in the project are as a result of the construction vehicles turning to offload the raw materials to the site and after offloading the raw materials.

To minimize the local construction traffic, construction vehicles will enter and leave the site at appropriate times.

The contractor will also use signs and barriers to direct vehicles and pedestrian traffic as needed around the construction site.

Some activities may also be scheduled in off-peak traffic times tominimize impacts.

7.2.2.2 Noise pollution and vibration

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

Mitigation Measures

The Proponent of the proposed Project shall put in place several measures that will mitigate noise pollution and vibration arising during the construction phase.

The following noise suppression techniques will be employed to minimize the impact of temporary construction noise at the project site:-

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

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

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

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

Co-ordinate with relevant agencies regarding all construction activities in the project area.

Limit pickup trucks and other small equipment to a minimum idling time and observe a common-sense approach to vehicle use, and encourage workers to shut off vehicle engines whenever possible.

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

Vegetation Loss Impact:

Construction of the sugar factory will require all the vegetation to be removed from the site to pave way for the construction of buildings, roads, walkways and other facilities.

Mitigation Measures

The vegetation loss is set to be confined to the project location and will mainly consist of grasses and weeds as the ground has hitherto been used for sugar cane farming.

The proponent and the contractor are advised to revegetate the area after all construction works are done

7.2.2.4 Occupational health and safety

Construction sites always present an element of danger. Construction workers are likely to encounter accidental injuries as a result of the intensive engineering and construction activities including erection and fastening of materials, metal grinding and cutting, concrete work, steel

erection and welding among others. Such injuries can result from accidental falls from high elevations, injuries from hand tools and construction equipment cuts from sharp edges of metal sheets and collapse of building sections among others. Deaths have also been experienced as a result of poor construction activities leading to occupational health and safety concerns.

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

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

Mitigation Measures

To reduce the occupational health and safety impacts during the construction phase of the proposed Project, the Proponent through the Contractor is committed to adherence to the occupational health and safety rules and regulations stipulated in Occupational Safety and Health Act, 2007.

The Proponent is to ensure provision of appropriate personal protective equipment, as well as ensuring a safe and healthy environment for construction workers as outlined in the Environmental Management Plan (EMP).

Construction workers' accidents especially in deep trenching operations and elevated areas shall be mitigated by enforcing adherence to safety procedures and preparing contingency plan for accident response in addition, safety education and training shall be emphasized.

The Project Manager should ensure strict safety management through close attention to design, work procedures, materials and equipment

Develop a site safety action plan detailing safety equipment to be used, emergency procedures, restrictions on site, frequency and personnel responsible for safety inspections and controls;

All workmen should be provided with personal protective equipment (e.g., dust masks, ear muffs, helmets, overalls, industrial boots, harnesses, etc)

There should be regular site reporting on health, safety and environment (HSE) issues by an appointed HSE representative, daily site inspections should be done to ensure safe work practices are adhered to;

All injuries that occur on site must be reported recorded in the accident registers and corrective actions for their prevention be instigated as appropriate;

Statistical records on accidents and incidents should be collated and analyzed on a monthly basis and forwarded to the Project Manager and / or displayed on the notice boards;

Site personnel should be encouraged to report “near-miss incidents” in order to avoid potential problems and increase safety awareness.

Safety signage should be erected and adhered to at the site

7.2.2.5 Impact on air quality

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

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

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

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

Air emissions result from construction activities such as excavation, earthmoving and land filling, stone cutting and concrete processing as well as the loading and unloading of construction material and waste. Impacts include increased dust and airborne particulates caused by grading, filling, removals and other construction activities. After construction is complete, dust levels are expected to return to near non-existing conditions. Air quality

impacts may also result from emissions from construction equipment and possibly from traffic stopped at the entrance of the building site to deliver materials.

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

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

Mitigation Measures

Air quality impacts generated from exhaust emissions and dust emissions will be minimized as follows.

Exhaust Emission

The following measures shall be implemented during construction to minimize the exhaust emission:

The engine size of the construction equipment shall be the minimum practical size;

The number of construction equipment operating simultaneously shall be minimized through efficient management practices;

Vehicle idling time shall be minimized; and

Equipment shall be properly tuned and maintained as per the manufacturer's specifications.

Proper planning of transportation of materials to be used during construction of the proposed project to ensure that vehicle fills are increased in order to reduce the number of trips done or the number of vehicles on the road.

Dust Emission

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

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

Applying water to at least 80% of all inactive accessible disturbed surface areas on a daily basis when there is evidence of wind driven dust;

Watering all roads used for any vehicular traffic at least twice per day of active operations or road used for any vehicular traffic once daily and restrict vehicle speed to 15 mph;

The soil surface shall be kept humid through water spraying to control the level of dust during excavation works.

Provide dust masks to construction staff working in dusty areas

Construction materials must be properly stacked

Dispose of debris from the construction site by licensed waste trucks to authorized dumping sites

Down wash of trucks (especially tyres) prior to departure from site;

Cover stockpiles of sand, soil and similar materials or surround them with wind breaks;

Cover trucks hauling dirt and debris to reduce spillage on to paved roads surface or have adequate free board to prevent spillage;

Trucks carrying construction waste shall be covered during their trip from the construction site to the final disposal location.

Post signs that limit vehicle speeds onto unpaved roads and over disturbed soils; and

Rapid onsite construction so as to reduce duration of traffic interference and therefore reduce emissions from traffic delays.

Disposal of solid waste

Construction activities create solid wastes that need to be disposed. Such wastes include: Timber, metals, nails, wires, glass, plastic piping, excavated soil and rocks, packaging materialsand containers e.g. paint pails, cement bags, metallic straps, etc.

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

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

If not properly disposed, these wastes will result in the pollution of soil, ground water and air (paint). Materials consisting of chemicals e.g. paints, cement and thinners will alter the chemical composition of these regimes.

Mitigation Measures

During the construction period an area will be specifically designated for solid wastes. These will be segregated and categorized into re-usable, those for re-sale and those that cannot be used again. Reusable material will be recovered so as to reduce wastage and cost of raw materials.

The waste designated area will be well protected from the elements to ensure reduced chances of them being carried away by wind or rain.

Surplus material that cannot be reused in any way will be removed from site by licensed waste handlers

Use of durable, long-lasting materials that will not need to be replaced as often,thereby reducing the amount of construction waste generated over time;

Provision of facilities for proper handling and storage of construction materials toreduce the amount of waste caused by damage or exposure to the elements;

Use of building materials that have minimal packaging to avoid the generation ofexcessive packaging waste;

Use of construction materials containing recycled content when possible and inaccordance with accepted standards; and

Adequate collection and storage of waste on site and safe transportation to thedisposal sites and disposal methods at designated area shall be provided.

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

Increased water demand

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

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

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

Mitigation Measures

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

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

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

7.2.2.8 Energy consumption

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

Mitigation Measures

The Proponent through the Contractor shall ensure responsible electricity use at the construction site through sensitization of staff to conserve electricity by switching off electricalequipment or appliances when they are not being used.

Proper planning of transportation of materials will ensure that fossil fuels (diesel, petrol) are not consumed in excessive amounts.

Contractor shall monitor energy used during construction and set targets for reduction of energy use.

The Contractor will also develop energy management plan.

Increased storm water runoff from new impervious areas

Construction of the proposed Project and access driveway could result in additional runoff through creation of impervious areas. These areas generally have higher runoff coefficients than natural area, and increased flood peaks are a common occurrence in developed areas.

The storm water runoff is likely to increase the flooding along access roads.

Mitigation Measures

The proponent of the proposed project will put in place some measures aimed at minimizing soil erosion and associated sediment release from the project site during construction. These measures will include: -

Leveling the project site to reduce run-off velocity and increase infiltration of rain water into the soil.

A storm water management plan that minimizes impervious area infiltration by use of recharge areas and use of detention and/or retention withgraduated outlet control structures will be designed.

7.2.2.9 Extraction and use of building materials and procurement

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

vegetation, poor visual quality and opening of depressions on thesurface leading to several human and animal health impacts.

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

Mitigation Measures

The tender documents should specify required standards and certification forprocurement of all materials and appliances;

As far as possible, environmentally friendly and sustainable materials should be used. Materials not to be used for construction of the proposed sugar factory complex include:

- High alumina cement;
- Wood wool slab in permanent formwork to concrete;
- Calcium silicate bricks or tiles;
- Asbestos in any form;

Asbestos substitutes or any naturally occurring or man-made mineral fibres;

Lead, lead paint or any other materials containing lead which may be inhaled, ingestedor absorbed;

Vermiculite, unless it is established as being fibre-free;

Any products containing cadmium that are regarded as being injurious substances (referto the UK Environmental Protection (Controls on Injurious Substances) (No.2) Regulations 1993);

Any other substances regarded as being deleterious building materials which are not in accordance with statutory requirements or with current accepted good building practice at the time of specification or construction;

The Contractor should be instructed in the use of all materials that may have negative environmental (including health) effects; and

If any material or substance is used that is at any point in the future deemed to be deleterious to health, then it must be replaced with an acceptable alternative.

7.2.2.10 Oil spills

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

Mitigation Measures

The Contractor shall control dangers of oil and fuel spills during construction by maintaining machinery in specific areas designated for this purpose.

Prompt cleaning of oil and fuel spills,and proper disposal of clothing or rags contaminated with oil will also take place.

Sexual Exploitation and Abuse (SEA) and Gender Based Violence

This impact refers to sexual exploitation and abuse committed by project staff such as contractor or his employees against communities and represents a risk at all stages of the

project, especially when employees and community members are not clear about prohibitions against SEA and GBV in the project.

Mitigation Measures

Ensure clear human resources policy against sexual harassment that is aligned withnational law.

Integrate provisions related to sexual harassment in the employee code of conduct.

Ensure appointment of human resources personnel to manage reports of sexual harassment according to policy

The Contractor shall require his employees, sub-contractors, sub-consultants, and any personnel thereof engaged in construction works to individually sign and comply with a Code of Conduct with specific provisions on protection from sexual exploitation and abuse

The contractor will implement provisions that ensure that gender-based violence at the community level is not triggered by the project, including:

Effective and on-going community engagement and consultation, particularly with women and girls.

Review of specific project components that are known to heighten GBV risk at the community level, e.g. compensation schemes; employment schemes for women; etc.

7.2.2.12 Human Health Impact-Increase in incidences of HIV/AIDS and STIs

The project will attract new people to the project area and this can lead to several repercussionssuch as the spread of HIV virus. Influx of new people to the project area especially construction workers can affect the number of new cases of HIV & AID, because they often interfere with an otherwise stable situation but the contrary can also happen where the newcomers find themselves at higher risk.

Mitigation Measures

All staff on site should be sensitized on HIV and AIDS and other STIs

A sensitization board should be visibly erected on site

7.2.2.13 Labor Influx Effects

This impact is triggered during project construction phase due to the project attracting various categories of workers from local and national or even international markets. This therefore can lead to new people coming to the project area drawn from diverse social and cultural backgrounds often resulting to a number of issues as listed below;

- Strain on various resources especially water resources
- Grievances from local community members over job opportunities
- Sexual Exploitation and Abuse

- Unwanted Pregnancies

Mitigation Measures

The sugar mill will source almost all of its unskilled labor from the local communities in order to reduce an influx of population from outside the area;

Requirements by the facility will be made in an organized manner from thesurrounding communities; thereby reducing occurrence of opportunistic hawking that could result in a myriad of vices such as drug use and peddling, petty crime, alcohol abuse and harboring of criminals.

During construction phase close monitoring of workers will be undertaken to ensurethat unwanted characters are not absorbed.

7.3. Operation Stage

7.3.1 POSITIVE IMPACTS

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

- Employment opportunities

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

- Optimal use of land

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

- Increase in revenue to the national and County Government

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

- Improved amenities

The operation of the proposed sugar factory is expected to improve amenities such as roads, water, health care and social facilities in the surrounding area in that the proposed Project will construct class rooms, a health center, water points and support the needy in the society as part of their CSR.

7.3.1.5 Increased market for sugar and related by-products

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

Increased Participation of Women in Socio-economic Development

The prevailing socio-cultural norms influencing household division of labor will determine women income over the normal routines such as; looking after children, preparation of food and collecting water and firewood which are tasks for the women. By constructing of the sugar milling factory closer to the communities, the women will be able to spend their time in other productive activities thereby increasing their participation in socio- economic development. It is also expected that same will improve the economic and social status of women.

7.3.2 NEGATIVE IMPACTS DURING THE OPERATION PHASE

The key environmental issues during commissioning and operation are:

- Water supply and consumption;
- Energy consumption and management;
- Effluent Management
- Solid waste, molasses, bagasse, filter cake and boiler ash management;
- Stack emissions
- Property management;
- Transport & security;
- Health and safety;

- Noise.

7.3.2.1. Increased Pressure on Infrastructure

The facility will lead to increased pressure on existing infrastructure such as roads, water abstracted from river the nearby stream and many other amenities due to the increased number of users. In turn, this may directly translate into increased use of facilities and services.

Recommended Mitigation Measures

Relevant authorities such as the Kenya Power and Lighting, WRA should be informed of the capacity of the project

The proponent will install water-conserving automatic taps and toilets, as well as energy saving electrical fittings to optimize use of public resources.

Water leaks through damaged pipes and faulty taps will be fixed promptly by qualified staff. iv. Occupants of the facility should be sensitized to use water efficiently.

7.3.2.2 Disposal of Waste Water

Since the disposal of waste water will be directed to the effluent treatment plant, if the plant isnot efficient enough it may require alternative treatment, which may be costly. However, sincethe factory will utilize the effluent treatment plant as proposed, it is anticipated that the plant will work efficiently. The sources of wastewater in the factory will result from the following:

Mill house: Due to plant cooling and intermittent floor washing that contains high amounts of oils and grease and sugar from spills and leaks.

Occasional Spills and Leaks: Leaks from pumps and pipes in the evaporators and centrifuge house, along with periodical floor washings, constitute another source of wastewater. Althoughthe flow is intermittent and volume discharged is not large, it represents the most polluting fraction of sugar mill wastewater.

Condensate Washings: Evaporators, juice heaters, pans, etc are cleaned once in 20 days for removal of deposited scales. Caustic soda, sodium bicarbonate and hydrochloric acid are usedfor scale removal. Normally the caustic soda washings are stored and reused for cleaning operations. After the equipment is boiled with caustic soda and rinsed with fresh water, it is cleaned with

dilute hydrochloric acid using an inhibitor. The wastewater is discharged into thedrains, as the recovery of the chemicals may not prove to be economical. It is seen that the wastewater has small organic load but inorganic content may be high to pose a shock-load to wastewater treatment facility (occasional discharge, once in fortnight). It is suggested to have a holding tank and mix this wastewater gradually to the final effluent to avoid shock loading on the treatment plant.

Sulphur and Lime Houses: The washings of sulphur and lime house would contain a considerable number of inorganic solids, which include carbonates and sulphates. The effluents from these two units when combined would give neutral pH value of waste. This wastewater does not contribute to organic pollution but can be characterized as inorganic wastewater.

Mitigation Measures

Apply for effluent discharge license from NEMA on time

Dry clean floors using controlled quantity of water to reduce the volume of waste water to a certain extent

Ensure judicious use in various plant practices and recycle where possible and practicable to reduce on the volume of waste water

Ensure proper control and maintenance of the plant to reduce on the organic load of waste water

Install a water meter to measure the amount of water waste water released from the factory on daily basis

Carry out quarterly analysis of the composition of the effluent through NEMA accredited laboratories

Continuously monitor the discharge as per the regulations

The milling plant should construct elaborate drainages throughout the factory to direct storm waters

Ensure all waste water is directed to the Effluent Treatment Plant

7.3.2.3 Solid Waste Management

Operation activities will create solid wastes that need to be disposed of properly.

Such wastes include:

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

Bagasse: It is estimated that bagasse contributes to 33.3% residue of the total cane crushed. It has a calorific value of about 1920 kcal/kg and is mainly used as fuel in boilers for steam generation.

Press Mud: It contains all non-sucrose impurities along with CaCO3 precipitate and sulphate. Press mud from double carbonation process contains valuable nutrients like nitrogen, phosphorous, potassium, etc, and therefore used as fertilizer. The press mud from double carbonation process is used for land filling and is not used as manure.

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

Mitigation Measures

Always implement good housekeeping practices to minimize leaks during production processes

Construct bagasse holding shades to ensure remaining bagasse on site does not comein contact with rain to produce leachate

Bagasse can be dried and sold off/ used to make paper and pulp production

The proponent can use bagasse to generate electricity

The proponent can mix press mud with distillery effluent to help reduce toxic effect of effluent BOD and COD contents which enriches its nutritional values and makes it be useful as manure

The proponent will provide waste handling facilities such as waste bins and skips for temporary holding of domestic waste generated on the factory

The proponent shall ensure that such disposal is regularly and appropriate at NEMA designated sites

The proponent should ensure that all staff are trained on proper handling and disposal of waste

Clearly designate and construct an appropriate waste collection facility or provide covered refuse skips;

Designate filter cake and boiler ash dumping and composting sites;

Use only NEMA licensed waste transport vehicles to transport waste materials;

Maintain a proper waste tracking document

7.3.2.4 Air pollution levels

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

The bagasse, on burning, produces particulates, unburnt fibers, carbon particles and gaseous pollutants like oxides of nitrogen, water vapor and other organic compounds. Of the particulate waste, the heavier particles slowly settle down in the surrounding area. Such dust fall leads to the problems of cleaning, reduction in property value, effect on vegetation, etc. The main gaseous pollutants are CO, which is altogether not measured by any unit, and CO2 is reported to be in the range of 12 – 14%.

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

During the period of operation, the fuel consumption at the Project site is expected to rise significantly and the background concentrations of Suspended Particulate Matter (SPM),

Respiratory Particulate Matter (RPM), Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_2) and both Carbon Monoxide (CO) and Lead (pb) are also expected to rise.

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

Recommended Mitigation Measures

Air quality impacts generated from emissions will be minimized by the use of the particulate precipitate. The particulate precipitate will neutralize gaseous emissions and trap particulates to control air pollution.

Regularly monitor stack emission

Invest in bagasse drying mechanism along the delivery line

Installation of wet scrubbers and thermal oxidizers to capture the ash

Avoid overloading the bagasse for efficient burning

Use the correct fuel to air ratio by proper adjustment of air and fuel ratios

Avoid carbon build-up in the boiler and furnace tubes and maintain the boiler and furnace settings in good condition

Reduce fugitive dust fromroads and areas by cleaning and maintaining a sufficient level of humidity

7.3.2.5 Oil and Fuel Spills

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

Mitigation Measures

Used oil should be collected and stored in drums in banded areas

Used oil should be collected by NEMA licensed handlers for disposal

Storage spaces for used oils should be paved to avoid soil and ground water contamination

There should be an oil response kit on site. Workers should be properly trained on dangers of oil pollutions and response actions

In case of an oil spill, all contaminated soils should be collected, stored in drums and disposed of at approved sites

Ensure all vehicles are well serviced and at designated sites

7.3.2.6 Molasses and Distillery Management

Molasses is a by-product generated from the process of obtaining refined white sugar from sugar canes as well as from papermaking industries.

Molasses contains significant concentration of uncrystallized sugar and other organic compounds. On an average the quantity of molasses production is about 4.45% of the sugarcane crushed. Leaks in pipes and pumps occasionally add to the volume of the wash water and increase pollution load considerably due to its high BOD.

The proponent intends to use molasses in the distillery for production of ethanol through the process of fermentation. The molasses distillery produces distillery waste known as spent wash which has a high BOD/COD, bad odor and brown color.

Recommended Mitigation Measures

The proponent should ensure that all waste water from the distillery is channeled to the Effluent Treatment plant

Regular inspection and maintenance should be carried out on pipes to ensure no leakages

The proponent should conduct effluent discharge and quantity monitoring at NEMA accredited labs and submit quarterly records of such monitoring to NEMA

7.3.2.7 Occupational Health and Safety

Workers are likely to encounter various occupational risks ranging from physical to biological and chemical hazards at the plant. Occupational health and safety hazards for sugar manufacturing facilities are similar to those of other industrial facilities and recommendations for the management of these issues can be found in the OSHA 2007. In addition, occupational health and safety issues that may be specifically associated with sugar manufacturing operations can be found in the World Bank EHS Guidelines and include the following:

- Physical hazards
- Exposure to dust and biological hazards
- Exposure to chemicals (including gases and vapors)
- Exposure to heat and cold and radiation
- Exposure to noise and vibrations
- Physical hazards

The most severe injuries in this sector are often attributable to the failure of lockout – tagout systems. Robust lockout – tag-out procedures should be implemented.

Exposure to Bagasse dust

Exposure to bagasse dust is a potential concern in the bagasse handling area of sugar mills. Recommended measures to prevent, minimize, and control dust include:

Enclose and ventilate saws, shredders, dusters, and bagasse conveyors;

Consider enclosed chip storage;

Avoid use of compressed air to clear dust and waste paper;

Enclose and ventilate areas where dry, dusty additives are unloaded, weighed, and mixed, or use additives in liquid form;

Regularly inspect and clean dusty areas to minimize dust explosion risk.

Confined Spaces

Operation and especially maintenance work may include confined space entry. Examples include: boilers, dryers, degreasers, digesters, blow pits, pipeline pits, process and reaction vessels, tanks, and vats.

A confined space is defined as a wholly or partially enclosed space not designed or intended for human occupancy and in which a hazardous atmosphere could develop as a result of the contents, location or construction of the confined space or due to work done in or around the confined space. A “permit-required” confined space is one that also contains physical or atmospheric hazards that could trap or engulf the person.

Confined spaces can occur in enclosed or open structures or locations. Serious injury or fatality can result from inadequate preparation to enter a confined space or in attempting a rescue from a confined space.

Recommended management approaches include:

Engineering measures should be implemented to eliminate, to the degree feasible, the existence and adverse character of confined spaces.

Permit-required confined spaces should be provided with permanent safety measures for venting, monitoring, and rescue operations, to the extent possible. The area adjoining an access to a confined space should provide ample room for emergency and rescue operation.

Recommended Mitigation Measures

The Proponent should be committed to adherence of the occupational health and safety Rules and Regulations stipulated in Occupational Safety and Health Act, 2007.

The Proponent should provide appropriate personal protective equipment, as well as ensuring a safe and healthy environment for workers as outlined in the Environmental Management Plan (EMP).

Worker’s accidents especially in deep curing operations and elevated areas shall be mitigated by enforcing adherence to safety procedures and preparing contingency plan for accident response in addition, safety education and training shall be emphasized.

Install catch platforms under conveyors that cross passageways or roadways;

Quickly clean up spills;

Use non-skid walking surfaces that allow drainage;

Install guard rails on walkways adjacent to production lines or at height, and clearly mark traffic lanes for vehicles and pedestrians;

Equip mobile equipment with roll-over protection.

Establish routines to ensure that heavy loads are not moved by crane over

Clearly mark all-risk areas and ensure signages are visible

The proponent should designate fire assembly points and develop emergency exits which should be clearly marked and free of any obstructions

The proponent shall install fire extinguishers and ensure they are serviced as per the required schedule

There will be adequate first aid kits placed at easily accessible points

The floors of the sugar mill must be fitted and equipped with chequered platehand rails wherever possible

All pipes should be color coded and steam pipes will be properly installed andindicated where necessary.

OSHA Act and WIBA should be strictly adhered to by the management

The factory should consider Public Liability Insurance in case of accidents to visitors

7.3.2.7 Increased Traffic Flow

An increase in the number of vehicles within the area is anticipated which may lead to congestion and pose a threat to accidental occurrences.

Recommended Mitigation Measures

In case of heavy traffic, an attendant should be employed to direct vehicles during peak periods.

7.3.2.8. Drain Blockages

Poor surface drain management or large amounts of effluents may lead to blockage of drains which in turn could result to flooding and unsanitary conditions. Blocked drains produce bad odor and are a threat to general health, hence are environmentally unfriendly.

Recommended Mitigation Measures

The proponent should ensure that there are adequate means of handling the large quantities of sewage generated at the facility.

It will also be important to ensure that septic pipes are not blocked or damaged since such occurrences can lead to release of the effluent, resulting in land and water contamination.

Blockages or damages should always be fixed expeditiously

6.3.2.9. Vector and Rodents Breeding Grounds

If the project does not have well designed storm water drains, the rain water may end up stagnating hence creating conducive breeding areas for mosquitoes and other water-based vectors leading to human diseases like malaria. Poor solid waste management practices may also lead to breeding grounds for pests such as rats and other scavenging animals.

Recommended Mitigation Measures

The design of the construction should ensure that no space for stagnant water will be retained.

A well-maintained trash collection point should be set aside.

The proponent should put in place efficient storm water and waste management systems that will prevent the accumulation of rain water and uncontrolled waste, as well as an efficient collection system and off-site disposal.

Proper monitoring of the premise should be affected for maintenance of health and hygiene.

***7.3.2.10*. Electricity Consumption**

The project shall consume large amount of electricity due to activities that will take place once the project is complete. Since electric energy in Kenya is generated mainly through natural resources, namely water and geothermal resources, increased use of electricity has adverse impacts on these natural resources base and their sustainability.

Recommended mitigation measures:

Maximize the contribution of daylight to reduce use of artificial lighting in the buildings;
Select the most efficient lighting system design and minimum lighting level appropriate for the required application;
Install energy saving appliances;
Select the most effective lighting controls for optimal operating efficiency and minimum energy wastage.
The project design should consider use of solar energy for water heating.
Monitor energy consumption to establish trend;
Maintain records;
Develop an energy management plan.

7.3.2.11. Water supply and consumption

Table 6-2: The issues and recommended mitigation measures are:

Issue	Recommended mitigation measure
Water consumption:	Monitor water consumption Install internal water meters.
Rainwater harvesting	Incorporate rainwater harvesting measures.
Estimated water demand	Manage consumption rigorously.
Water conservation.	Installing plumbing fittings, appliances and devices to optimize water use efficiency; Recycling of wastewater to reduce water consumption.

7.4. Decommissioning

Decommissioning is the process of shutting down an operational facility in a manner that leaves the area in a safe and stable condition that is consistent with the surrounding physical and social environment. The Contractor will ensure that:

The process of closure occurs in an orderly, cost effective and timely manner with the allocation of adequate resources;
The anticipated cost of decommissioning is adequately provided for in the project costs.
The Contractor will be expected to:
Carry out consultations with stakeholders
Develop the action plan for demolition including the assigning of roles for the demolition crew;
Isolate power at the main switch and remove cables up to that point;
Dismantle, remove and dispose of construction camp equipment and structures in an appropriate environmentally friendly manner;
Request utility service providers to disconnect the power, water and telephones as may be appropriate;
Reinstate the land to its natural condition by filling excavations and planting suitable seedlings.
The Contractor must obtain a Certificate of Satisfactory Decommissioning from the relevant Authorities.

7.4.1. Decommissioning phase Negative Impacts

During the decommissioning phase, another comprehensive EIA study based on the intended new use of the site will be conducted. Decommissioning may involve one of the following options: facing out operations and evacuating the premise without carrying out any other plans; change of use of the facility; demolition of the property to restore it to the current or better status.

7.4.1.1. Solid Waste Generation

Demolition of the facilities and related infrastructure will result in large quantities of solid waste. The waste will contain the materials used in construction including concrete, metal, drywall, wood, glass, paints, adhesives, sealants and fasteners. Although demolition waste is generally considered as less harmful to the environment since they are composed of inert materials, there is growing evidence that large quantities of such waste may lead to release of certain hazardous chemicals into the environment. In addition, even the generally non-toxic chemicals such as

chloride, sodium, sulphate and ammonia which may be released as a result of leaching of demolition waste, are known to lead to degradation of groundwater quality.

7.4.1.2. Dust

Large quantities of dust will be generated during demolition works. This will affect demolition staff as well as the neighboring residents.

7.4.1.3. Noise and Vibration

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

Table 7-3: Summary of impacts and their proposed mitigation measures

Phases	Potential Impact	Proposed mitigation
Pre-construction/equipment installation stage	Introduction of improper seeds to the sugar farmers	Use of short maturing sugar varieties which will enable the farmers to be able to meet their financial needs through short maturity period. Sugar varieties exist in Sudan which matures at 14 months. Other countries with short maturing varieties include; Pakistan 10-12 months, Java (Indonesia) 12-15 months, Mauritius 14-20 months, Philippines 11-14 months, Cuba 12-15 months and India 10-12 months
	Improper land preparation	Tiryo Sugar Millers through their designated office will sensitize the farmers on the standards of land preparation and methods of soil conservation so as to sustain the productivity of the soil over the long term
	Use of improper inputs	Tiryo Sugar Millers through their designated office will sensitize farmers on the need of applying all the inputs they are given so as to get higher yields instead of diverting the farm inputs to other uses
	Conflicts with other sugar millers	Tiryo Sugar Millers will carefully identify and contract their sugar farmers in collaboration with the local administration in order to avoid conflicts with other existing millers

Installation stage	Excessive noise	Restrict working hours to periods which are not associated to human disturbances especially the recommended working hours 8.00 am – 5.00pm Provide workers with ear masks. Regular servicing of working machines Consult with the surrounding community on the permissible noise levels and best working hours Use equipment designed with noise control elements Sensitize construction vehicle drivers and machinery operators to switch off engines when not in use Ensure construction machineries are regularly serviced and in good condition to reduce noise emission
	Material and equipment Transport	Transport of construction materials should be scheduled for off-peak traffic hours. Appropriate traffic warning signs, informing road users of a construction site entrance ahead and instructing them to reduce speed, should be placed along the main road in the vicinity of the entrance to the site during the construction period. Flagmen should be employed to control traffic and assist construction vehicles as they enter and exit the project site. Issue notices/advisories of pending traffic inconveniences and solicit tolerance by local residents before the commencement of construction works.

		Assign traffic regulators to places during periods of chronic or potential traffic congestions. Set relatively low speed limit within the site. Encourage transport vehicle owner to insure their vehicles on regular basis. Discourage parking near the entrance or exit routes. Fine-grained materials (sand, marl, etc.) should be stockpiled away from any surface drainage channels and features. Safe storage areas should be identified and retaining structures put in place prior to the arrival and placement of material and equipment Materials and equipment to be delivered on site in installments
	Solid Waste Management	Use of an integrated solid waste management system i.e. through a hierarchy of options: Source reduction; Recycling; Reuse; and Land filling. Order materials in the sizes and quantities they will be needed, rather than cutting them to size, or having large quantities of residual materials. Damaged or wasted construction materials to be recovered for refurbishing and used in other projects. Use of durable, long-lasting materials to reduce the amount of construction waste generated over time.

		Provide facilities for proper handling and storage of construction materials. Use building materials that have minimal or no packaging. Use construction materials containing recycled content where possible and in accordance with accepted standards. Reuse packaging materials such as cartons, cement bags, empty metal and plastic containers. Dispose waste more responsibly by dumping at designated dumping sites or landfills only. Waste collection bins to be provided at designated points on site.

	Soil Erosion	Stage site clearance works so as to minimize the area of exposed soil at any given time. Re-cover exposed soils with grass and other ground cover as soon as possible Temporarily bund exposed soil and redirect flows from heavy runoff areas that threaten to erode or result in substantial turbid surface runoff to adjacent drainage waters. Monitor areas of exposed soil during periods of heavy rainfall throughout the construction phase of the project to ensure that any incidents of erosion are quickly controlled. Leveling of the project site to reduce run-off velocity and increase infiltration of storm water into the soil, therefore avoid compaction where possible.
	Occupational Health and Safety	Provide workers with PPEs Ensure regular servicing of working machines. Train workers on manual handling techniques. Deploy an expert to lead first aid administration. Provision of adequate safety garment and enforce on their usage. Discourage trespass. Put signage on the ongoing activities Register the project as per Section 43 and 44 of the OSHA, 2007 Keep a register at the construction site as stipulated in Section 122 and 123 of the OSHA, 2007 Design suitable documented emergency preparedness and evacuation procedures to be used during emergencies

		Provide a well- stocked first aid kit which should be easily accessible Securely fence off the construction site Avoid stacking up of materials
	Fire Safety	Provide firefighting equipment and ensure they are placed at strategic locations within the site Ensure regular inspection and servicing of the firefighting equipment Install warning signage within the site i.e., "NO SMOKING "
	Construction debris and other rejected construction materials.	Reduce wastes from the point of generation by purchasing high standard and recommended materials. Contract NEMA licensed garbage collectors to collect waste on regular basis. Embrace the 3R's concept (Reduce, Reuse and Recycle).
	Dust emission	Sprinkle water to harness dust level. Provide workers with necessary and adequate PPEs Cover stockpiles of sand, soil and similar materials Install signage that limit vehicles speed onto unpaved roads and over disturbed soils Avoid excavation works during dry seasons Ensure strict enforcement of on- site speed limit regulations

	Landscape and ecosystem change	Once the project is completed any bare land will be re-vegetated with indigenous grass, shrubs and trees Landscaping will be done to reduce any negative impacts Only specified areas of construction will have vegetation cleared Protecting the existing individual trees as much as possible
	Increased water use	Provide adequate water storage reservoirs on the construction Engaging water supply tankers in case of total supply failure Consider rain water harvesting Install water conserving taps Promote recycling and reuse of water as much as possible Install discharge meter to determine and monitor total water usage Promptly detect and repair water pipes and tanks leakages Sensitize construction workers on water conservation
	Increased Construction Traffic	Construction vehicles should enter and leave the construction site at appropriate hours Use signage and barriers to direct vehicles and pedestrian traffic as needed around the construction site Some activities may be scheduled for off peak traffic hours to minimize congestion
	Exhaust Emission	The engine size of construction machines shall be minimum practical size Vehicle idling must be minimized on site Seek an alternative clean source of energy

	Increased Energy Consumption	Ensure all electrical equipment and appliances are switched off when not in use Install energy saving fluorescent light bulbs Ensure planning of transportation of materials to ensure that fossil fuels are not consumed in excessive amounts Develop an energy management plan Monitor energy use during construction and set standards for reduction of energy use
	Increased Storm Water	Install facilities for collection and storage of surface run-off and roof water so as to reuse for construction purposes Apply soil erosion control measures such as levelling of the project site to reduce run- off velocity and increase infiltration of storm water Design storm water management plan that minimizes impervious area infiltration by use of recharge areas and use of detention and/or retention with graduated outlet control structure
	Increased Oil Spills	All vehicles and machineries must be serviced at designated sites to reduce oil spillage on site Promptly clean off oil and fuel spills Ensure proper disposal of used oil and materials containing oil
Operation Stage	Cane fires	Tiryo Sugar Factory will encourage green cane harvesting to avoid the negative environmental impacts associated with cane harvesting through burning

	Cane spillage	Sensitization of sugarcane loaders so as to allow for proper sugarcane loading avoiding protruding cane which inconvenience other road users The company should also institute measures of collecting all the spilled cane on the feeder roads
	Waste water	Wherever possible, containment of water collected from areas with potential contaminants will be ensured. Oil interceptors and sediment traps should be installed and maintained to ensure any discharge to the environment carries a low sediment load. Storm water management channels should be maintained and kept clean in order to ensure that the capacity of such systems is not compromised during the life of the operations Sensitization of the clients who buy molasses of the environmental effects of the product so as to prevent spillage of the same Apply for effluent discharge license from NEMA on time Install a water meter to measure the amount of water waste water released from the factory on daily basis All waste water should be directed to the Effluent Treatment Plant Carry out quarterly analysis of the composition of the effluent through a NEMA accredited laboratories and analysis results presented to NEMA Continuously monitor the discharge as per the regulations The company to construct drainages throughout the factory to direct storm waters

	Solid waste generation/by products (bagasse, filter cake, boiler ash)	Always implement good housekeeping practices to minimize leaks during production processes Construct bagasse holding shades to ensure remaining bagasse on site does not comein contact with rain to produce leachate Bagasse can be dried and sold off/ used to make paper and pulp production The proponent can use bagasse to generate electricity The proponent can mix press mud with distillery effluent to help reduce toxic effect of effluent BOD and COD contents which enriches its nutritional values and makes it be useful as manure The proponent will provide waste handling facilities such as waste bins and skips for temporary holding of domestic waste generated on the factory The proponent shall ensure that such disposal is regularly and appropriate at NEMA designated sites The proponent should ensure that all staff are trained on proper handling and disposal of waste Clearly designate and construct an appropriate waste collection facility or provide covered refuse skips; Designate filter cake and boiler ash dumping and composting sites; Use only NEMA licensed waste transport vehicles to transport waste materials; Maintain a proper waste tracking document
	Air pollution levels	Regularly monitor stack emission Invest in bagasse drying mechanism along the delivery line

		Exhaust gas recirculation Installation of wet scrubbers and thermal oxidizers Avoid overloading the bagasse for efficient burning Use the correct fuel to air ratio by proper adjustment of air and fuel ratios Avoid carbon build-up in the boiler and furnace tubes and maintain the boiler
	Oil and Fuel Spillage	Used oil should be collected and stored in drums in banded areas Used oil should be collected by NEMA licensed handlers for disposal Storage spaces for used oils should be paved to avoid soil and ground water contamination There should be an oil response kit on site. Workers should be properly trained on dangers of oil pollutions and response actions In case of an oil spill, all contaminated soils should be collected, stored in drums and disposed of at approved sites Ensure all vehicles are well serviced and at designated site
	Molasses and Distillery Management	The proponent should ensure that all waste water from the distillery is channeled to the Effluent Treatment plant Regular inspection and maintenance should be carried out on pipes to ensure no leakages The proponent should conduct effluent discharge and quantity monitoring at NEMA accredited labs and submit quarterly records of such monitoring to NEMA
	Occupational Health and Safety	The Proponent should be committed to adherence of the occupational health and safety Rules and Regulations stipulated in Occupational Safety and Health Act, 2007.

		The Proponent should provide appropriate personal protective equipment, as well as ensuring a safe and healthy environment for workers as outlined in the Environmental Management Plan (EMP). Worker's accidents especially in deep curing operations and elevated areas shall be mitigated by enforcing adherence to safety procedures and preparing contingency plan for accident response in addition, safety education and training shall be emphasized. Install catch platforms under conveyors that cross passageways or roadways; Quickly clean up spills; Use non-skid walking surfaces that allow drainage; Install guard rails on walkways adjacent to production lines or at height, and clearly mark traffic lanes for vehicles and pedestrians; Equip mobile equipment with roll-over protection. Establish routines to ensure that heavy loads are not moved by crane over Clearly mark all-risk areas and ensure signages are visible The proponent should designate fire assembly points and develop emergency exits which should be clearly marked and free of any obstructions The proponent shall install fire extinguishers and ensure they are serviced as per the required schedule There will be adequate first aid kits placed at easily accessible points The floors of the sugar mill must be fitted and equipped with chequered platehand rails wherever possible

		All pipes should be color coded and steam pipes will be properly installed andindicated where necessary. OSHA Act and WIBA should be strictly adhered to by the management The factory should consider Public Liability Insurance in case of accidents to visitors
	Drain blockages	The proponent should ensure that there is adequate means of handling large quantities of sewage blockages as well as related emergency situations. Proper monitoring at waste generation points should be established. A site management plan should be put in place.
	Increased pressure on infrastructure	The proponent should maintain close operations with service providers such as The Kenya Power and Lighting Company
	Fire outbreak.	Install and regularly service firefighting equipment Clearly label fire exit routes Staff to be made clearly aware of fire hazards
	Vector breeding grounds	Include an efficient storm water and waste management systems that will prevent the accumulation of rain water All trenches and drains should be kept clear of all debris

Decommissioning stage	Loss and damage of properties during demolition activities	Removal of properties that are not intended to be destroyed before the actual demolition process. Proper supervision during demolition activities.
	Loss of employment opportunities	A good phase out Programme for employees should be put in place from the onset of the project
	Dust	Provide workers with appropriate PPEs Sprinkle water to settle dust
	Accidents to the demolishing team.	Issue the workers with reflective garments. Supervisors to instruct the worker and ensure that no one is at risk by falling objects.
	Loss of environmental aesthetics beauty.	Ensure complete collection and disposal of wastes after demolition. Landscaping the affected areas. Conduct a decommissioning audit.

CHAPTER EIGHT: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

8.0 Introduction

The Environmental and Social Management Plan involves the protection, conservation and sustainable use of the various elements of the environment. The ESMP for the proposed project provides all the details of its activities, impacts, mitigation measures and expected costs during implementation and decommissioning phases of the project. This project bears the potential of a number of negative impacts on the environment. With proper environmental management procedures in place and adhered to then there should be minimal negative impact of concern emanating from it. Key areas that require mitigation measures include wastewater, solid wastes, maintaining good air quality, safety, and storm water management.

Table 8-1 below indicates measure for Environmental Management Plan

Environmental parameter	Impact	Mitigation measure	Responsible party	Cost (Kshs.)
Construction/equipment installation phase				
Extraction of raw material	Landscape change Poor visual quality Depressions leading to human and fauna health impact Deforestation Natural resource depletion Water abstraction	Source material from suppliers that use environmentally friendly processes in their operation. Ensure accurate budgeting and estimation of actual construction material requirements to ensure that the least amount of material necessary is ordered. Ensure that damage or loss of material at construction site is kept minimal through proper storage. Use at least 5%-10% recycled, refurbished, or salvaged materials to reduce the use of raw material and divert material from land fill. WRA permit to be obtained for water abstraction Tender documents should specify required standards and certification for procurement of all materials and appliances; Steel should be used in preference to timber and the Contractor should ensure that sufficient quantities of scaffolding are available for hire at the time of construction. All construction materials should be from approved sources	Proponent and contractor	As per agreement with contractor

Removal/clearing of vegetation	Exposing ground to agents of soil erosion Loss of vegetation Loss of terrestrial habitat & biodiversity	Proper demarcation and delineation of the project site to be affected by construction work Specify location for trucks and equipment, and areas of the site which should be kept free from traffic, equipment and storage. Designate access route within the site Design and implement an appropriate landscaping program to help in re vegetation of part of the project site after construction Protecting the existing vegetation as much as possible Set a replanting and landscaping programme that focuses on increasing "green area"	Proponent and contractor	As per budget
Sewage and effluent	Pollution	Provide adequate sanitary facilities for workers, Provide solid waste receptacles and storage containers, particularly for the disposal of plastic bags boxes, so as not to block drainage system and to prevent littering of the site.	Proponent and contractor	As per budget

Movement of vehicle at the site	Compaction of soil Interference with soil structure leading to low water infiltration	Apply soil erosion control measures such as leveling of the project site to reduce run-off velocity and Increase infiltration of storm water into the soil. Ensure that construction vehicles are restricted to existing graded roads to avoid soil compaction within the project site, Ensure that any compacted areas are ripped to reduce run-off Storm water drainage lines be well constructed to reduce incidence of flooding.	Proponent and contractor	As per budget

Utilization of construction materials	Generation of construction waste leading to: Wastage of resources/ materials Health risk to the workers and environment Reduced aesthetic value of the site Production of leachate hence pollution of underground water and the soil Blockage of drainage systems Chocking water bodies	Through accurate estimation of quantities of materials required, order materials in the sizes and quantities they will be needed, rather than cutting them to size, or having large quantities of residual materials. Ensure that construction materials left over at the end of construction will be used in other projects rather than being disposed of. Ensure that damaged or wasted materials including cabinet, doors, plumbing, and lighting fixtures, marble and glasses will be recovered for refurbishing and use in other projects Reducing the amount of construction waste generated over time Provide facilities for proper handling and storage of construction materials to reduce the amount of waste caused by damage or exposure to the elements Purchase of perishable construction materials such as paints should be done incrementally to ensure reduced spoilage of unused materials · Use building materials that have minimal or no packaging to avoid the generation of excessive packaging waste	Contractor	As per BQ

		Dispose waste more responsibly by dumping at designated dumping sites or landfills only; the use of a NEMA registered waste disposal company is encouraged.		

Dust emission from movement of transportation vehicles at the site and on the road,	Air pollution causing breathing problems to the workers and the neighborhood Blockage of fauna stomata	Sprinkle water on graded access routes each day to reduce dust generation by construction vehicles Controlling the speed of vehicles on the site Watering open soil or storage sites Designating transportation routes Provide workers with dust masks	Contractor	As per budget
Utilization of fossil fuel by fuel consuming Machineries.	Emission of carbon into the atmosphere leading to global warming Exhaustion of fossil fuel resource Air pollution can Lead to breathing problems	Ensure proper planning of transportation of materials to ensure that vehicle fills are increased in order to reduce the number of trips done per vehicle or the number of vehicles on the road. Sensitize truck drivers to avoid unnecessary racing of vehicle engines at adding/offloading points and parking areas, and to switch off or keep vehicle engines when not in use Prompt servicing of vehicles engines Use of unleaded and low Sulphur fuel Monitor energy use during construction and set target for reduction of energy use.	Contractor and Drivers	As per budget

Noise and vibration	Noise generation Hearing problem	Sensitize construction drivers to avoid gunning of vehicle engines or hooting especially when passing through sensitive areas such as churches, schools, residential areas and hospitals Sensitize construction vehicle drivers and machinery operators to switch off vehicles or machineries not being used. Ensure that all heavy-duty equipment is insulated or placed in enclosures to minimize ambient noise levels. Ensure that noise levels do not exceed 75dB(A) Attenuation of any sound that may affect the inner ear by use of earplugs and earmuffs	Constructor and Workers	As per budget
Approval of building plan	The building being in alignment with the County development plans	Ensure that plans are approved by the county Government, Physical Planner and the local Occupational Health and Safety Office	The proponent	Gazette fee
Incident, accidents, and dangerous	To enable relevant authorities to monitor incidence occurrences and take necessary	Ensure that provisions for reporting incidents, accidents and dangerous occurrences during construction using prescribed forms obtainable from the local Occupational Health and Safety Office (OHSO) are in place.	Contractor	Gazette fee

occurrences	measure to minimize them.			
Safety, health and environment (SHE) policy	To give guidelines on how one is to protect himself within a given premises against any incident.	Develop, document and display prominently an appropriate SHE policy for construction works	Contractor	As per budget
Personal protective gears	To protect against any infection or injuries while at work.	Suitable overalls, safety footwear, dust masks, gas masks, respirators, gloves, ear protection equipment etc. should be made available and construction personnel must be trained on their use.	Contractor	80,000
Supply of clean water	Ensure good health as dirty/untreated water leads to water borne diseases.	Ensure that construction workers are provided with an adequate supply of wholesome drinking water which should be maintained at suitable and accessible points.	Contractor	available
Storage of materials	Can cause accident, material wastage and	Ensure that materials are stored or stacked in such manner as to ensure their stability and prevent any fall or collapse	Contractor	As per budget

	spoilage, and reduced aesthetic value.	Ensure materials such as sand , cement and soils are covered to reduce on dust emitted		
First aid	To ensure that when any injury occur it can be taken care of before main treatment at a hospital or a dispensary.	Provide a well- stocked first aid box which is easily available and accessible should be provided within the premises Provision must be made for persons to be trained in first aid, with a certificate issued by a recognized body.	Contractor	As per budget
Safety and security	Destruction and stealing of materials on site.	Ensure the general safety and security at all times by providing day and night security guards and adequate lighting within and around the construction site. The Contractor should ensure strict safety management through close attention to design, work procedures, materials and equipment; Develop a site safety action plan detailing safety equipment to be used, emergency procedures, restrictions on site, frequency and personnel responsible for safety inspections and controls; All workmen should be provided with personal protective equipment (e.g. Nose masks, ear muffs, helmets, overalls, industrial boots, etc.);	Contractor	As per budget

		There should be regular site reporting on health, safety and environment (HSE) issues by an appointed HSE representative, daily site inspections should be done to ensure safe work practices are adhered to; All injuries that occur on site must be recorded in the accident registers and corrective actions for their prevention be instigated as appropriate (Section 62 of the Factories and Other Places of Work Act); Statistical records on accidents and incidents should be collated and analyzed on a monthly basis and forwarded to the contractor and / or displayed on the notice boards		
Fire Hazards	Destruction of property and lives	Provide adequate number of appropriate firefighting equipment as well as fire exit options. Ensure inspection and maintenance of fire equipment A fire escape route and an emergency assembly point should be clearly indicated	Contractor and proponent	200,000

Construction traffic:	Disruption of local traffic; Potential for accidents.	The Contractor should plan itineraries for site traffic. Issue notices/advisories of pending traffic inconveniences and solicit tolerance by commuters before the commencement of construction works. Assign traffic regulators to places during periods of chronic or potential traffic congestions. Prepare & provide appropriate signage & trained flag persons where the movement of heavy machinery and construction equipment may cross the main roads.	Contractor	As per budget
Influx of construction workers into the area:	Proliferation of informal kiosks in the area; Increase in transport demand. Road side vending	Develop a catering program on site for construction staff; Provide transportation for the workforce to and from the site. The contractor should identify, demarcate and fence a specific area within which specific number vendors will be allowed to operate. The vendors should be instructed to maintain the area in a tidy fashion and litter bins should be provided with arrangements in place to have the contents of these emptied on a regular basis and disposed of appropriately.	Contractor	As per budget

Energy utilization:	Energy consumption.	Develop an energy management plan; Construction machinery and vehicles should be maintained and used in accordance with manufacturer's specifications, to maximize efficiency and lower use of energy, e.g., drivers of construction vehicles should be instructed not to leave them idling for extended periods; Construction workers should be sensitized on the importance of energy management.	Contractor	As per budget
Ergonomic	Bad posture may lead to body structural disorder.	Provision for repairing and maintaining of hand tools must be in place Hand tools must be of appropriate size and shape for easy and safe use Height of equipment, controls or work surfaces should be positioned to reduce bending posture for standing workers	Contractor	As per budget

Operational Phase				
Solid waste generation	Generation of general Solid wastes leading to pollution of water bodies, air impairment when decomposing hence odors, and reduction in aesthetic value of the compound.	Use of an integrated solid waste management system i.e. through a hierarchy of options: Source reduction; Recycling; Reuse; and Land filling. Order materials in the sizes and quantities they will be needed, rather than cutting them to size, or having large quantities of residual materials. Damaged or wasted construction materials to be recovered for refurbishing and used in other projects. Use of durable, long-lasting materials to reduce the amount of construction waste generated over time. Provide facilities for proper handling and storage of construction materials.	Proponent	Waste collection as per rates

TIRYO SUGAR MILLS ESIA January 1, 2023

		Use building materials that have minimal or no packaging. Use construction materials containing recycled content where possible and in accordance with accepted standards. Reuse packaging materials such as cartons, cement bags, empty metal and plastic containers. Dispose waste more responsibly by dumping at designated dumping sites or landfills only. Waste collection bins to be provided at designated points on site.		
	Bagasse, filter cake and boiler ash	Use bagasse is as a source of fuel in the boilers. Ensure adequate fire warning, response and management systems are installed. Provide well-structured engineering solutions to leachate and surface runoff Provide a well roofed shed for the bagasse		

Hazardous waste generation	Pollution of surface or ground water due to oil	Hazardous wastes, such as waste oils and grease to be collected in secure storage facilities on-site to prevent accidental release that may result in contaminated run-off and leaching. All used oil holding areas should be paved and bunded Contaminated soils and materials should properly be disposed by licensed waste handlers	Proponent	As per budget
Accidental spillages	Spillage of oils and fuels	Used oil should be collected and stored in drums in banded areas Used oil should be collected by NEMA licensed handlers for disposal Storage spaces for used oils should be paved to avoid soil and ground water contamination There should be an oil response kit on site. Workers should be properly trained on dangers of oil pollutions and response actions In case of an oil spill, all contaminated soils should be collected, stored in drums and disposed of at approved sites Ensure all vehicles are well serviced and at designated site	Proponent	As per budget

Air pollution	Unmonitored stack emissions	Regularly monitor stack emission Invest in bagasse drying mechanism along the delivery line Exhaust gas recirculation Installation of wet scrubbers and thermal oxidizers Avoid overloading the bagasse for efficient burning Use the correct fuel to air ratio by proper adjustment of air and fuel ratios Avoid carbon build-up in the boiler and furnace tubes and maintain the boiler	Proponent	As per budget
Accidents and injuries	Machine safety (improper use and maintenance of machines)	All plant, machinery and equipment should only be used for work which they are designed for and be operated by a competent person. Insist on regular servicing of electrical fittings and appliances by qualified personnel. Every machine intended to be driven by mechanical or any other type of power should be provided with an efficient starting and stopping appliance, the control of which should be in such a position as to be readily and conveniently operated by the person operating the machine	Proponent	As per budget

Occupational Health and Safety	Accidents and injuries	The premise must be kept clean, daily removal of accumulated dust from floors, free from effluvia arising from any drain, sanitary convenience or nuisance The premise must not be overcrowded, there must be in each room 10 meters of space for each employee, not counting space 14 feet from the floor and a 9 feet floor-roof height. The circulation of fresh air must secure adequate ventilation of workrooms. · there must be sufficient and suitable lighting in every part of the premise in which persons are working or passing. There should also be sufficient and suitable sanitary conveniences separate for each sex, Management should ensure provision of suitable protective clothing and appliances including where necessary, suitable gloves, footwear, goggles, gas masks, and head covering, and maintained for the use of workers in any process involving expose to wet or to any injurious or offensive substances Management should ensure training and supervision of inexperienced workers		

		An adequate supply of both quantity and quality of wholesome drinking water must be provided. Maintenance of suitable washing facilities, accommodation for clothing not worn during working hours must be provided. Provision of well-equipped First Aid kits and /or ready transport		
Use of sanitary rooms (toilets and urinal)	Generation of sewage (liquid waste), Water pollution, Air pollution (odor) · Reduced aesthetic value	Incorporate grease traps Conduct regular inspections for sewerage pipe blockages or damages and fix appropriately Ensure regular monitoring of the sewage discharged Reuse, recycle waste water where necessary Ensure adequate water supply for flushing and to ensure the waste is carried to the sewerage system without causing blockage.	Proponent	As per budget

Water consumption	Overutilization of water	Monitor water consumption Apply for water abstraction permits from WRA Install internal water meters. Incorporate rainwater harvesting measures. Installing plumbing fittings, appliances and devices to optimize water use efficiency; Recycling of wastewater to reduce water consumption	Proponent	As per BQ
Water Drainage	Drain blockages	The proponent should ensure that there is adequate means of handling large quantities of sewage blockages as well as related emergency situations. Proper monitoring at waste generation points should be established.	Proponent	As per BQ
Waste Water Management	Pollution of water bodies	Wherever possible, containment of water collected from areas with potential contaminants will be ensured. Oil interceptors and sediment traps should be installed and maintained to ensure any discharge to the environment carries a low sediment load.	Proponent	As per budget

		Storm water management channels should be maintained and kept clean in order to ensure that the capacity of such systems is not compromised during the life of the operations Sensitization of the clients who buy molasses of the environmental effects of the product so as to prevent spillage of the same Apply for effluent discharge license from NEMA on time Install a water meter to measure the amount of water waste water released from the factory on daily basis All waste water should be directed to the Effluent Treatment Plant Carry out quarterly analysis of the composition of the effluent through a NEMA accredited laboratories and analysis results presented to NEMA Continuously monitor the discharge as per the regulations The company to construct drainages throughout the factory to direct storm waters		
Molasses and Distillery Management	Pollution of water bodies	The proponent should ensure that all waste water from the distillery is channeled to the Effluent Treatment plant	Proponent	As per budget

		Regular inspection and maintenance should be carried out on pipes to ensure no leakages The proponent should conduct effluent discharge and quantity monitoring at NEMA accredited labs and submit quarterly records of such monitoring to NEMA		

Decommissioning stage TIRYO SUGAR MILLS ESIA	Loss and damage of properties during demolition activities	Removal of properties that are not intended to be destroyed before the actual demolition process. Proper supervision during demolition activities.	Contractor	As per budget January 1, 2023
	Loss of employment opportunities	A good phase out programme for employees should be put in place from the onset of the project	Contractor/ Proponent	As per budget
	Dust	Provide workers with appropriate PPEs Sprinkle water to settle dust	Contractor	As per budget
	Accidents to the demolishing team.	Issue the workers with reflective garments. Supervisors to instruct the worker and ensure that no	Contractor	As per budget

		one is at risk by falling objects.		

CHAPTER NINE: CONCLUSION AND RECOMMENDATIONS

The development of the proposed milling plant in Nandi County is necessary as its implementation will significantly contribute to increased employment opportunities, economic growth and make high quality white sugar available to the locals at a cheaper price.

The project is generally acceptable to the stakeholders and the neighborhood. Thus, it is anticipated that it will be implemented efficiently and smoothly without any social or economic unrest in the project area.

Recommendations

A summary of the key recommendations for the proposed project are as follows:

The proponent and contractor should obtain all the necessary permits and licenses from relevant authorities

The proponent shall implement the mitigation measures provided in the Environmental Management Plan

Construction work in the planned project site be carried out in accordance with approved designs, regulations, policies and laws

The operation and maintenance of the proposed project to comply with the best management practices and the principles of environmental management and occupational health and safety

Annual Environmental Audits be conducted and submitted to NEMA a year after the project is commissioned

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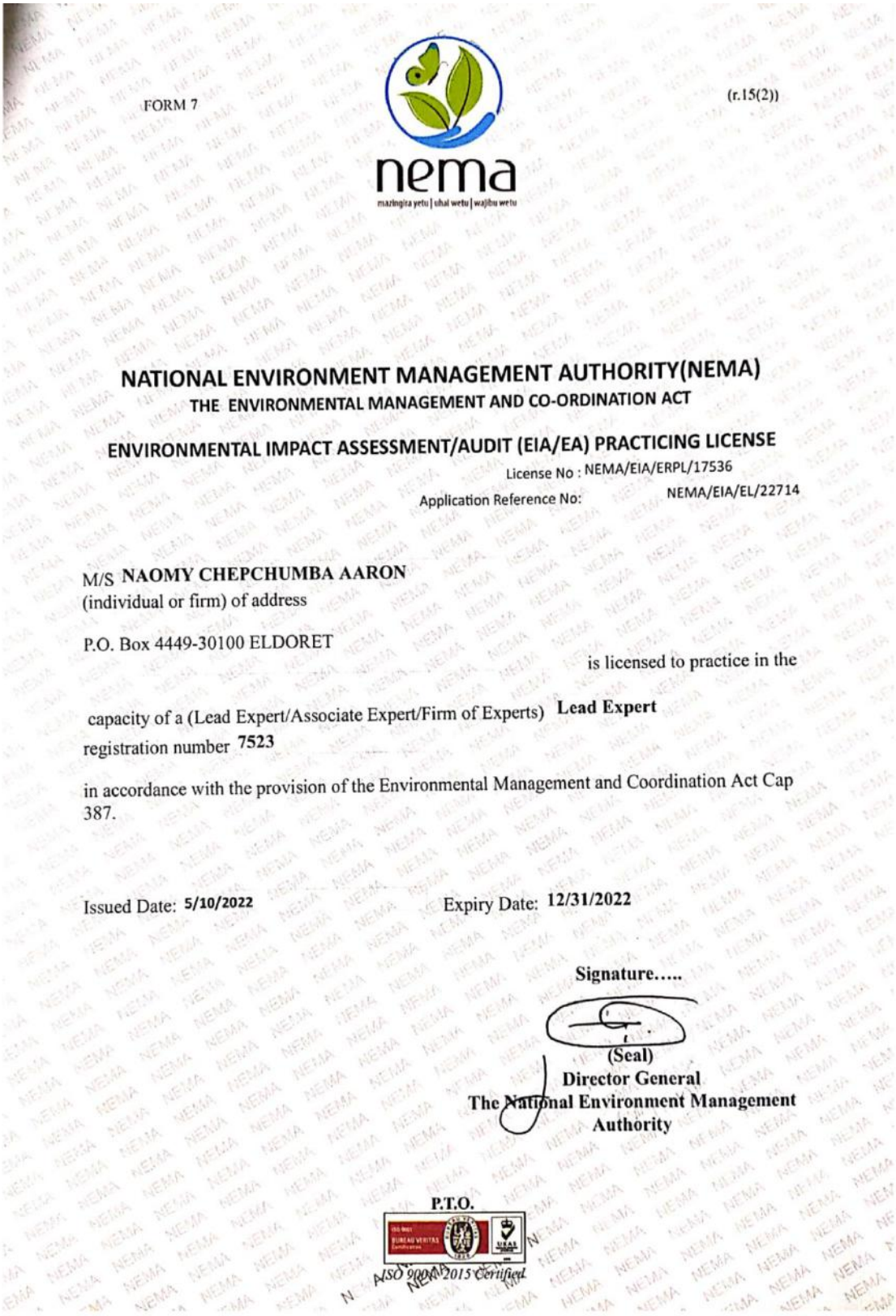

FORM 7 (r.15(2))

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NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT

ENVIRONMENTAL IMPACT ASSESSMENT/AUDIT (EIA/EA) PRACTICING LICENSE

License No : NEMA/EIA/ERPL/17536

Application Reference No: NEMA/EIA/EL/22714

M/S **NAOMY CHEPCHUMBA AARON**
(individual or firm) of address

P.O. Box 4449-30100 ELDORET

is licensed to practice in the capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert** registration number **7523**

in accordance with the provision of the Environmental Management and Coordination Act Cap 387.

Issued Date: **5/10/2022** Expiry Date: **12/31/2022**

Signature…..

(Seal)
Director General
The National Environment Management Authority

P.T.O.

ISO 9001:2015 Certified

CamScanner


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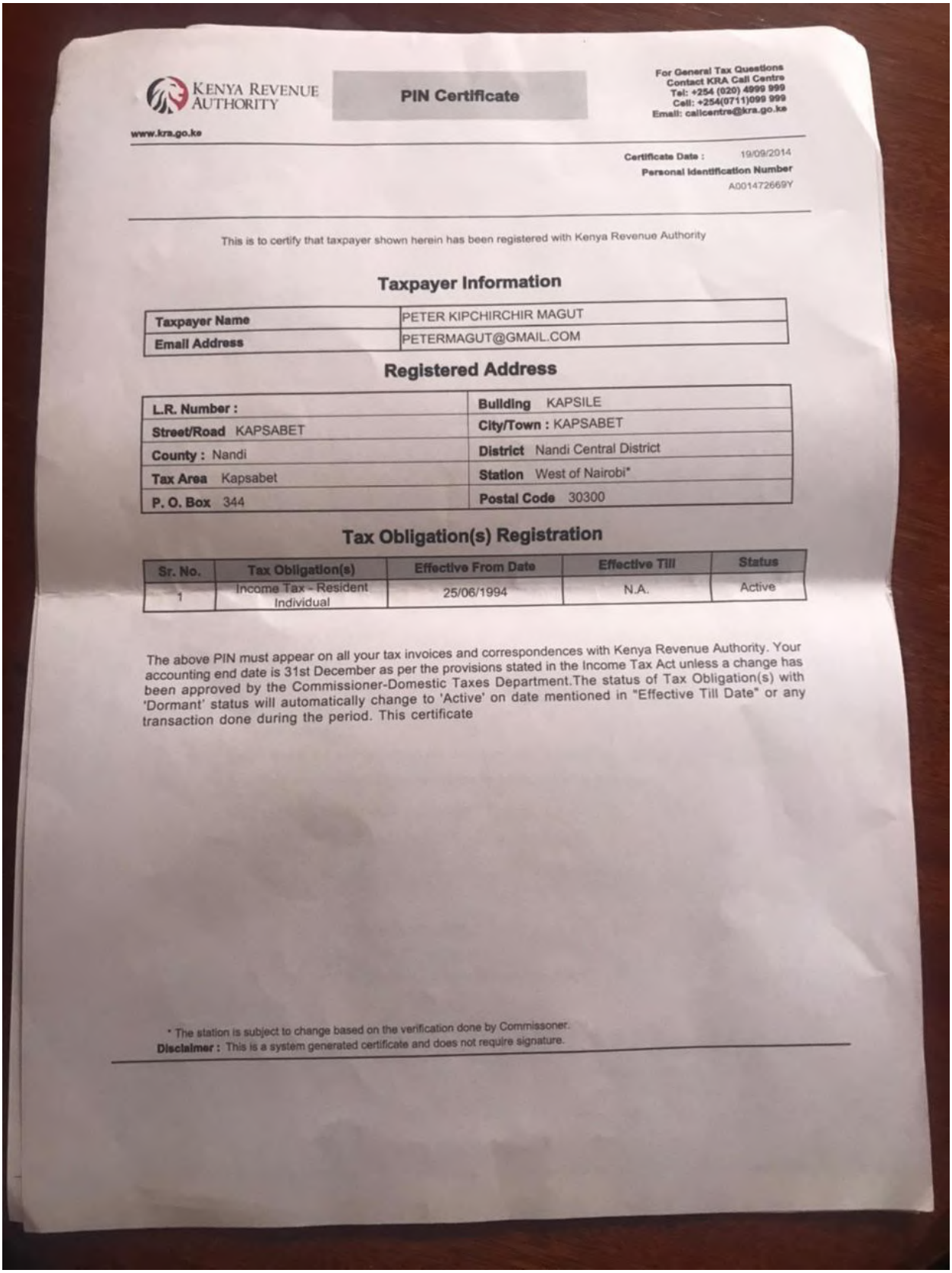


KENYA REVENUE AUTHORITY

www.kra.go.ke

PIN Certificate

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

Certificate Date : 19/09/2014
Personal Identification Number
A001472669Y

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

Taxpayer Information

Taxpayer Name	PETER KIPCHIRCHIR MAGUT
Email Address	PETERMAGUT@GMAIL.COM

Registered Address

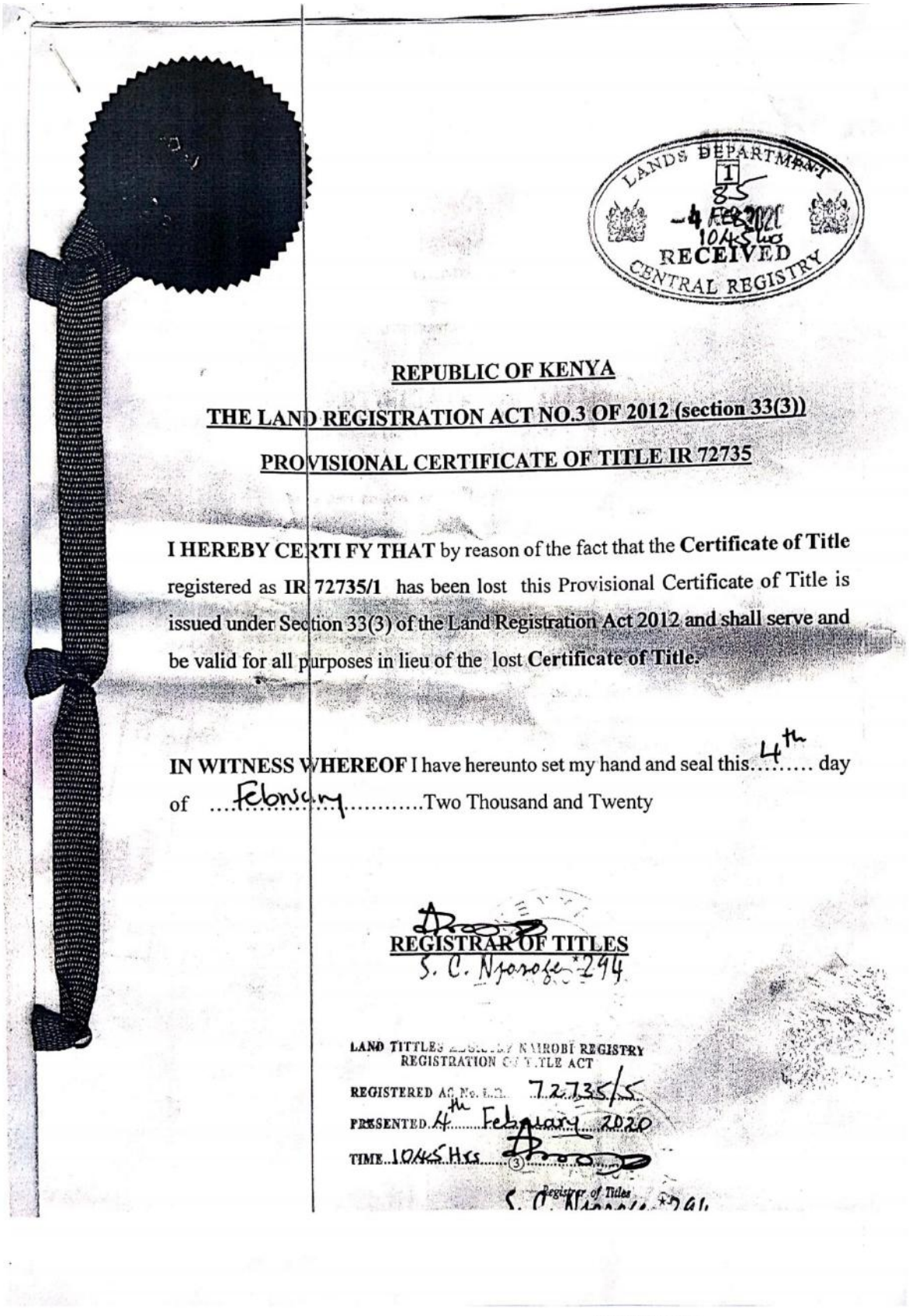
L.R. Number :	**Building** KAPSILE
Street/Road KAPSABET	**City/Town :** KAPSABET
County : Nandi	**District** Nandi Central District
Tax Area Kapsabet	**Station** West of Nairobi*
P. O. Box 344	**Postal Code** 30300

Tax Obligation(s) Registration

Sr. No.	Tax Obligation(s)	Effective From Date	Effective Till	Status
1	Income Tax - Resident Individual	25/06/1994	N.A.	Active

The above PIN must appear on all your tax invoices and correspondences with Kenya Revenue Authority. Your accounting end date is 31st December as per the provisions stated in the Income Tax Act unless a change has been approved by the Commissioner-Domestic Taxes Department.The status of Tax Obligation(s) with 'Dormant' status will automatically change to 'Active' on date mentioned in "Effective Till Date" or any transaction done during the period. This certificate

* The station is subject to change based on the verification done by Commissoner.
Disclaimer : This is a system generated certificate and does not require signature.



LANDS DEPARTMENT
1
85
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REPUBLIC OF KENYA

THE LAND REGISTRATION ACT NO.3 OF 2012 (section 33(3))

PROVISIONAL CERTIFICATE OF TITLE IR 72735

I HEREBY CERTI FY THAT by reason of the fact that the **Certificate of Title** registered as **IR 72735/1** has been lost this Provisional Certificate of Title is issued under Section 33(3) of the Land Registration Act 2012 and shall serve and be valid for all purposes in lieu of the lost **Certificate of Title.**

IN WITNESS WHEREOF I have hereunto set my hand and seal this 4th day of February Two Thousand and Twenty

REGISTRAR OF TITLES
S. C. Njoroge *244

LAND TITTLES [illegible] NAIROBI REGISTRY
REGISTRATION OF TITLE ACT
REGISTERED AS No. I.R. 72735/5
PRESENTED 4th February 2020
TIME 10.45 Hrs
Register of Titles

Scanned with CamScanner

COUNTY GOVERNMENT OF NANDI

PHYSICAL AND LAND USE PLANNING ACT, 2019

Form PPA 2

Registered Number of Application...*PPD/KAP/CU/065/21/22*

NOTIFICATION OF APPROVAL /REFUSAL /DEFERMENT OF DEVELOPMENT PERMISSION

TO

Tiryo Sugar Mills Limited
P.O Box 1610-30100
ELDORET

Your application number as above, submitted on **29th July 2021** ...for permission to.....**Extend use from agricultural to include Industrial (Sugar Milling Plant).....** on land parcel number **LR No. 21959/4** Situated at **Kimwani Road....along Nandi Hills-Kimwani road** ..... has been .....**Approved**.....on (date) ...**5th August 2021 Min No. 3/5/8/2021(6)** ....by the..... **County Planning Authority** .....for the following reasons/**subject to the following conditions:**

a) Adhere to the contents of the planning brief
b) Manage surface run off appropriately to avoid nuisance in the abutting properties
c) Observe all easements and way leaves if any

COUNTY PHYSICAL PLANNING OFFICER 19 AUG 2021 NANDI P.O. Box 555 - 30300, KAPSABET

Date ....signed.....
For. County Executive Committee Member in charge of Physical Planning
(County Government of Nandi)

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REPUBLIC OF KENYA

THE REGISTRATION OF TITLES ACT
(Chapter 281)

21 JUN 2012

CERTIFICATE OF TITLE

TITLE NUMBER I.R. 72735

TERM: 999 YEARS FROM 1.08.1913

ANNUAL RENT SHILLINGS 6155/-

(Revisable)

I HEREBY CERTIFY that KELSIS COMPANY LIMITED a limited liability Company

of NAIROBI Post Office Box Number 2478

in the Republic of Kenya pursuant to a Transfer registered as Number I.R. 72733/3

is/are now registered proprietor(s) as Lessee(s)

from the Government of the Republic of Kenya for the term of 999

years for the first day of August One thousand nine hundred

and Thirteen of ALL that piece of land situate North of Muhoroni Township

in the Kisumu District containing by measurement Two four decimal nine one (24.91)

hectares/acres or thereabouts and being Land Reference Number 21959/4

(Original Number)

as delineated on Land Survey Plan Number 206187

annexed to the said Transfer

SUBJECT however to the revisable annual rent of Shillings six thousand, one hundred and fifty five (6155/-)

and to the Act Special Conditions Encumbrances and other matters specified in the Memorandum hereunder written.

IN WITNESS whereof I have hereunto set my hand and seal this sixteenth

day of April One thousand nine hundred and ninety seven

Registrar of Titles

DEPARTMENT OF LANDS
DOCUMENT SCANNED

MEMORANDUM

(1) The Government Lands Act (Chapter 280).

(2) The Special Conditions contained in a Grant registered as Number I.R. 72733/1

GPK 3371—5m—4/93

LAND REGISTRY—NAIROBI
REGISTRATION OF TITLES ACT
REGISTERED AS No. I.R. 72735/1
Presented 16th April 1997
Time 16:46 Hrs
Registrar of Titles

Scanned with CamScanner

No. PVT-3QU7ORQG

CERTIFICATE OF INCORPORATION

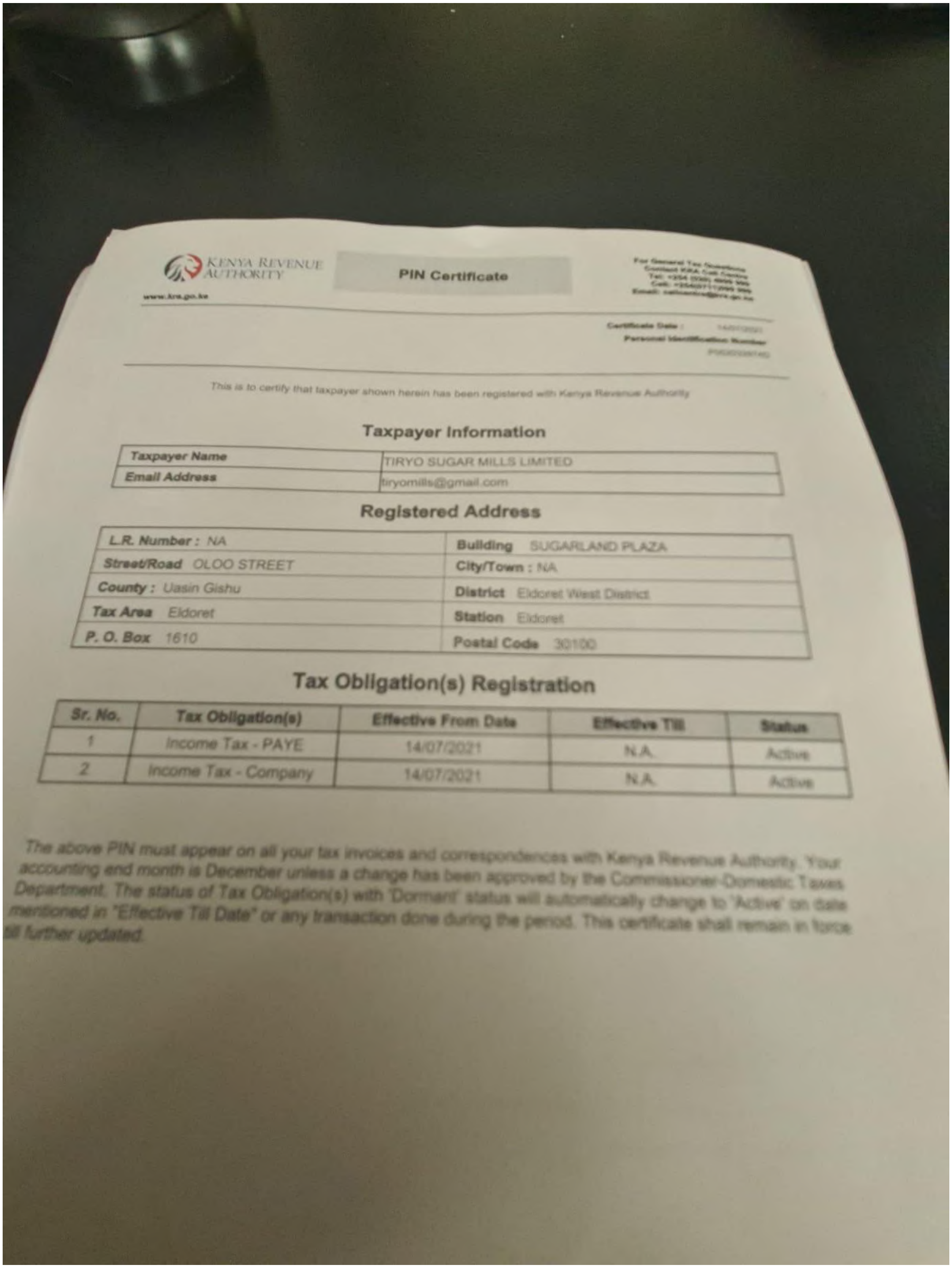
I hereby CERTIFY that,

TIRYO SUGAR MILLS LIMITED

is on this date 14 Jul 2021 Incorporated under the Companies Act, 2015 and that the Company is a PRIVATE LIMITED COMPANY.

Registrar Of Companies

This is a system generated certificate. To validate this document send the word BRS to 21546



KENYA REVENUE AUTHORITY
www.kra.go.ke

PIN Certificate

Certificate Date : [illegible]
Personal Identification Number
[illegible]

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

Taxpayer Information

Taxpayer Name	TIRYO SUGAR MILLS LIMITED
Email Address	tiryomills@gmail.com

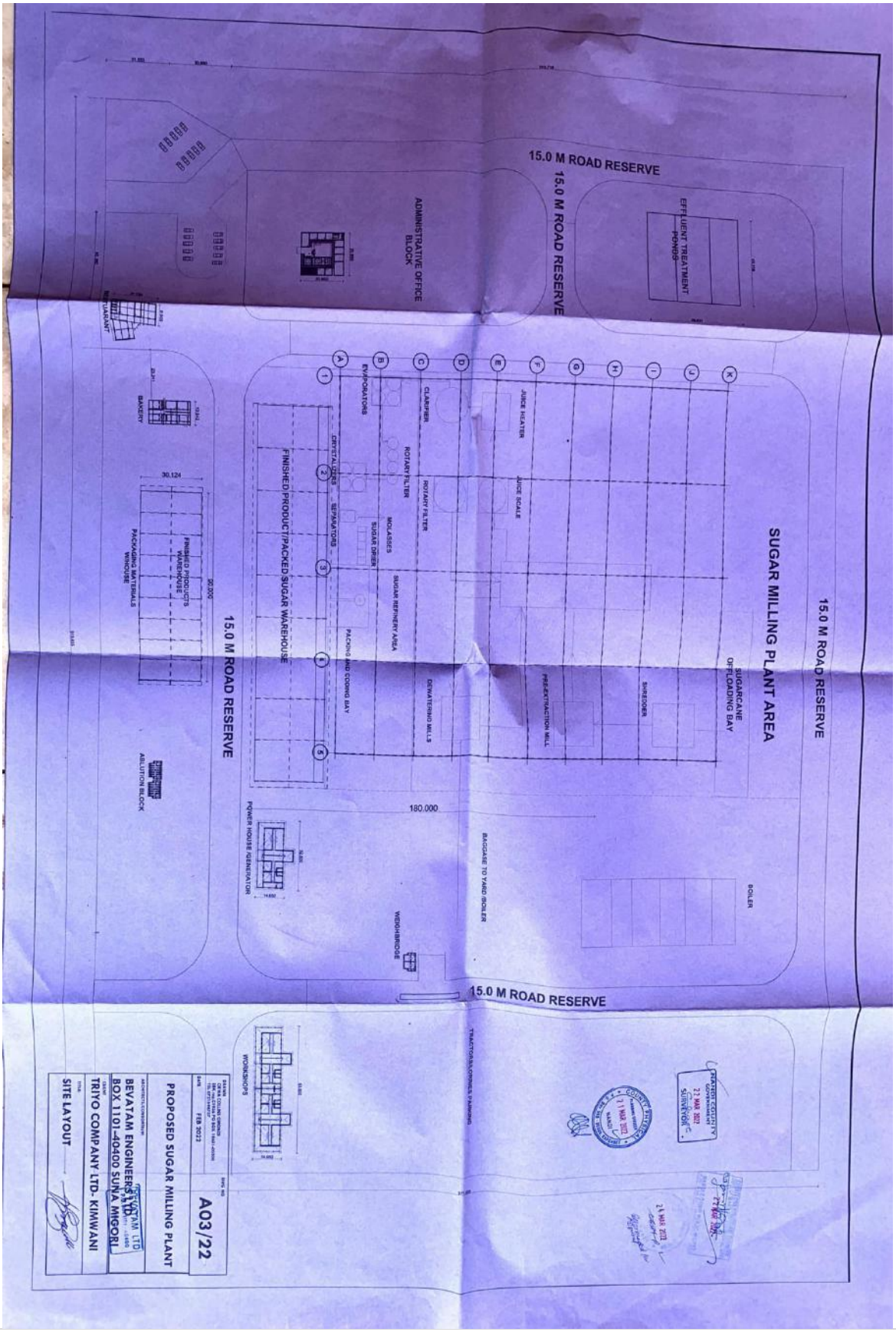
Registered Address

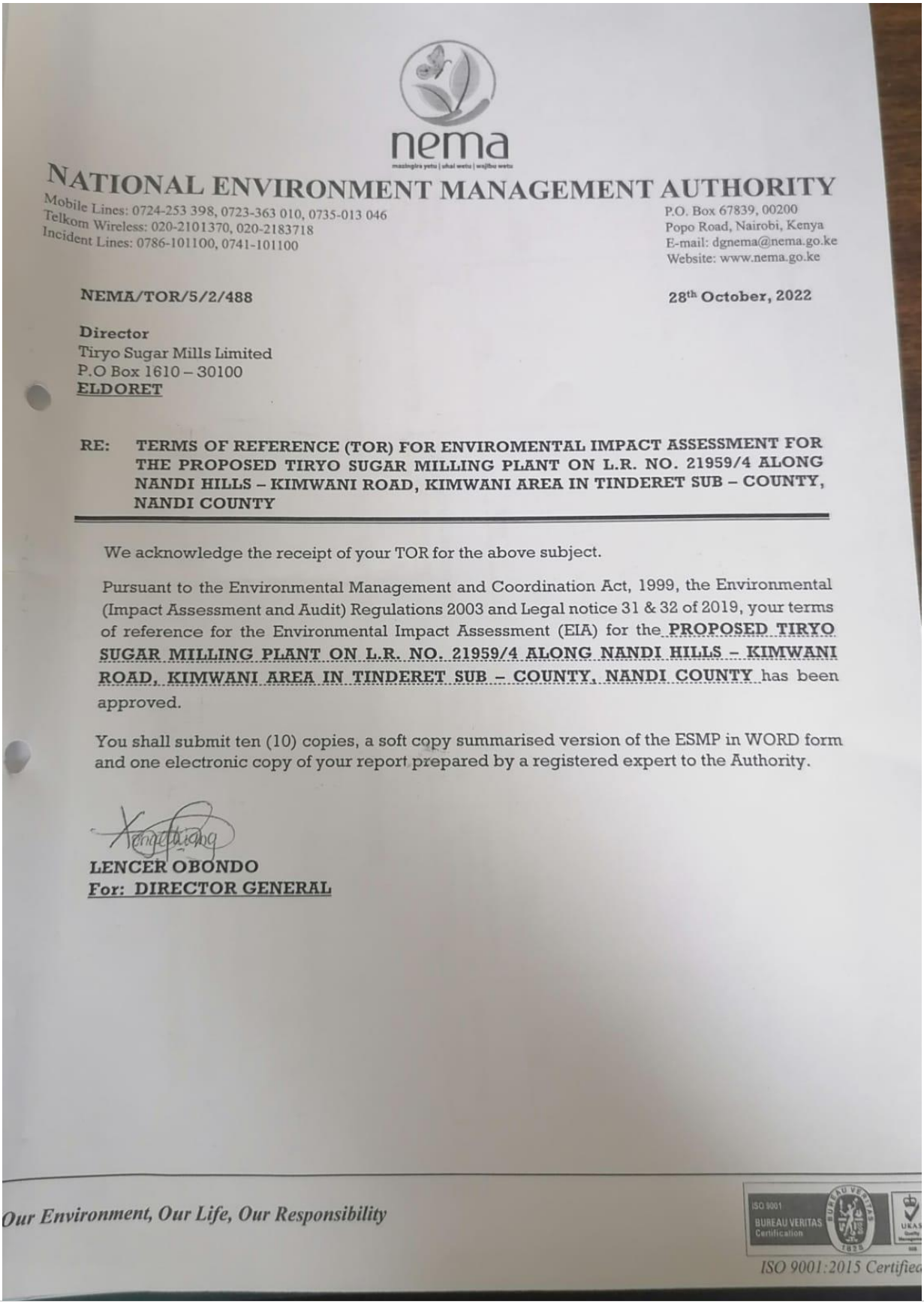
L.R. Number : NA	**Building** SUGARLAND PLAZA
Street/Road OLOO STREET	**City/Town :** NA
County : Uasin Gishu	**District** Eldoret West District
Tax Area Eldoret	**Station** Eldoret
P. O. Box 1610	**Postal Code** 30100

Tax Obligation(s) Registration

Sr. No.	Tax Obligation(s)	Effective From Date	Effective Till	Status
1	Income Tax - PAYE	14/07/2021	N.A.	Active
2	Income Tax - Company	14/07/2021	N.A.	Active

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


15.0 M ROAD RESERVE
15.0 M ROAD RESERVE
ADMINISTRATIVE OFFICE BLOCK
EFFLUENT TREATMENT POND9
SUGAR MILLING PLANT AREA
SUGARCANE OFFLOADING BAY
15.0 M ROAD RESERVE
BAKERY
FINISHED PRODUCT/PACKED SUGAR WAREHOUSE
PACKAGING MATERIALS W/HOUSE
FINISHED PRODUCTS WAREHOUSE
15.0 M ROAD RESERVE
ABLUTION BLOCK
CRYSTALIZERS
SEPARATORS
EVAPORATORS
CLARIFIER
ROTARY FILTER
SUGAR DRIER
MOLASSES
SUGAR REFINERY AREA
PACKING AND CODING BAY
JUICE HEATER
JUICE SCALE
DEWATERING MILLS
PRE-EXTRACTION MILL
SHREDDER
180.000
POWER HOUSE /GENERATOR
WEIGHBRIDGE
BAGGASE TO YARD /BOILER
BOILER
15.0 M ROAD RESERVE
WORKSHOPS
TRACTOR/SLASHING/MILL PARKING
PROPOSED SUGAR MILLING PLANT
A03/22
BEVATAM ENGINEERS LTD
BOX 1101-40400 SUNA MIGORI
TRIYO COMPANY LTD- KIMWANI
SITE LAYOUT



nema
mazingira yetu | uhai wetu | wajibu wetu

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

Mobile Lines: 0724-253 398, 0723-363 010, 0735-013 046
Telkom Wireless: 020-2101370, 020-2183718
Incident Lines: 0786-101100, 0741-101100

P.O. Box 67839, 00200
Popo Road, Nairobi, Kenya
E-mail: dgnema@nema.go.ke
Website: www.nema.go.ke

NEMA/TOR/5/2/488 **28th October, 2022**

Director
Tiryo Sugar Mills Limited
P.O Box 1610 – 30100
ELDORET

RE: TERMS OF REFERENCE (TOR) FOR ENVIROMENTAL IMPACT ASSESSMENT FOR THE PROPOSED TIRYO SUGAR MILLING PLANT ON L.R. NO. 21959/4 ALONG NANDI HILLS – KIMWANI ROAD, KIMWANI AREA IN TINDERET SUB – COUNTY, NANDI COUNTY

We acknowledge the receipt of your TOR for the above subject.

Pursuant to the Environmental Management and Coordination Act, 1999, the Environmental (Impact Assessment and Audit) Regulations 2003 and Legal notice 31 & 32 of 2019, your terms of reference for the Environmental Impact Assessment (EIA) for the **PROPOSED TIRYO SUGAR MILLING PLANT ON L.R. NO. 21959/4 ALONG NANDI HILLS – KIMWANI ROAD, KIMWANI AREA IN TINDERET SUB – COUNTY, NANDI COUNTY** has been approved.

You shall submit ten (10) copies, a soft copy summarised version of the ESMP in WORD form and one electronic copy of your report prepared by a registered expert to the Authority.

LENCER OBONDO
For: DIRECTOR GENERAL

Our Environment, Our Life, Our Responsibility

ISO 9001 BUREAU VERITAS Certification

ISO 9001:2015 Certified

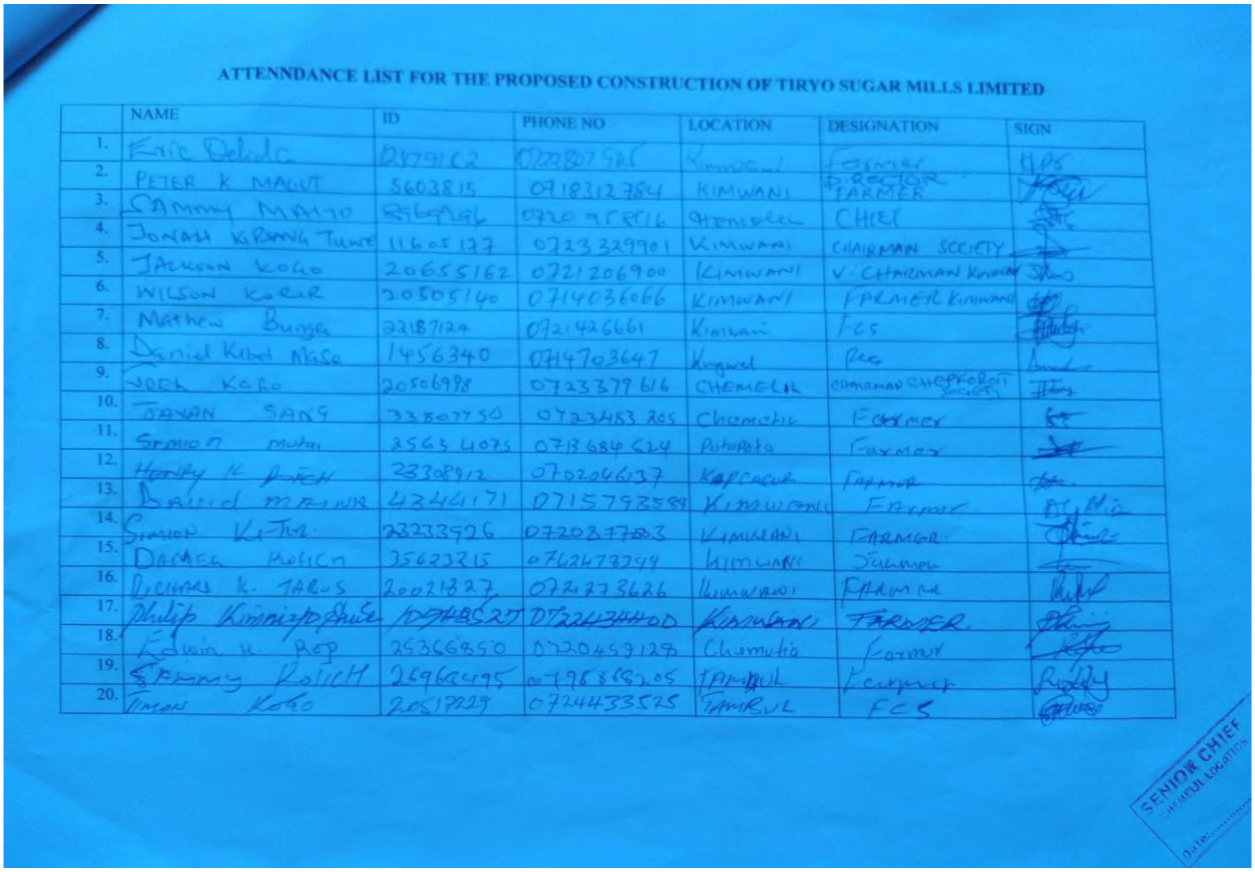
ATTENDANCLE LIST FOR THE PROPOSED CONSTRUCTIO OF TIRYO SUGAR MILL

	NAME	LOCATION	ID	PHONE NO.	SIGN
1.	William Ngetich	Kimwani	5617610	0724234734	
2.	Barnabas Milly	Chepsangor	22709437	0725356103	
3.	Simeon K [illegible]	Chemelil	[illegible]	[illegible]	
4.	DANIEL K KIPLAGAT	SONGHOR	2095910	0726 088561	
5.	DANIEL K NGELECHEI	SITET	13806183	0713382818	
6.	DANIEL KIBET MASEI	KIMWANI	14956340	0718476184	
7.	Robert Tuwei	Chepsangor	30410138	0706243041	
8.	Kipsang Geoffrey Kibui	SONGHOR	24320508	0728573746	
9.	JACKSON K [illegible]	KIMWANI	2655162	0721206900	
10.	PHILIP KIBET ROTICH	KIMWANI	28813145	0723353909	
11.	GERALD KEMBOI	KIMWANI	26956613	0713 069 707	
12.	John K. Kiyai	Chepsangor	13364284	0727856722	
13.	Samson Muruge	Chepsangor	13364085	0721822522	
14.	SAMWEL C. KOECH	MATEMA	0774029	071537316	
15.	JOSPHAT KIPROP	Kiptegaa	0717548171		
16.	ISAAC BIWOTT	KIPTEGAA	4016876	0702344044	
17.					
18.					
19.					

SENIOR CHIEF
[illegible] LOCATION

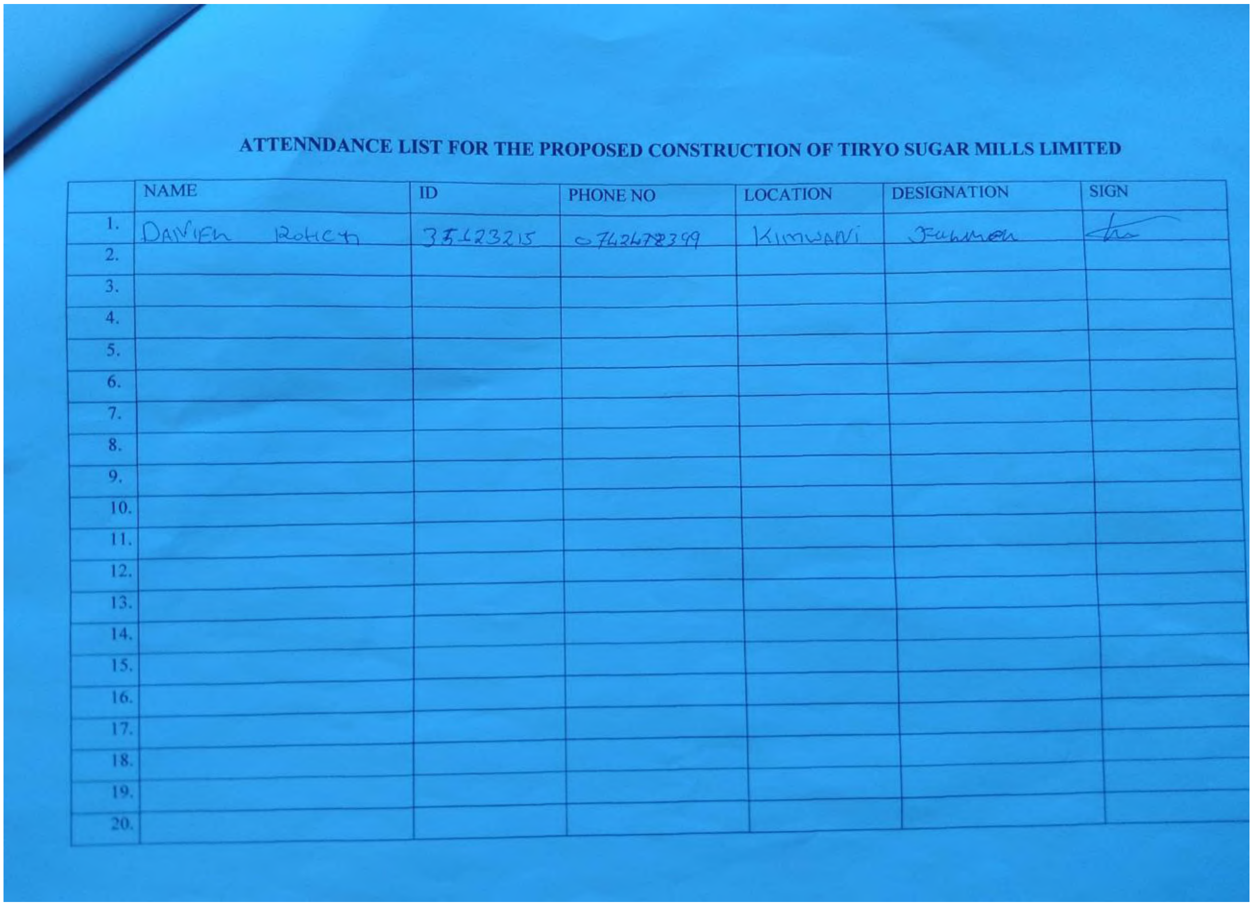
ATTENNDANCE LIST FOR THE PROPOSED CONSTRUCTION OF TIRYO SUGAR MILLS LIMITED

	NAME	ID	PHONE NO	LOCATION	DESIGNATION	SIGN
1.	DAVID K. MUTAI	9159176	0720344565	CHEMOKIL	FARMER	[signature]
2.	MUSTAFA K. BOR	9991819		Chemelil	Farmer	[signature]
3.	COLLINS KIPLAGAT	20871561	0720332907	CHEMELIL	FARMER	[signature]
4.	EDWARD KIBICHII	28130713	0743993610	CHEMELIL	FARMER	[signature]
5.	BRIAN KIBET NG'ENY	38051931	0718735101	Jebarus	farmer	[signature]
6.	FRANCISCA CHELANGAT	31644468	0729951798	CHEBAROS	FARMER	[signature]
7.	WILLIAM SANGA	2005289	0707369706	CHEMELIL	"	[signature]
8.	ROSE JEPKORIR	24716228	0729720163	"	"	[signature]
9.	SIMION K. TANUI	22709753	0728496325	Kapsimariwo	farmer	[signature]
10.	Richard Kimurger Bibk	23099178	0722 926340	Chemelil	Farmer	[signature]
11.	Dias Kirwa	0725696824	11506508	Chemelil	Farmer	[signature]
12.	Metwo Kaplelach	6664782	0705937857	Chemelil	Farmer	[signature]
13.	William Ngetich	5617617	0722 828357	Chepences	Farmer	[signature]
14.	Roshay Kenthi	28411286	0790848545	Chemelil	Farmer	[signature]
15.	Philip Kiseg Roticu	28812145	0719684413	Chemelil	Farmer	[signature]
16.	David K. Chelog	7157601	0721751804	Kamelilo	Farmer Lanselot	[signature]
17.	MUSA TERGEBA			CHEMASE	Farmer	[signature]
18.						
19.						
20.						



ATTENNDANCE LIST FOR THE PROPOSED CONSTRUCTION OF TIRYO SUGAR MILLS LIMITED

	NAME	ID	PHONE NO	LOCATION	DESIGNATION	SIGN
1.	Eric Belele	21791C2	0722807505	Kimwani	Farmer	[illegible]
2.	PETER K MAGUT	5603815	0718312784	KIMWANI	DIRECTOR FARMER	[illegible]
3.	SAMMY MAITO	8569196	0720 955516	Chemelil	CHIEF	[illegible]
4.	JONAH KIPRONO TUWEI	11605177	0723329901	KIMWANI	CHAIRMAN SOCIETY	[illegible]
5.	JACKSON KOGO	20655162	0721206900	KIMWANI	V. CHAIRMAN Kimwani	[illegible]
6.	WILSON KORIR	20505140	0714036066	KIMWANI	FARMER Kimwani	[illegible]
7.	Mathew Bungei	22187124	0721426661	Kimwani	FCS	[illegible]
8.	Daniel Kibet Masa	1456340	0714703647	Koyweit	Rec	[illegible]
9.	JOEL KOGO	20506998	0723379616	CHEMELIL	CHAIRMAN CHEPKORIT SOCIETY	[illegible]
10.	JAVAN SANG	33807750	0723483205	Chemelil	Farmer	[illegible]
11.	Simion Mutai	25634075	0713684624	Potopoto	Farmer	[illegible]
12.	Henry K [illegible]	23308912	0702046137	Kapcagur	Farmer	[illegible]
13.	David Maina	4344171	0715793589	Kimwani	Farmer	[illegible]
14.	Simion Kiter	23233926	0720877003	Kimwani	FARMER	[illegible]
15.	Daniel Kolich	35623215	0762473744	Kimwani	Farmer	[illegible]
16.	Richard K. Tarus	20021827	0721273626	Kimwani	Farmer	[illegible]
17.	Philip Kimnizo [illegible]	[illegible]	[illegible]	Kimwani	FARMER	[illegible]
18.	Edwin K. Rop	25366850	0720459129	Chemutia	Farmer	[illegible]
19.	Sammy Kolich	26962495	0798868205	Tamabul	Farmer	[illegible]
20.	Timon Kogo	20517229	0724433525	Tamabul	FCS	[illegible]



ATTENNDANCE LIST FOR THE PROPOSED CONSTRUCTION OF TIRYO SUGAR MILLS LIMITED

	NAME	ID	PHONE NO	LOCATION	DESIGNATION	SIGN
1.	DAVIEh ROTICH	35123215	0742478399	KIMWANI	Farmer	
2.						
3.						
4.						
5.						
6.						
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20.						

PUBILC PARTICIPATION QUESTIONAIRES

My client tends to construct a Sugar Mill on plot L.R NO. 21959/4 in Kimwani, in Nandi county. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
1	**Are you aware of the above named project**	✓	
2	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
3	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
4	Will the proposed project create job opportunities	✓	
5	Will the proposed project cause removal of vegetation/ deforestation		✓
6	Do you welcome the proposed project	✓	

2. Any other anticipated positive environmental, social economic and cultural impacts as a result of the development

NOT at all

If you anticipate negative impacts list them

NOT at all

Any other information you would like to give

We as farmers T.S.M this region will support this idea all together

Respondent Details:

Name: DAVIDSON CHEPCIROR
Id number: 9101656
Date: 22/12/2021
Signature:

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5	Will the proposed project cause removal of vegetation/ deforestation		✓
6	Do you welcome the proposed project	✓	

2. Any other anticipated positive environmental, social economic and cultural impacts as a result of the development

The Project will anticipate positive environmental and also will great job opportunities to the resident of the surroundings

If you anticipate negative impacts list them

Any other information you would like to give

The information I would like to give is the factory to be constructed

Respondent Details:

Name: Paul Yego
Id number: 12637582
Date: 28/12/2021
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

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4	Will the proposed project create job o ortunities	✓	
5	Will the proposed project caus removal of vegetation/ deforestation		✓
6	Do you welcome the proposed projec	✓	

2. Any other anticipated positive environmer social economic and cultural impacts as a result of the development

Create jobs

If you anticipate negative impacts list them

None

Any other information you would like to g

We support 100%

Respondent Details:

Name: Barnabas Melly
Id number: 22909437
Date: 21/12/2021
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

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5	Will proposed project cause removal of vegetation/ deforestation		✓
6	Do you welcome the proposed project	✓	

2. Any other anticipated positive environmental, social economic and cultural impacts as a result of the development

- Job opportunities to our community
- Creation of more companies
-

If you anticipate negative impacts list them

NONE

Any other information you would like to give

MAY IT BE DONE WITH IMMIDIATE EFFECTS

Respondent Details:

Name: GERALD -K- KRMBA
Id number: 26956453
Date: 22/12/2021
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

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2. Any other anticipated positive environmental, social economic and cultural impacts as a result of the development

.....
.....
.....
.....

If you anticipate negative impacts list them

.....
.....
.....

Any other information you would like to give

.....
.....
.....

Respondent Details:

Name: PETER SIMON KIPKEMBOI TUWEI
Id number: 13013170
Date: 22/12/2021
Signature: Peterstuwei

PUBILC PARTICIPATION QUESTIONAIRES

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5	Will the proposed project cause removal of vegetation/ deforestation		✓
6	Do you welcome the proposed project	✓	

2. Any other anticipated positive environmental, social economic and cultural impacts as a result of the development

- Job opportunities to our youths
- Creation of more companies

If you anticipate negative impacts list them

NONE

Any other information you would like to give

MAY IT BE DONE WITH IMMIDIATE EFFECT.

Respondent Details:

Name: SAMSON KIPKOECH OHABAS
Id number: 24290895
Date: 22/12/2021
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

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4	Will the proposed project create job opportunities	✓	
5	Will the proposed project cause removal of vegetation/ deforestation		✓
6	Do you welcome the proposed project	✓	

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- Job opputunities
- Creation of more factories

If you anticipate negative impacts list them

NONE

Any other information you would like to give

MAY THE FACTORY BE BUILT WITH IMMDIATE EFFECT.

Respondent Details:

Name: JOHN KIPKOECH KIRUI
Id number: 21019989
Date: 2/2/2021
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

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.....
.....
.....
.....

If you anticipate negative impacts list them

.....
.....
.....

Any other information you would like to give

.....
.....
.....

Respondent Details:

Name: HENRY KIPKOSGEI ROTICH
Id number: 23308912
Date: 22/12/2021
Signature: ~~[illegible]~~

PUBILC PARTICIPATION QUESTIONAIRES

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		YES	NO
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2	Do you think he proposed project will cause pollution of air, water and soil in the project area	✓	✓
3	Will the proposed construction activities cause nuisance to workers and residents of the area	✓	✓
4	Will the proposed project create job opportunities	✓	
5	Will the proposed project cause removal of vegetation/ deforestation		✓
6	Do you welcome the proposed project	✓	

2. Any other anticipated positive environmental, social economic and cultural impacts as a result of the development

Yes

If you anticipate negative impacts list them

None

Any other information you would like to give

Respondent Details:

Name: PHILIP KIBET ROTICH
Id number: 28813145
Date: 22/12/2021
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client tends to construct a Sugar Mill on plot L.R NO. 21959/4 in Kimwani, in Nandi county. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
1	Are you aware of the above named project	✓	
2	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
3	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
4	Will the proposed project create job opportunities	✓	
5	Will the proposed project cause removal of vegetation/ deforestation		✓
6	Do you welcome the proposed project	✓	

2. Any other anticipated positive environmental, social economic and cultural impacts as a result of the development

(1) Capacity building of the farmers
(2) Employment

If you anticipate negative impacts list them

Market increase for products

Any other information you would like to give

This is a great development

Respondent Details:

Name: Sammy Maiyo
Id number: 8969296
Date: 22.12.2021
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client tends to construct a Sugar Mill on plot L.R NO. 21959/4 in Kimwani, in Nandi county. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed pro

No	Questions	Response	
		YES	NO
1	Are you aware of the above named project	✓	
2	Do you think the proposed project w cause pollution of air, water and soil in the proje ea		✓
	Will the proposed construction activiti cause nuisance to workers and residents of the ar		✓
	Will the proposed project create job opport ies	✓	
	Will the proposed project cause ren l of vegetation/ deforestation		✓
	Do you welcome the proposed project	✓	

2. y other anticipated positive environmental, so economic and cultural impacts as esult of the development

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ou anticipate negative impacts list them

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N/A

y other information you would like to give

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Respondent Details:

Name: DANIEL K. KIPLAGAT

Id number: 20550910

Date: 22:12:2021

Signature: .....

PUBILC PARTICIPATION QUESTIONAIRES

My client tends to construct a Sugar Mill on plot L.R NO. 21959/4 in Kimwani, in Nandi county. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Question	Response	
		YES	NO
1	Are you aware of the above named project	✓	
2	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
3	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
4	Will the proposed project create job opportunities	✓	
5	Will the proposed project cause removal of vegetation / deforestation		✓
6	Do you welcome the proposed project	✓	

2. Any other anticipated positive environmental, social economic and cultural impacts as a result of the development

YES: 1. Employment
2. Great job opportunities
3. Increase Security
4.

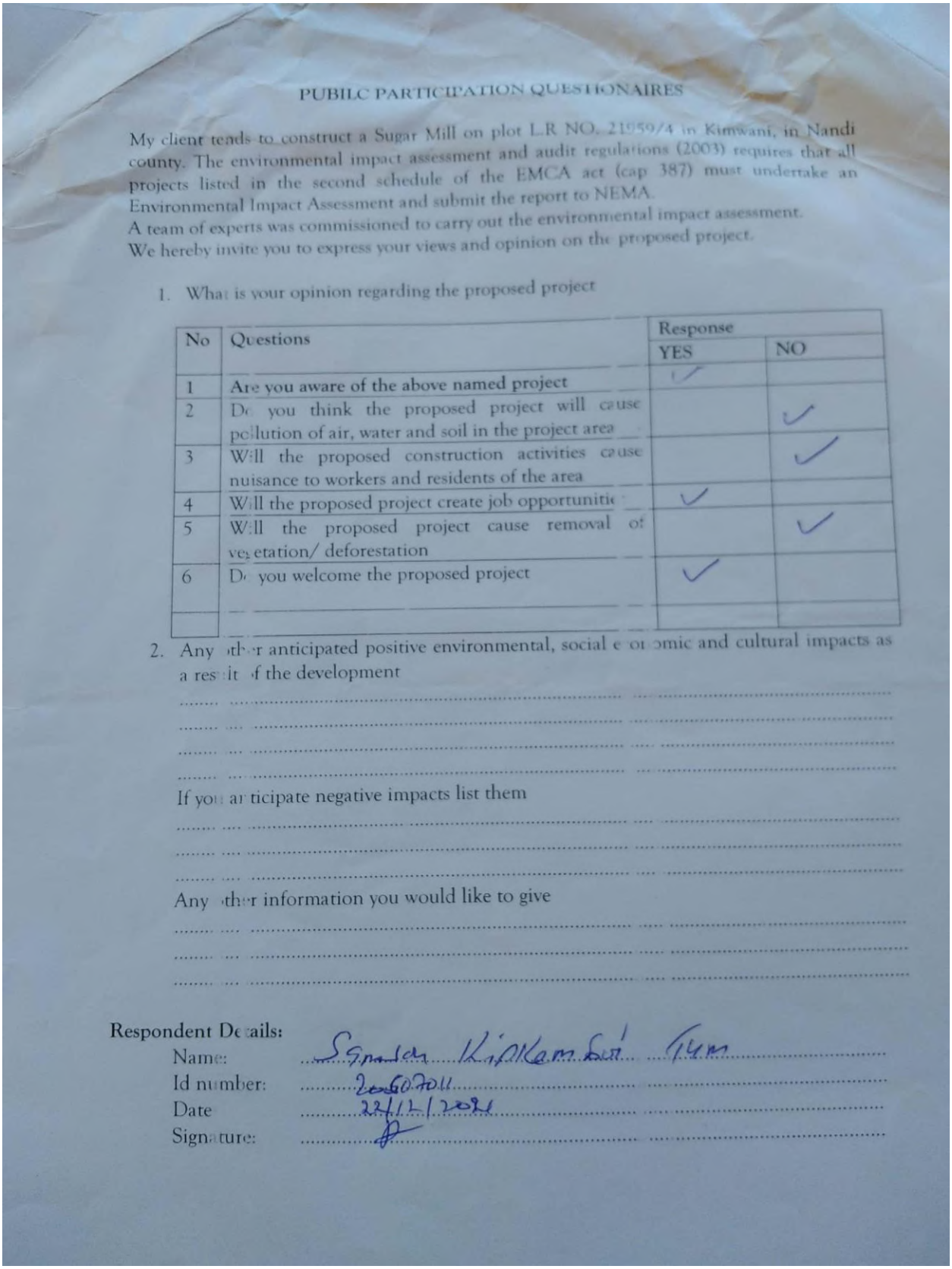
If you anticipate negative impacts list them

1. Prostitutes
2. Drugs
3.

Any other information you would like to give

Respondent Detail

Name: ISAAC KIPRONO BIWOT
Id number: 40163776
Date: 22/12/2021
Signature:



PUBILC PARTICIPATION QUESTIONAIRES

My client tends to construct a Sugar Mill on plot L.R NO. 21959/4 in Kimwani, in Nandi county. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
1	Are you aware of the above named project	✓	
2	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
3	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
4	Will the proposed project create job opportunitie	✓	
5	Will the proposed project cause removal of vegetation/ deforestation		✓
6	Do you welcome the proposed project	✓	

2. Any other anticipated positive environmental, social economic and cultural impacts as a result of the development

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If you anticipate negative impacts list them

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Any other information you would like to give

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Respondent Details:

Name: Samuel Kipkemboi Tum
Id number: 20607011
Date 22/12/2021
Signature: .....

PUBILC PARTICIPATION QUESTIONAIRES

My client tends to construct a Sugar Mill on plot L.R NO. 21959/4 in Kimwani, in Nandi county. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
1	Are you aware of the above na l project	✓	
2	Do you think the propose roject will cause pollution of air, water and soil ne project area		✓
3	Will the proposed construc activities cause nuisance to workers and reside of the area		✓
4	Will the proposed project crea b opportunities	✓	
5	Will the proposed project use removal of vegetation/ deforestation.		✓
6	Do you welcome the proposed ect	✓	

2. Any other anticipated positive envir ental, social economic and cultural impacts a result of the development
- employment
- security

If you anticipate negative impacts lis m
- increase theft
- prostitutes

Any other information you would lil give

Respondent Details:
Name: DANIEL KIBET MASE
Id number: 1456340
Date: 22/12/2021
Signature: Daniel

PUBILC PARTICIPATION QUESTIONAIRES

My client tends to construct a Sugar Mill on plot L.R NO. 21959/4 in Kimwani, in Nandi county. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
1	Are you aware of the above named project	✓	
2	Do you think the proposed project will cause pollution of the water and soil in the project area		✓
3	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
4	Will the proposed project create job opportunities	✓	
5	Will the proposed project cause removal of vegetation/deforestation		
6	Do you welcome the proposed project	✓	

2. Any other anticipated positive environmental, social economic and cultural impacts as a result of the development

1. Create Job opportunities
2. Increase Security

If you anticipate negative impacts list them

i. Increase Insecurity
ii. Drug
iii. Prostitute

Any other information you would like to give

1. Interaction from Different communities
2.

Respondent Details:

Name: ROBERT TUWEI
Id number: 30401338
Date: 22/12/2021
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client tends to construct a Sugar Mill on plot L.R NO. 21959/4 in Kimwani, in Nandi county. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
1	Are you aware of the above named project	✓	
2	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
3	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
4	Will the proposed project create job opportunities	✓	
5	Will the proposed project cause removal of vegetation/ deforestation		✓
6	Do you welcome the proposed project	✓	

2. Any other anticipated positive environmental, social economic and cultural impacts as a result of the development

1. Great Job opportunities
2. Increase security

If you anticipate negative impacts list them

1. Increase Prostitute
2. Dust

Any other information you would like to give

We welcome the Project 100%

Respondent Details:

Name: SAMUEL C KOECH
Id number: 07746029
Date: 22/12/2021
Signature: Sech

PUBILC PARTICIPATION QUESTIONAIRES

My client tends to construct a Sugar Mill on plot L.R NO. 21959/4 in Kimwani, in Nandi county. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
1	Are you aware of the above named project	✓	
2	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
3	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
4	Will the proposed project create job opportunities	✓	
5	Will the proposed project cause removal of vegetation/ deforestation		✓
6	Do you welcome the proposed project	✓	

2. Any other anticipated positive environmental, social economic and cultural impacts as a result of the development

- employment
- security.

If you anticipate negative impacts list them

- Death from accidents

Any other information you would like to give

Respondent Details:

Name: KIPSANG GEOFFREY KIRUI
Id number: 24320508
Date: 22/12/2022
Signature: KGK

PUBILC PARTICIPATION QUESTIONAIRES

My client tends to construct a Sugar Mill on plot L.R NO. 21959/4 in Kimwani, in Nandi county. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
1	Are you aware of the above named project	✓	
2	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
3	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
4	Will the proposed project create job opportunities	✓	
5	Will the proposed project cause removal of vegetation/ deforestation		✓
6	Do you welcome the proposed project	✓	

Any other anticipated positive environmental social economic and cultural impacts as a result of the development
- security
- employment

If you anticipate negative impacts list them

Any other information you would like to give

Respondent Details:
Name: DANIEL K. MWELECHEI
Id number: 13806183
Date: 22/12/2021
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client tends to construct a Sugar Mill on plot L.R NO. 21959/4 in Kimwani, in Nandi county. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
1	Are you aware of the above named project	✓	
2	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
3	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
4	Will the proposed project create job opportunities	✓	
5	Will the proposed project cause removal of vegetation/ deforestation		✓
6	Do you welcome the proposed project	✓	

2. Any other anticipated positive environmental, social economic and cultural impacts as a result of the development
The project will help farmers and it will creat jobs and Therefore I propose the project to continue

If you anticipate negative impacts list them
No negative impact

Any other information you would like to give
I propose the project to continue

Respondent Details:
Name: STEPHEN K. BETT
Id number: 2189744
Date: 27/12/2021
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client tends to construct a Sugar Mill on plot L.R NO. 21959/4 in Kimwani, in Nandi county. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
1	Are you aware of the above named project	YES.	
2	Do you think the proposed project will cause pollution of air, water and soil in the project area		NO
3	Will the proposed construction activities cause nuisance to workers and residents of the area		NO.
4	Will the proposed project create job opportunities	YES.	
5	Will the proposed project cause removal of vegetation/ deforestation		NO
6	Do you welcome the proposed project	YES.	

2. Any other anticipated positive environmental, social economic and cultural impacts as a result of the development

1. Job opportunities
2. Promote businesses to the neighbourhood
3. Communities like Lwa Nandi will positively interact.

If you anticipate negative impacts list them

NO

Any other information you would like to give

- The benefiouries to be the Community.

Respondent Details:

Name: JOHN -K. TALAM
Id number: 40140436
Date: 22/12/2012
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client tends to construct a Sugar Mill on plot L.R NO. 21959/4 in Kimwani, in Nandi county. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
1	Are you aware of the above named project	✓	
2	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
3	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
4	Will the proposed project create job opportunities	✓	
5	Will the proposed project cause removal of vegetation/ deforestation		✓
6	Do you welcome the proposed project	✓	

2. Any other anticipated positive environmental, social economic and cultural impacts as a result of the development

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If you anticipate negative impacts list them

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Any other information you would like to give

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Respondent Details:

Name: Rogers KIPTOO TUWEI
Id number: 26757743
Date: 22/12/21
Signature: .....

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		X No
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		X No
c)	Will the proposed project create job opportunities	✓ Yes	
d)	Will the proposed project cause removal of vegetation/ deforestation		X No
e)	Do you welcome the proposed project	✓ Yes	

2.In your opinion is the proposed project location Ideal

Yes it is Ideal

3.If you anticipate negative impacts list them

4.Any other information you would like to give

I will like the relevant authorities to do it as early as possible.

Respondent Details:

Name: Mathew Kipkemboi Bungei
Id number: 22187124
Date: 23/09/2022
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal

Yes the proposed project is ideal to the people surrounding the area.

3.If you anticipate negative impacts list them

None

4.Any other information you would like to give

Respondent Details:

Name: MUSK TARGET

Id number:

Date: 22/9/22

Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal
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3.If you anticipate negative impacts list them
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4.Any other information you would like to give
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Respondent Details:
Name: RICHARD KIPKEMBOI TARUS
Id number: 2.05.2.18.27
Date: 23/09/2022
Signature: .....

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.

A team of experts was commissioned to carry out the environmental impact assessment.

We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal

YES

3.If you anticipate negative impacts list them

NO

4.Any other information you would like to give

TO BE CONSTRUCTED AS EARLY AS POSSIBLE

Respondent Details:

Name: WILLIAM NGETICH

Id number: 5619617

Date: 23/9/2023

Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		NO
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		NO
c)	Will the proposed project create job opportunities	YES	
d)	Will the proposed project cause removal of vegetation/ deforestation		NO
e)	Do you welcome the proposed project	YES	

2.In your opinion is the proposed project location Ideal

It is Ideal

3.If you anticipate negative impacts list them

4.Any other information you would like to give

let the factory be Constructed

Respondent Details:

Name: JAZESON KIPLAGAT KOHO
Id number: 20655162
Date: 23/9/2023
Signature: JKoho

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		NO
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		No
c)	Will the proposed project create job opportunities	YES	
d)	Will the proposed project cause removal of vegetation/ deforestation		NO
e)	Do you welcome the proposed project	YES	

2.In your opinion is the proposed project location Ideal

It is Ideal

3.If you anticipate negative impacts list them

/

4.Any other information you would like to give

let the factory be contacted as early as possible

Respondent Details:

Name: DANIEL G. MASE
Id number: 1456340
Date: 22/9/2022
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		NO
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		NO
c)	Will the proposed project create job opportunities	YES	
d)	Will the proposed project cause removal of vegetation/ deforestation		NO
e)	Do you welcome the proposed project	YES	

2.In your opinion is the proposed project location Ideal

It is Ideal

3.If you anticipate negative impacts list them

4.Any other information you would like to give

To be constructed as early as possible.

Respondent Details:

Name: ROBERT KEMBOI
Id number: 28461786
Date: 22/9/2022
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.

A team of experts was commissioned to carry out the environmental impact assessment.

We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal

Toga sawa na factor na yenawe saga

3.If you anticipate negative impacts list them

Si ina negative na kujanwa

4.Any other information you would like to give

No

Respondent Details:

Name: MATHEW KAPLELACH

Id number: 6664782

Date: 23/9/22

Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal
Yes the proposed Project location ideal.

3.If you anticipate negative impacts list them
There is no any negative impacts i have notica

4.Any other information you would like to give
The Construction of Proposed Project is highly welcome here in my area because, apart from buying cane from v.s, Its creating job opportunities.

Respondent Details:
Name: Richard Kimurgor Bitok
Id number: 22099178
Date: 23/1/2023
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.

A team of experts was commissioned to carry out the environmental impact assessment.

We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2. In your opinion is the proposed project location Ideal

Yes the proposed project location ideal in this said area.

3. If you anticipate negative impacts list them

Actually there is no negative impacts.

4. Any other information you would like to give

We are in support of the proposed project and we are highly welcoming the project

Respondent Details:

Name: Ros Kirusa.

Id number: 11506508

Date: 23/9/2022.

Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal
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3.If you anticipate negative impacts list them
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4.Any other information you would like to give
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Respondent Details:
Name: Bosit Ben
Id number: 25744267
Date: 10/3/4/21
Signature: .....

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
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1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal

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.....Yes.....
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3.If you anticipate negative impacts list them

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4.Any other information you would like to give

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.....Will create job opportunities.....
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Respondent Details:

Name: ....BRIAN KIBET NG'ENY.....
Id number: .....38054031.....
Date: ....23/01/2000.....
Signature: .....

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.

A team of experts was commissioned to carry out the environmental impact assessment.

We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal

....

3.If you anticipate negative impacts list them

....

4.Any other information you would like to give

....

Respondent Details:

Name: DAMIEN Rotich

Id number: 35623315

Date: 23/4/22

Signature: [signature]

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area	Yes	✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area	✓	
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓ Yes	

2.In your opinion is the proposed project location Ideal
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3.If you anticipate negative impacts list them
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4.Any other information you would like to give
.....Farmers is happy to get factor in.....
.....area.....
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Respondent Details:

Name: .....JAYAN K SARS.....
Id number: .....37807750.....
Date: .....13-9-2022.....
Signature: .....

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area	✓	
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal
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3.If you anticipate negative impacts list them
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4.Any other information you would like to give
It a good thing that Farmers happy to see Sugar in area
.....

Respondent Details:

Name: Simion Mutei
Id number: 25634x5
Date: 23-9-2022
Signature: [signature]

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area	✓	
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal

I Will come This proposal

3.If you anticipate negative impacts list them

4.Any other information you would like to give

Respondent Details:

Name: Henry K Rotich
Id number: 2230882/2
Date: 23/9/2022
Signature: [signature]

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2. In your opinion is the proposed project location Ideal
This Dvoposed Project will give us Positive ideals like Job Opportunities. Creating roads ant Bridges.

3. If you anticipate negative impacts list them
This development will create Many Positive impact to the Environment. to this like Job Opportunity.

4. Any other information you would like to give
We Want to tell the holder of the factory to give us the Plot for the to like Open air market.

Respondent Details:
Name: Philip Kibet Rotich
Id number: 28813145
Date: 23/09/2022
Signature: RA

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal

The proposed project area is ideal since it is next to Main road and next to farmers.

3.If you anticipate negative impacts list them

N/A

4.Any other information you would like to give

Respondent Details:

Name: Sammy Mato
Id number: 8969296
Date: 23/9/2022
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal
This location is very ideal

3.If you anticipate negative impacts list them
/

4.Any other information you would like to give
It is good they should build here

Respondent Details:
Name: Kipkemboi Koxis
Id number: 20504140
Date: 23/9/2022
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal
It is good we welcome it

3.If you anticipate negative impacts list them
None

4.Any other information you would like to give
The proponent should build project

Respondent Details:
Name: David Maina
Id number: 43441171
Date: 23/9/2022
Signature: Maina

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal
The location is very ideal as it will help us the farmers grow.

3.If you anticipate negative impacts list them
None

4.Any other information you would like to give
This is an eye opener for the bottoms up manifesto.

Respondent Details:
Name: Eric Owenga Odida
Id number: 12475182
Date: 23-9-22
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
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We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		NO
b)	Will the proposed construction activities cause nuisance to workers and residents of the area	YES	
c)	Will the proposed project create job opportunities	YES	
d)	Will the proposed project cause removal of vegetation/ deforestation		NO
e)	Do you welcome the proposed project	YES	

2.In your opinion is the proposed project location Ideal

IT IS IDEAL (Because its location is within the Highway and within the farmers Farms.

3.If you anticipate negative impacts list them

4.Any other information you would like to give

THE FACTORY TO BE CONSTRUCTED AS EARLY AS POSSIBLE

Respondent Details:

Name: JONAH KIPSANG TUWEI
Id number: 11605177
Date: 23/9/2022
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.

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We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal

.....YES.....

3.If you anticipate negative impacts list them

4.Any other information you would like to give

Respondent Details:

Name: SIMION KSTIN

Id number: 23233926

Date: 23/09/22

Signature: .....

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
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We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		NO
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		NO
c)	Will the proposed project create job opportunities	Yes	
d)	Will the proposed project cause removal of vegetation/ deforestation		NO
e)	Do you welcome the proposed project	Yes	

2.In your opinion is the proposed project location Ideal

Good if we get factory in our Community

3.If you anticipate negative impacts list them

4.Any other information you would like to give

Thank we employ some people in our area we get job

Respondent Details:

Name: Jeff Koko
Id number: 20506988
Date: 23/9/22
Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.

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1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal

Good land

3.If you anticipate negative impacts list them

4.Any other information you would like to give

Thank you Best Jobs

Respondent Details:

Name: SIMION KIPLIMO TANUI

Id number: 22909753

Date: 23/09/2022

Signature: SK

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.

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We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal

YES

3.If you anticipate negative impacts list them

NONE

4.Any other information you would like to give

I SINCERELY ENCOURAGE THE DEVELOPERS TO PUT MORE EFFORTS TO ENSURE THAT THE PROJECT IS COMPLETED THE EARLIEST.

Respondent Details:

Name: WILLIAM KIMELI SANGA

Id number: 40052589

Date: 23/09/2022

Signature:

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.

A team of experts was commissioned to carry out the environmental impact assessment.

We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal

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3.If you anticipate negative impacts list them

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4.Any other information you would like to give

Sot The information That I Have IS The comeng ~~of the~~ will Help ~~...~~ us

Respondent Details:

Name: Edward Kibichii

Id number: 38130713

Date: 23/09/2022

Signature: [signature]

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
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We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal
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3.If you anticipate negative impacts list them
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..... N/A
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4.Any other information you would like to give
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Respondent Details:

Name: ..... DAVID K. MUTAI .....
Id number: ..... 9159176 .....
Date: ..... 23/09/2022 .....
Signature: .....

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
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We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal
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3.If you anticipate negative impacts list them
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4.Any other information you would like to give
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Respondent Details:

Name: MUSTAFA IC. BOR
Id number: 9991819
Date: 23/9/2022
Signature: .....

PUBILC PARTICIPATION QUESTIONAIRES

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A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal

The proposed project ~~wheat~~ location is ideal and comfortable.

3.If you anticipate negative impacts list them

There are no negative impacts as such

4.Any other information you would like to give

The factory is ideal and will help the community as well as the County govt

Respondent Details:

Name: COLLINS KIPROOPT
Id number: 20871561
Date: 23/09/2022
Signature: Collins

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
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We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal
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3.If you anticipate negative impacts list them
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4.Any other information you would like to give
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Respondent Details:

Name: FRANCISCA CHELANGAT
Id number: 31648468
Date: 23rd Sept 2022
Signature: Chelangat

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area	✓	
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal

I need so opportunity into equal for all ... area farmer of all locations

3.If you anticipate negative impacts list them

Nil

4.Any other information you would like to give

Respondent Details:

Name: Edwin K. Rop
Id number: 25366550
Date: 23rd Sep 2022
Signature: [signature]

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.

A team of experts was commissioned to carry out the environmental impact assessment.

We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area		✓
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal

Yes, its ideal because it will be the Only Sugar factory in the entire Rift Valley.

3.If you anticipate negative impacts list them

No negative impacts because we have tea factories within and there is no effects whats so ever.

4.Any other information you would like to give

Apart from milling our sugar cane we also need employment, revenue collection and businesses within.

Respondent Details:

Name: Philip Kiminairo Sause

Id number: 10048527

Date: 23-9-2022

Signature: [signature]

PUBILC PARTICIPATION QUESTIONAIRES

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A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area	✓	
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal
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3.If you anticipate negative impacts list them
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4.Any other information you would like to give
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Respondent Details:
Name: ..... Sammy Protich .....
Id number: ..... 2.6.9.6.8.4.9.5 .....
Date: ..... 23/9/2022 .....
Signature: .....

PUBILC PARTICIPATION QUESTIONAIRES

My client intends to develop a sugar milling factory. The environmental impact assessment and audit regulations (2003) requires that all projects listed in the second schedule of the EMCA act (cap 387) must undertake an Environmental Impact Assessment and submit the report to NEMA.
A team of experts was commissioned to carry out the environmental impact assessment.
We hereby invite you to express your views and opinion on the proposed project.

1. What is your opinion regarding the proposed project

No	Questions	Response	
		YES	NO
a)	Do you think the proposed project will cause pollution of air, water and soil in the project area		✓
b)	Will the proposed construction activities cause nuisance to workers and residents of the area	✓	
c)	Will the proposed project create job opportunities	✓	
d)	Will the proposed project cause removal of vegetation/ deforestation		✓
e)	Do you welcome the proposed project	✓	

2.In your opinion is the proposed project location Ideal
.....
.....
.....
.....

3.If you anticipate negative impacts list them
.....
.....
.....

4.Any other information you would like to give
.....
.....
.....

Respondent Details:
Name: ..... Tinton Kobo .....
Id number: ..... 20917229 .....
Date: ..... 22/09/2022 .....
Signature: .....

PUBILC PARTICIPATION QUESTIONAIRES

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c)	Will the proposed project create job opportunities	✓	✓
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4.Any other information you would like to give
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Respondent Details: Dewidi Chelogoi
Name: .....
Id number: 7157601
Date: 2/9/2022
Signature: .....

MINUTES OF PUBLIC PARTICIPATION/BARAZA ON ENVIRONMENTAL IMPACT ASSESSSMENT FOR THE PROPOSED SUGAR MILLING PLANT FOR TIRYO SUGAR MILLS LIMITED HELD AT KIMWANI SECONDARY SCHOOL WITHIN CHEMELIL LOCATION FROM 10.00 AM To 1.00PM ON WEDNESDAY 22ND DECEMBER 2021

Introduction

The consultation meeting brought together participants from different groups within Chemelil, Chepsangwor, Songhor, Sitet, Kimwani, Kiptegaa and Matema Location and Sub location and with an aim of informing them of the objectives of the proposed Tiryo Sugar Milling Plant and to seek views regarding the same.

Members Present

(Attached in the attendance list below)

AGENDA

Introduction

Presentation

Question, answer and Clarification Session

AoB

MIN 1: INTRODUCTION

The meeting started at 10:32 AM with a prayer by one of the members. The meeting was chaired by the area chief Mr. Sammy Maiyo who then gave opening remarks where he thanked the neighbours for turning up in good number to attend the meeting; he introduced the objective of the meeting as a public participation on Comprehensive Project Report for the proposed Tiryo Sugar Mills.

The Chief then invited the all the attendees to introduce themselves after which he invited the first presentation on Environmental Impact Assessment for Naomy Aaron from Mugun Holdings Limited who were engaged by Tiryo Sugar Mills Limited to undertake the Comprehensive Project Report for the proposed Project.

MIN 2: PRESENTATION

The developer/client explained the project objectives, scope and location into details was done by the clients' representative Mr. Erick Odida. A brief project history was given, Tiryo sugar mills will be unique in the sense that they will own their own sugar cane farms and outsource from out growers within the area and it will mill its own sugar and produce other by products.

Benefits from the proposed project

Miss. Naomy Introduced the objective of the meeting as public participation towards the establishment of a Sugar Mill by Tiryo Sugar Mills Limited, as the opportunity to inform the public of intention to establish the Sugar Mill and the potential Environmental and social impacts (both positive and negative) of the proposed Sugar Mills project so as to have their views, concerns and opinions of the development and the entire project cycle.

An EIA is conducted for such a project as required by Environmental Management and Co-ordination Act, (EMCA 1999 amended 2015) and therefore it is a requirement by law. In his presentation, he highlighted the following issues concerning the proposed quarry and proposed mitigation measures;

The participants were later explained the socio-economic and environmental benefits of the proposed project as outlined below

Local farmers will be outsourced to grow the sugarcane crop and offered farming incentives such as fertilizers, harvesting machinery and later sell directly to Tiryo Sugar Mills Limted who will later deduct their production cost and share the profits with the farmer.

The investment will promote the livelihood status of the people of Nandi County hence will promote the three pillars of vision 2030.

There will be direct and indirect employment of people living within the area

It will contribute to the GDP of Kenya

The community will benefit from CSR activities such as clean drinking water, power generation, improved sanitation, housing, schools and health centers among others.

The negative impacts identified:

Minimal Clearing of vegetation

Noise pollution-Vehicles and machines

Air pollution-movement of trucks and vehicles in and out of the site during construction and delivery of sugarcane

Soil erosion which may cause water pollution

Mitigation Measures proposed:

Minimize clearing of vegetation and replanting of trees.

Consider constant machine servicing to reduce quantity of noise produced by machines

Ensure that all the soil excavated is used to refill the dug areas and plant trees

Create and health safety awareness campaigns within the neighborhood and staff

Increase economic opportunities for the locals

Implementation of existing laws and statutes on air, water pollution and soil erosion prevention

Adequate sensitization of locals on societal morals

Deliberate engagement and participation of the various community stakeholders in decision making processes

Occupational Health Risks

Accidents and occupational risks should be borne in mind of the Operations manager during the operations and proper measures should be in place to prevent them.

Mitigation measures presented;

Provide workers with PPE/C

Ensure that all machines and equipment are well serviced and maintained to avoid accidents and injuries

Restrict access to AC site from the general public and unauthorized people.

Provide fully equipped first Aid kit at the quarry and operation sites with at least two staffs trained on first aid.

Permits to work for workers in risky operations

MIN 3: QUESTIONS, ANSWERS AND CLARIFICATION SESSION

Mr. Isaac Biwott was worried about how the project proponent will assure safety of workers and community throughout the project period and the area chief assured the meeting that he will follow up and ensure health safety measures are adequately placed by the company.

Mr. Kiplagat and Mr. Kogo requested the company to drill of a borehole and electricity to benefit the community as a corporate social responsibility. The representatives of the company promised to communicate the same information to the company for confirmation by the responsible/relevant persons in the company.

Mr.Rotich-The project should be implemented with care for the environment and safety of the neighbours. He assured his support for the project just like the other participants had supported the project.

The area chief Mr. Maiyo informed the company that they should find a way of assisting the community by considering them for employment at the sugar Mill site and asked for sensitization to the members of the public to refrain from any vices and bad manners that may affect the health of the members of the community. The chief also touched matter relating to education and development matters within the location and urged the locals to support the project programs towards improving the livelihoods of the locals.

A community member was concerned as to why the project was taking too long to commence but was assured by the chief and Mr Odida the company representative that it will soon commence.

In conclusion, the participants showed their support towards the project and welcomed the project. They however insisted that the available jobs should be given to the locals as a priority. Also issue of security and theft to be looked into.

MIN 4: AOB

Since there was no other business the meeting adjourned at 12:50 pm with a word of prayer from Mrs Ivy Rono.

We the undersigned confirm that the information provided is a true and fair reflection of the proceeding of the meeting held on 22nd December 2022.

Mr Sammy Maiyo Signed Date

(Meeting Chairperson)

Area Chief _____

_____

Naomy Aaron

EIA-EA Expert _____

_____

----------*ENDS*----------

MINUTES OF SECOND PUBLIC CONSULTATION AND PARTICIPATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSSMENT FOR THE PROPOSED SUGAR MILLING PLANT FOR TIRYO SUGAR MILLS LIMITED HELD AT KIMWANI SECONDARY SCHOOL WITHIN CHEMELIL LOCATION FROM 12:30 PM To 2:30 PM ON FRIDAY 23RD SEPTEMBER 2022

Introduction

The consultation meeting brought together participants from different groups within Chemelil, Chepsangwor, Songhor, Sitet, Kimwani, Kiptegaa and Matema Location and Sub location and with an aim of informing them of the objectives of the proposed Tiryo Sugar Milling Plant and to seek views regarding the same.

Members Present

(Attached in the attendance list below)

AGENDA

2.1 Introduction
2.2 Presentation
2.3 Question, answer and Clarification Session
2.4 AoB

MIN 2.1: INTRODUCTION

At 12: 30, the area chief Mr. Sammy Maiyo called the meeting to order and invited a member of the baraza to open with a word of prayer. The chief went ahead and gave opening remarks thanking the neighbors and invited stakeholders for attendance. He introduced the objective of the meeting as public participation for the proposed Tiryo Sugar Mills. The chief invited the developer so as to introduce the project to the baraza.

MIN 2.2: PRESENTATION

The developer/client explained the project objectives, scope and location into details. A brief project history was given, Tiryo sugar mills will be unique in the sense that they will own their own sugar cane farms and outsource from out growers within the area, and it will mill its own sugar and produce other by products. The developer acknowledged that a prior baraza had taken place and welcomed the lead expert Miss Naomy Aaron to give details as to why a second on the same project was taking place, to give its importance and discuss the impacts of the project to the community and the environment.

Benefits from the proposed project

Miss. Naomy informed the baraza that a similar meeting had taken place but because of the magnitude of the project, it had been upgraded into an Environmental and Social Impact Assessment Study and public participation had to be done a new and more stakeholders had to be invited so as to give their views. She introduced the objective of the meeting as public participation towards the establishment of a Sugar Mill by Tiryo Sugar Mills Limited, as the opportunity to inform the public of intention to establish the Sugar Mill and the potential Environmental and social impacts (both positive and negative) of the proposed Sugar Mills project so as to have their views, concerns and opinions of the development and the entire project cycle.

An ESIA is conducted for such a project as required by Environmental Management and Co-ordination Act, (EMCA 1999 amended 2015) and therefore it is a requirement by law. In her presentation, she highlighted the following issues concerning the proposed milling plant and proposed mitigation measures.

She explained the socio-economic and environmental benefits of the proposed project as outlined below:

i. Local farmers will be outsourced to grow the sugarcane crop and offered farming incentives such as fertilizers, harvesting machinery and later sell directly to Tiryo Sugar Mills Limited who will later deduct their production cost and share the profits with the farmer.
ii. The investment will promote the livelihood status of the people of Nandi County hence will promote the three pillars of vision 2030.
iii. There will be direct and indirect employment of people living within the area
iv. It will contribute to the GDP of Kenya
v. The community will benefit from CSR activities such as clean drinking water, power generation, improved sanitation, housing, schools and health centers among others.

The negative impacts identified:

- Minimal Clearing of vegetation
- Noise pollution-Vehicles and machines
- Air pollution-movement of trucks and vehicles in and out of the site during construction and delivery of sugarcane
- Soil erosion which may cause water pollution

Mitigation Measures proposed:

- Minimize clearing of vegetation and replanting of trees.
- Consider constant machine servicing to reduce quantity of noise produced by machines
- Ensure that all the soil excavated is used to refill the dug areas and plant trees
- Create and health safety awareness campaigns within the neighborhood and staff
- Increase economic opportunities for the locals
- Implementation of existing laws and statutes on air, water pollution and soil erosion prevention
- Adequate sensitization of locals on societal morals
- Deliberate engagement and participation of the various community stakeholders in decision making processes

Occupational Health Risks

The lead expert, Miss Naomy, informed the baraza that accidents and occupational risks are anticipated throughout the project cycle, but the contractors, proponent and plant operations manager should put in place appropriate measures to prevent and reduce these risks.

She presented the following mitigation measures in this regard:

i) Provide workers with PPE/C
ii) Ensure that all machines and equipment are well serviced and maintained to avoid accidents and injuries
iii) Restrict access to the proposed site from the public and unauthorized people.
iv) Provide fully equipped first Aid kit at the milling plant and ensure staff from various departments are trained on first aid.
v) Permits to work for workers in risky operations

MIN 2.3: QUESTIONS, ANSWERS AND CLARIFICATION SESSION

The chief said that they the farmers near the proposed milling plant had no contract with other milling companies nearby and that they were ready and willing to enter a contract with the proposed Tiryo Sugar Mills.

Furthermore, Pius Kirwa, a farmer, said the that the proposed mill will increase business activities in the area and that land value in the area will increase. Also, he said there will be increased money circulation in the area.

In conclusion, the participants showed their continued support towards the project and said that the project implementation process should be hastened.

MIN 2.4: AOB

Since there was no other business, the chief adjourned the meeting at 2:30 pm.

The meeting was called to an end with a word of prayer from one of the members.

We the undersigned confirm that the information provided is a true and fair reflection of the proceeding of the meeting held on 23rd September 2022.

1. **Mr. Sammy Maiyo** **Signed** **Date**
   (Meeting Chairperson)
   Area Chief _____ _____

2. **Naomy Aaron**
   EIA-EA Expert _____ _____