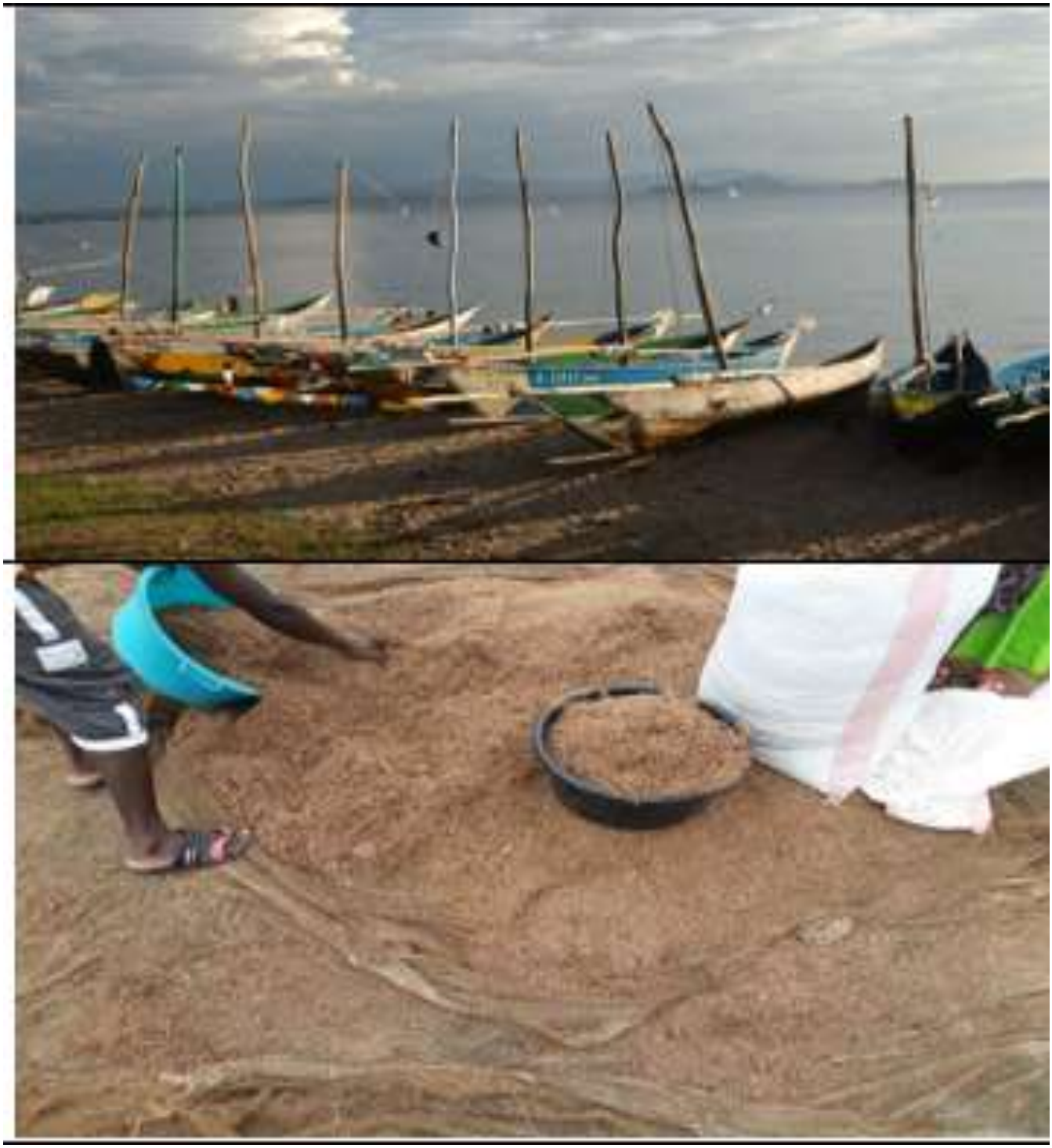
ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT(COMPREHENSIVE PROJECT REPORT) FOR THE PROPOSED KAMARIGA OMENA DRYING FACILITY, WEST UYOMA WARD OF RARIEDA SUBCOUNTY, SIAYA



CPC- KENYA CLIMATE SMART AGRICULTURE PROJECT, SIAYA COUNTY, P.O. BOX 4-40600, SIAYA

APRIL 12, 2021

Certification

This is to certify that the Lead Expert hereunder as per the requirements of the National Environment Management and Coordination Act, 1999, carried this Environmental and Social Impact Assessment.

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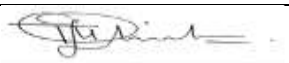
Dr. Volenzo Tom Elijah	**7332**	**+254724222154**	

Proponent

I, the undersigned, certify that all kinds of information provided for the purpose of this Environmental Impact Assessment project report, without any prejudice, is true to the best of my Knowledge

Willis Atiang

Project Coordinator,

KSCAP, Siaya County

Date and Seal: April 12. 2021

TABLE OF CONTENTS

List of Tables

List of plates/ photos

List of Acronyms

AEZ	Agro- Ecological Zone
AIDS	Acquired Immune Deficiency Syndrome
BMU	Beach Management Unit
CBO	Community Based Organization
C- ESMP	Contract specific Environment and Social Management Plan
CESSCO	County Environment and social Officer
CIDP	County Integrated Development Plan
CITES	Convention on International Trade in Endangered Species
COVID 19	Corona Virus disease
CPP	Consultation and Public Participation
CPU	County Project Coordination Unit
CSA	Climate-Smart Agriculture
EA	Environmental Audit
EHS	Environmental Health and Safety
EIA	Environmental Impact Assessment
EMCA	Environmental Management and Co-ordination Act
EMP	Environmental Management Plan
EMS	Environmental Management System
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social safeguards
ERP	Emergence Response Plan
GBV	Gender Based Violence
GDP	Gross Domestic Product
GHGs	Greenhouse gases
G.o.K	Government of Kenya
HACCP	Hazard Analysis Critical Control Point
GPS	Geographical Positioning System
HIV	Human Immunodeficiency Virus
ILO	International Labour Organization
KCSAP	Kenya Climate Smart Agriculture Project
KBS	Kenya Bureau of Standards
KFS	Kenya Forest Service
KWS	Kenya Wildlife Service
LM	Lower Middle Zone
Mg/L	Milligrams per Litre
MOU	Memorandum of Understanding
NEMA	National Environment Management Authority
NGOs	Non-Governmental Organizations
NLC	National Land Commission
NOX	Nitrogen Oxides
OSHA	Occupational Safety and Health Act
PAPs	Project Affected Persons
PCB	Polychlorinated biphenyls
PCR	Physical Cultural Resources
PPE	Personal Protective Equipment
RAP	Relocation Action Plan
SEA	Sexual exploitation and Abuse
SH	Sexual Harassment
SOP	Standard Operating Procedure
TIMPs	Technology, Innovation and Management Practices

W.H.O	World Health Organization
WRA	Water Resources Authority

Executive Summary

Kenya is predominantly an agro based economy where small-scale farmers dominate with about 75% of the populations' livelihoods directly linked to agriculture. Agriculture is thus key to the overall national development, equity objectives and sustainable growth. Intuitively, weather-related disasters, particularly droughts, present a major challenge to the predominant rain fed agricultural production system with profound adverse impact on the economy. The adverse effects negatively affect foreign exchange earnings, food security and nutrition, employment and rural livelihoods. Adaptation to extreme weather impacts is thus a priority under Kenya's National Adaptation Programme Action plans (NAPAs (2018-2030) and updated National Determined Contributions . Among other objectives, NAPAs envisages improved crop productivity through irrigation. Building farmer resilience to climate change risks is the main objective under the Agricultural Sector Transformation and Growth Strategy, which in agriculture operationalize the Kenya's climate change Act.

The Kenya Climate Smart Agriculture Project (KCSAP) under the Support of World Bank (WB) intends to increase agricultural productivity and build resilience to climate change risks in the targeted smallholder farming and pastoral communities in Kenya, and in the event of an eligible crisis or emergency, to provide immediate and effective response. The Project activities will contribute to these objectives by up-scaling Climate-Smart Agriculture (CSA) Practices and supporting smallholder farmers to adopt integrated climate-smart Technology, Innovation and Management Practices (TIMPs) and also support investments through a community driven development approach in smallholder agro-pastoral production systems as well as extensive pastoral production systems in the selected 24 counties of Kenya. It's against this backdrop that the County government of Siaya, one of the recipient counties is seeking to undertake Environmental and Social Impact Assessment for sub-projects which fall under the second Schedule of Environment Management Act (EMCA).

The proposed project is categorized as a Low-Risk Project under the Legal Notice No. 31, Legislative Supplement No. 16 published in the Kenya Gazette Supplement No. 62 on 30th April 2019 i.e. Amendment of the Second Schedule which lists the projects to undergo EIA [Section 58 (1) of EMCA, 1999 (Cap. 387) Revised 2015]. The proposed project falls under the category described as 'Medium scale processing and manufacturing industries including-fish processing plants' [Sub-section 1 (c) of this Legal Notice] as it focusses on construction of Omena drying facility . The proposed project on the basis of its potential to pose both environmental and social impacts requires undertaking of an ESIA before it is implemented in accordance to Section 31 (3) (a) (i) and (ii), of the Environmental (Impact Assessment and Audit) Regulations, 2003. The main purpose of the Comprehensive Project Report is to assist the Proponent, NEMA and all other stakeholders in understanding the proposed project and its potential environmental consequences and thus provide a basis for making informed decisions on the project.

. The objective for this is to integrate environmental and social concerns in the project planning and implementation processes. This ESIA has considered all the relevant legal, policy and institutional framework, key among them; the World Bank Environment and Social Safeguards Policies, the existing environmental regulatory framework EMCA Cap 387 and the Environmental (Impact Assessment and Audit) Regulations of June 2003, Occupational Health and Safety Act (2007), the Physical planning Act, County Government Act, wastes disposal regulation of 2006, environmental standards, and sustainable use of natural resources principles. Other relevant legislations to this ESIA that were considered include the public health, physical planning, land planning Acts and gender promotion, HIV/AIDS prevention and control Act, and sexual offences Act.

On methodology, a screening exercise was done to ascertain whether, the project warrants an ESIA and it was found to be necessary. A general public meeting (baraza) was held on 4th of March 2020 and 62 persons attended. This was followed by focused group discussions with 32 persons. Key Informant Interviews were conducted for a total of 10 persons (lead agencies) from the following institutions , Kenya Wildlife Service (KWS), Kenya Forest Service (KFS), County Environment Officers, Department of Agriculture, National Museums of Kenya (NMS), Governor office/ Ward office, WRA (Water Resources Authority), Water Department, Fisheries Department, Chief- Kagwa location The proposed project is basically involves setting up a new drying facility and auxiliary equipment such as the compressor.
The project will cost KES 41,820,000 funds requested from KCSAP was KES 37,320,000, while community contribution is KES Ksh 4,500,000

Though the analysis from the assessment reveals positive livelihood and environmental impacts, a number of social risks such as sexual exploitation of women are likely. Minor environmental impacts such as solid waste, public health and safety, emissions to air and increased energy and water consumption are also anticipated. The proponent who is Kamariga Omena vendors/ fishers on behalf of Kamariga Beach Management Unit (BMU), as agreed during the public participation is expected to review and incorporate agreed changes in the procurement plan, as well coordinate and oversee the implementation of the outlined mitigation actions/ measures

The main issues and concerns discussed during public consultation and meetings relate to Gender based violence (GBV), sexual exploitation, lake shore erosion, employment of the locals by the contractor and design issues such as effluent control. These issues were discussed by various stakeholders including the project engineer who was tasked with the revision of the bill of quantities to incorporate the need for lake shore protection.

The following negative impacts are likely to occur during various stages the proposed Omena drying facility project implementation are : loss of vegetation, increased surface runoff soil erosion. noise levels, air pollution, dust generation and solid wastes are likely to increase. Social impacts such as gender based violence and child labor, HIV/AIDs prevalence is likely to increase. High risks of contracting the dreaded Covid 19 virus., contamination from pesticides, increased use of energy, risks of accidents and fire outbreaks Some of the proposed mitigation measures to the impacts are; undertaking landscaping and planting grass and indigenous trees where there is destruction of vegetation, use of less vibrating machines to reduce the noise levels and encourage workers to wear ear masks, to control noise pollution. Dust arresters must be placed all over to and face masks be provided to the workers in the factory. On Occupational Health and Safety the proponent shall provide personal protective equipment's such as suitable gloves, footwear, and googles and head coverings. The proponent shall provide solid waste collection facilities and sensitization of construction workers on proper disposal of solid wastes. Temporary latrines will be provided on site to be used by construction workers Oils and greases emanating from repair and maintenance activities will be collected in containers to avoid entry into local drainage channels. On Covid 19 the proponent shall ensure adherence to health guidelines provided like wearing of face masks, social distance, hand washing, use of sanitizers. The proponent shall put in place solar panels to provide energy to run the entire facility. Fire extinguishers shall be put in all areas that have a potential for fire to erupt accidentally. The CPCU, BMU and the contractor will in coordination with the local leadership undertake community awareness on GBV and sexual exploitation and put in place grievance redress mechanisms(GRM) for tracking and resolving any emerging issues during the project implementation. The proponent shall ensure that labour laws are strictly followed to avoid issues of Child labour and policies on gender mainstreaming and HIV/AIDs will be adhered strictly followed

The review of this ESIA is undertaken during the era of the Corona virus disease 2019 (COVID-19) pandemic outbreak. As such, specific mitigation measures have been introduced to prevent the spread of the pandemic during the construction period. Moreover, consultations are required to adhere to all COVID-19 the mitigation measures, such as during training on E&S issues, to reduce risk of infection to communities. Such measures include adherence to Ministry of Health Standard operation procedures (SOPs) on social distancing, open air congregation, and use of masks, hand washing and limiting the number of participants per activity.

Based on the assessment, therefore the subproject is recommended for approval by the National Environment Management Authority (NEMA). The conditional license will be tracked through regular monitoring on the implementation of the ESMP, and undertaking of annual environmental and social audits after operating for one year. The implementation of ESMP will cost Ksh. 1.221M and shall be part of the project contract. The proponent should share the ESMP with the selected Contractor and the latter will be required to develop and implement a Contractor-Specific ESMP (C-ESMP). The CPCU will follow up and monitor implementation of the ESMP. The CPCU/ CESSCO, contractor, the supervising water engineer, the proponent and the Siaya county environmental committee will be required to ensure that the mitigation measures proposed for the construction, operation and decommissioning phases in the ESMP are followed.

CHAPTER ONE: INTRODUCTION

1.1 Project Background

The overall national development objectives of the Government of Kenya are accelerated economic growth and rising productivity of all sectors, equitable distribution of national income, alleviation of poverty through provision of basic needs, enhanced agricultural production, industrialization, accelerated employment creation and improved rural-urban balance. These objectives are facilitated through a myriad of interventions that are funded through local (central government and devolved system) and international resource mobilisation (bilateral and multilateral as well as grants). The extent to which these objectives can be realized on a sustainable basis and in an environmentally sound manner is dependent on the degree and economic efficiency with which critical factors of production are made available and combined with each other to produce the desired results that do not compromise the wellbeing of future generations.

Small-scale fisheries in developing countries play a vital role in contributing directly to food and nutritional security, poverty reduction, wealth creation, foreign exchange earnings and rural development. Such fisheries form part of the livelihood safety net and basic food security for many poor fisherfolk. Caridina niloticus by virtue of its high protein content is also an important ingredient in the animal feed industry. Omena harvesting is one of fishery activities dominated by youths and women hence an important source of employment and avenue for their participation in the economic development in beaches. According to the information gathered at the beach management unit it was reported that 4 - 6 youths are engaged in every fishing boat on a daily basis and 6 - 8 women are responsible for offloading the fish catch, washing and drying it. Post-harvest losses are however greatest challenge in this sector and such loss translates directly to reduced income and benefit at household level, as well significant reduction of the Omena fish availability to its consumers.

Lake Victoria is the most important source of fish in East Africa and the biggest source of freshwater fish on the African continent, and is critical in the livelihoods of fisherfolk and national development at large. The lake is also important in conservation terms because of its biodiversity. In 2017, Siaya County produced 31,945.4 Metric tons of fish valued at Kes 4.174 B. This was 12% increase in production compared to the previous year 2016 (28,392 Metric tons). Of the 12 food fish species produced from the lake, *omena* and Ochong'aa account for 40%, Nile perch 32% and tilapia 18%. Evidently, Omena and Ochong'aa are leading fish species with Kamariga, Osindo and Misori from West Uyoma beaches of Rarieda Sub County being the main landing sites for the two species.

Fish is an extremely perishable food commodity. It has been estimated that 10 percent by weight of world fish catch is lost by poor handling, processing, storage and distribution. However, losses in small-scale fish processing are said to be particularly high and figures as high as 40 percent are sometimes reported (FAO, 2010). The freshwater omena and or ochon'ga are processed by sun-drying on nets spread by the lake shore. On a sunny and windy day

therefore, the fish takes 2 – 3 days to dry (pers communication with key stakehlders). In cloudy and less windy days, the drying process may not be attained even after one week. Rainy days complicate as it increases the risks of fish being washed away by storm waters, rotting and contamination. High human population at the fish landing sites vis-a viz inadequate sanitary facilities also increases the risk of cross-contamination. The eating of the fish by birds and dogs during the drying occasions heavy reduction in volumes. Rancid oxidation and discoloration of fish also occurs in absence of adequate sunlight. Rancid products are reddish, dirty, and smelly with bitter taste reducing its appeal to customers and is sold for lower prices and or diverted to animal feed industry.

Sun-drying essentially require large open fields which cannot be sustained with the ever increasing human population at fish landing sites and associated settlements. In the absence of the sun and winds, freshly landed omena would rot and processor may at-best end up with dis-coloured products exhibiting off-odours. During such cloudy and rainy days, losses of up to 80% occur. Further, wastes are generated by human activities at the landing sites which compromise the safety of the dried fish product owing to poor hygiene and sanitary facilities at the landing sites. Consequently, omena fish harvested from L. Victoria suffers high post-harvest losses as a result of the rudimentary weather-dependent drying processes. Inadequate hygiene and sanitation facilities at the omena fish landing sites further compound this problem leading to huge physical and nutritional losses. Predation by birds, dogs and insects during drying also accounts for significant losses in volumes.

Post-harvest losses are equated to a loss of both valuable animal protein for consumers and loss of income for fisher folks, processors and traders. Any initiative geared towards reducing such losses contributes to the development goal of the fisheries sector. Considering that L. Victoria produces over 80% of the annual fish production nationally, its contribution to the Gross County Product of Siaya County and the GDP cannot be overstated. This presents an impetus to urgently institute measures that could facilitate transfer of innovative technologies to reduce post-harvest losses of this prime fish commodity. This has potential to contribute to food security as envisaged through enhanced fisherfolk income and food safety.

1.2. Purpose and Nature of the Project

The purpose for the proposed Kamariga Omena Drying Facility is to improve quality and quantity of fish/Omena production and it's by products for improved income, better market access and reduction of post-harvest losses. The Kamariga omena processing units of facility targets all the actors within the omena value chain (fishermen traders, boat owners net menders, transporters and other stakeholders). These are estimated to be about eight thousand two hundred (8,200) and among them about five thousand will be direct beneficiaries considering that 80% of the members of the community consume Omena at least 4 times a week due to its availability and affordability. The indirect beneficiaries include transporters and traders of the processed Omena whose shelf life, perishability and reliability will be enhanced.

1.4. Methodology

The methodologies used included a screening exercise to identify pertinent issues for coverage in line with the TOR and to complement the World Bank EMSF screening checklist findings

(Appendix I). The ESIA process included: Collecting information, evaluating the information and compiling the findings for use in project planning, implementation, decommissioning, Monitoring and evaluation. Primary data collection was done through; a general public meeting (baraza) held on 4th of March 2020 and 62 persons attended. This was followed by focused group discussions with 32 persons.

Key Informant Interviews were conducted for a total of 10 persons (lead agencies) and administered questionnaires (Sample provided in Appendix VIII), holding 4 separate focus group discussions (Youth, Women, Men and community leadership), (Appendix X) and two communities public barazas of (Appendix VI and IX). List of participants is attached Appendix VII. A total of 35 questionnaires were administered with a response rate of 98%. Secondary data sources was also undertaken through a review of various Key documents. Details in regard to each methodology is as described below; site visits were done in areas where major operations and work would take place during construction and operation of the project. The findings from all the data sources has been used to inform this study.

1.4.1. Environmental Screening and Scoping

This step was applied to determine whether an ESIA was required and what level of assessment was necessary. This was done in reference to requirements of the EMCA, 1999, and specifically the second schedule and World Bank Safeguard policies. Issues considered included the physical location, sensitive issues and nature of anticipated impacts. 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 whose analysis as given in Appendix I.

1.4.2. Desktop Study

This included review of existing documents in regard and review of proposed activities, project documents, designs policy and legislative framework (specified in section 1.4.1 above), as well as the environmental setting of the area among others. This was complemented with discussions with managers and design engineers and interviews with community.

1.4.3. Site Assessment

Field visits were carried out for physical observations of vegetation, water resources, physiography, geology and soil. At the visited sites, documentation on geology, soil characteristics and landscape were recorded. Photographs at selected sites were taken for inclusion in this report to further emphasis these observations. Field visits meant for physical inspections of the site characteristics and the environmental status of the surrounding areas to determine the anticipated impacts were conducted. It also included further interviews with the community and key stakeholders.

1.4.4. Public Consultation

The ESIA experts, in consultation with KSCAP, Siaya sought the views of persons who may be affected by the proposed project. The public consultations were preceded by the identification of stakeholders and project affected persons (PAPs- appendix VI- IX and XII) and plates 10-14. Public meetings were undertaken at the proposed site and the project area (Appendix on public baraza attendance- appendix VII-VIII). The general public baraza was attended by 62 persons while FDGs was attended by 32 persons. The record of minutes is provided in Appendix (VI, VIII and IX). Evidence of attendance (photos) on 20.01.2020, 4.03.2020 and 3.06.2020 is provided in Appendix plate (11-13 and 15-16)

1.4.5 Key Stakeholder Consultation

KII were carried out with the objective of improving the understanding of the procedures and key concerns in the ESIA process in general. The KII schedule is provided in Appendix (X). A total of government 10 officers (lead agencies) were interviewed on specific issues of concern to the project implementation (administrative, legislative, policy instruments). The following were consulted

- ✓ Kenya Wildlife Service (KWS)
- ✓ Kenya Forest Service (KFS)
- ✓ County Environment Officers
- ✓ Department of Agriculture
- ✓ National Museums of Kenya (NMS)
- ✓ Governor office/ Ward office
- ✓ WRA (Water Resources Authority)
- ✓ Water Department
- ✓ Fisheries Department
- ✓ Chief- Kagwa location

1.4. 6. Questionnaires

The aim of administering questionnaires was to capture community perception on the project's benefits, potential problems and possible solutions and whether they felt the project should be implemented or not. 98 % of the questionnaires were returned (sample in appendix VIII), all in support of the sub project.

1.5. Data Analysis

The ESIA expert used past experience and knowledge, scenario building, community input and expert opinion to analyse the data from the desk studies and field visits in order to determine the potential impacts of the proposed project, the severity of effects arising from these impacts and how any adverse impacts can be best mitigated and positive impacts enhanced. This analysis provides the framework for the recommendations on mitigation measures and provides the basis for the formulation of the environmental and social management plan as the actionable output from the ESIA process. The data was considered in terms of occupational health and safety with respect to the construction and operational phases of the proposed projects, as well as sustainability concerns such as global environmental protocols and impacts. In analysis of Environmental and social impacts the following were considered (provided in the checklist on appendix II)

- ✓ The current land use and impact of proposed project
- ✓ General land use of the adjacent sites
- ✓ Sensitive area and habitats or critical habitat
- ✓ Threatened plant and animal species
- ✓ Effects on Ambient/Natural Environment
- ✓ Drainage systems and storm water flow (including pollution indicators, impacts on water flow patterns and quality aspects, user interference and contamination)
- ✓ Topography- especially landscape and soil erosion
- ✓ Water quality aspects
- ✓ Soil conditions and potential contamination, landscape/aesthetics degradation
- ✓ Drainage patterns in relation to waste water/effluents, oil spillages
- ✓ Air quality in relation to atmospheric emissions and vehicles/machinery
- ✓ Noise and vibration
- ✓ Social issues
- ✓ project alternatives considerations such as scheduling, location, demand, technology, inputs and process alternatives

1.7. Organization of the ESIA Report

The report is organized into nine substantive chapters. Following this introductory chapter, Chapter 2 discusses the Project activities. Chapter 3 gives the environmental and social baseline, chapter 4 discusses the Policy, Legal, Institutional and Administrative Framework. Chapter 5 analyses public participation and its outcomes. Chapter 6 identifies and discusses the Potential environmental and social impacts. Chapter 7 discusses the project alternatives while chapter 8 provides the ESMP and ESMP monitoring plan. Chapter 9 provides the conclusions

and recommendation. This is followed by some of the literature sources consulted (References) and Annexes.

CHAPTER TWO

2.0. NATURE OF PROPOSED PROJECT AND PROPOSED ACTIVITIES

2.1. Location and Scale of Project

Kamariga Village, West Uyoma ward, Rarieda Sub County. Kamariga beach is a gazzeted beach along Lake Victoria under provisions of Fisheries Act. The proposed project site lies within Latitude 0º 14´11.5 S and to 34º 14'58.4''E, long. The project site is on land (0.14Ha) registered under Kamariga Beach Management Unit: UYOMA/KAGWA/1900 (Appendix V).

PLATE 1: LOCATION OF KAMARIGA OMENA DRYING FACILITY

It is approached from Makasembo secondary School through an all-weather road approximately 1.3 km off the tarmac. The site is approximately 300m before the current Kamariga BMU offices. Kamariga beach is centrally placed amongst the giant Omena producing beaches of Uyoma and Sakwa WardsThe major land use in the area is fisheries, settlement and Agriculture. The proposed site borders Lake Victoria to the west, market and settlement as well as farmlands on the Eastern side. The beach has a population of more than 1500 people that directly depend on the Lake Victoria Kenya waters through fishing activities. The proposed processing facility has the capacity to process 10 Tons of fish products. The proponent is Kamariga Beach Management Unit (BMU), one of the 85 beaches in Siaya County. The BMU is duly registered under Fisheries and Management Act 35 of 2016 with an office on the shores of the lake.

2.1.1: Project Construction works

The project consists of construction of a receiving and drying area as well as installation of one drier and compressor. The project will involve:

- ✓ Construction of drier facility
  - Earth works: excavations, cut and fill
  - Installation of 3 phase transformer and connection to the mains
  - Electrical wiring
  - Installation of a drier and associated electrical wiring
  - Installation of a compressor
- ✓ Electrical and civil works including sewer and waste water reticulation

2.1.2 Construction Activities

The scope of the technical works for the Proposed development ranges from excavation and earth moving, compacting and filling, reinforcement, superstructure works, carpentry, masonry, plastering, electrical works and painting. The one building whose dimensions are 15 X 12 M (Appendix IV) will be portioned into various rooms to include; Machine room, Store, Receiving room, Dispatch area, Office and Board room. The constructions works will also include 2 toilets and effluent soak pit .The project inputs will include the following;-

Raw materials

Construction raw materials includes sand, cement, stones, crushed rock such as gravel/ballast, ceramic, steel metals, roofing materials including tiles, painting materials, among others. All these will be obtained. During operation phase Omena and Ochon'ga will be the main inputs which will require energy sources and water.

Machinery and Equipment

Trucks, concrete mixers tools and other relevant construction equipment will be utilized for the removal of debris, transportation of materials, and resulting construction debris. Most of the machinery will use petroleum products to provide energy. The drier and compressor are the main machinery and equipment to be installed and which shall generate noise and vibration during operational phase.

Labour

The labour force, most of which is local will be both skilled and non-skilled workers and will require services such as energy, water supply and sanitation facilities. The contractor wills as much as possible hire local labour as provided for in the ESMP and as part of conflict minimization effort.

Water

Water is used extensively in fish processing, for fish cleaning, to flush dirt from equipment and floors, and flume the dirt to floor drains and collection sumps. This may require installation of automatic water shut-off equipment The first step in reducing water consumption is to analyse water use patterns carefully, by installing water meters and regularly recording water consumption. Water consumption data should be collected during production hours, especially during periods of cleaning. Some data should also be collected outside normal working hours to identify leaks and other areas of unnecessary wastage. Automatic control of water use is preferable to relying on operators to manually turn water off. Installing automatic shut-off equipment, such as sensors, solenoid valves, timers and thermostats, could prevent wasteful practices. The proponent will also consider water reuse with approval of a food safety officer e.g. slightly contaminated waste waters may be recycled for use in the cleaning of the premises

without compromising product quality and hygiene. The piping for the recycled water will be marked to avoid confusion with fresh water lines.

Power (Energy)

The electric power required for Omena processing will be accessed through connectivity to the Kenya Power Limited power line that is 150 m from the proposed site. Significant reductions in energy consumption will be achieved through use of energy-efficient equipment and heat recovery systems. Use of solar energy will also be used in the drying facility

Waste management

The volume of generated effluent is an important issue in fish processing. The amount of effluent is linked closely to water consumption; therefore efforts to reduce water consumption will also result in reduced effluent generation. There will be need construct designated waste disposal receptacle in site. Domestic solid waste to be stored in refuse bins temporarily before being taken away for proper disposal by NEMA licensed waste management firms. Excavated soil shall be disposed at a minimum distance of 20 meters from the project site The BMU and project management committee will ensure there recycling of recyclable wastes such as paper, metals, and plastics by engaging firms that undertake recycling of wastes.

The Project Management unit will construct ablution block, septic tanks and appropriate drainage systems for disposal of solid and liquid wastes. The Waste disposal sites must be fenced off and always be kept clean and clear at all times to avoid breeding of flies and parasites

PLATE 2: SURFACE RUNOFF SOIL TYPES AND SANITATION CHALLENGES IN THE PROPOSED SITE

Maintenance of operations

In a fish processing, plant work areas and equipment that are in contact with fish must be cleaned and sanitised regularly to maintain hygienic conditions. Cleaning requirements are normally stipulated by public health regulations. All production areas and equipment are cleaned daily, and the floors and machinery are also rinsed during production. A common cleaning routine at fish processing plants is to first hose down equipment and floors roughly, to enhance the effect of detergents. Detergents and sanitising agents are then applied, followed by washing and scrubbing. The detergents used are normally alkaline. There is a final rinse with clean water to remove all detergent and sanitising agents, detergents and disinfectants. The water consumption for cleaning can be very high accounting for 25–40% of the total water used at a fish processing plant. The organic load contained in cleaning wastewater could thus be high. In addition, hazardous substances such as sodium hydroxide and sodium hypochlorite are sometimes used in conjunction with cleaning.

2.1. 3 Methods of drying

Drying of the Omena will done using indirect steam drying, the product will be fed continuously into a rotary apparatus containing steam-heated elements (tubes, discs, coils etc.). A counter-current stream of air will be blown through the dryer to remove water vapour. Indirect steam drying is less energy efficient than direct-fired drying. Odourous gases released from the drying process, along with those from other parts of the process, are often released from the process. Specifications of the drying macine is indicated in Table 1 below:

TABLE 1: OMENA DRYING MACHINE SPECIFICATIONS

S/NO	Item	Use/Description	Specifications	Accessories
	Receiving Table	Physical sorting of received product before weighing on reception and changing into trays	Material: Stainless Steel 304-Food Grade Overall Length: 48" x 30" wide	With 1 drain and 2 standard sinks each
	Platform Weighing Scale	Weighing the Received Product Before Drying and After Drying for Storage and or Dispatch	Platform size: 1200 x1200 mm Function: Power On, Off, Tare, Funk {4} Power Supply: Mains / Battery Power: 6V / 4AH Capacity: 2,000kg Voltage: 6V	Battery charger Battery
	Portable Bag Stitcher	Closing Chute Bags on Packaging Dried Omena	Maximum sewing speed: 1600 to 1800 Stitches per Minute Type of stitch: Single Thread Chain Stitch Voltage: 220 V Dimensions: 30cm W x 33cm D x 30cm H	With Oil Lubrication System
	Automatic Omena Cleaner Grader	Washing and sorting the Omena before drying Size roller sorting machine Consists of 3 parts i.e. 1st stage conveying, 2nd stage conveying and grading drum set with 2 thick and thin rollers	Power Source: Electric Power: 2.25 Kw, SS Pure Water Pump 1.1 Kw with Japan Mitsubishi inverter Capacity: 800 kg per hour Voltage: 220 V	Distribution Cabinet: Microcomputer Control, SS Cabinet. Conveyor Belt Material: High

			Water supply part: SS fittings on the cover, SS pump and PPR fittings Dimensions: Fuselage Frame Diameter 114 X 2.5mm 304 SS Pipe, Lifting Groove 1.5mm 304 SS Plate, Grading Cylinder Diameter 125 X 130mm Sliding Plastic Steel Drum, Conveyor Size 1746mm Wide Plastic Mesh Belt, Baffle Height 10mm, 2 Stage Hoist Conveyor Belt Material: High Strength Polyvinyl Chloride Plastic Belt Warranty: 1year Guarantee Rotating Part: SS Bearing 205, Shaft Drive	Strength Polyvinyl Chloride Plastic Belt
	Fifo Batch Omena Dryer	Application: Drying Omena	Heating Temperature: 40 ^{0}C to 300 ^{0}C Material: Stainless Steel 304 Power Source: Electric Power for Electric Heat: 60Kw Capacity: 500kg Per Batch Voltage: 220V Trays Quantity: 192 Pieces Trolley Quantity: 8 Dimensions: 4280 X 2200 X 2270 mm	Drying Trays and Trolleys Automatic Temperature Control System Forced Ventilation Adjustable Air Distribution Plates

			304 SS Drying Trays: LXWXH: 640 X 460 X 45 Mm, Thickness: 0.5mm Drying Trolleys: 24 Trays	Noise Elimination Thermal Stable Axial Flow Fan
	Water Treatment Unit	Application: Effluent handling	Conventional Tanks: 2 High Pressure Pumps: 2 2 Pressure gauges and 4 valves 1 Flow meter PPR Piping and joints Power: 2 KW	

2.1.3 Sanitary facilities

Toilet facilities will be provided during construction and operation phases. The toilets will adhere to the following recommendations:

- ✓ Toilet rooms must not have direct access from the processing area. An anteroom or a 90-degree turn into the toilet room is satisfactory.
- ✓ Toilet rooms shall be equipped with self-closing doors
- ✓ There will be separate toilets for male and females.
- ✓ b) A floor drain should be provided in each toilet room.
- ✓ Toilet rooms must be finished with durable and impervious materials and equipped with soap and towel dispensers.

2. 1. 4 Storage

A dry storage area is mandatory for fish products. Where applicable, separate dry storage facilities will be identified for: i) Clean-up chemicals and materials; ii) Food additives; iii) Packing materials; and iv) Equipment not in use. All window ledges in the storage area will be sloped inward to prevent ponding of water. Packaging materials used in direct contact with fish shall be of a food-grade contact packaging material. These materials must be stored in a clean, dry area. Plate (3-8) shows the current storage and environmental challenges at the current site.

2.1.5 General Approach to Site Management

- Concrete floors should be used in processing areas with a minimum floor slope of 2.5 cm (1 in) per 2.4 m (8 ft) is. Outside concrete pads (sloped to a drain) are required for all receiving, landing and storage areas
- Drains should be of a trough design. The trough drain should be a minimum of 15 cm (6 in) in width and depth, with a minimum slope of 2.5 cm (1 in) per 1.8 m (6 ft). The distance from the drain to any wall should not exceed 4.57 m (15 ft)
- The concrete lip of the drain should be equipped with an L-shaped angle iron embedded and anchored into the concrete to protect the concrete when the gratings are being removed during plant clean up
- Drains must be equipped with traps or other devices to preclude the entry of gases or vermin into the building through the drain
- Wastewater should be discharged into to an approved onsite disposal system
- Wall surfaces (floor to ceiling) in processing areas must be durable and impervious to water.
- Plywood and concrete surfaces must be sealed and then coated with a durable enamel or epoxy finish
- Walls must be light coloured and smooth so that dirt can easily be seen and easily removed
- All window ledges must be sloped inward to prevent ponding of water
- Ceiling surfaces must be smooth, impervious and washable with no exposed pipes, joints, or open support beams
- Safety shields should be installed on all light fixtures throughout the processing area to prevent shattered glass from falling into food products.
- Processing equipment must be constructed of approved materials such as stainless steel, aluminium or plastic
- Water must be of potable quality from an approved source (i.e. disinfected/treated water supply
- A dry storage area shall be provided

- All electrical conduits must be laid before plastering
- Drainage channels will be provided leading from run-off generation areas such as car parking areas, along the proposed building
- Sanitary facilities shall be provided to cater for staff during the construction and operation period
- Solid wastes shall be collected in a waste holding station from within the project site and regularly emptied at a designated area on the compound and later released to an appointed waste disposal firm that shall transport it away from the site to designated waste disposal areas in accordance with NEMA and Siaya county regulations on waste collection, handling and disposal.

PLATE 3 :LANDING SITE KAMARIGA

There is need to protect such sites from lake shore erosion, an environmental concern of great significance in the current proposal

CHAPTER THREE

3.0 ENVIRONMENTAL AND SOCIAL BASELINE INFORMATION

3.1 Environmental conditions

The section describes the geomorphological, climate and related features of the physical environment in the project area.

3.1.1. Topography

The project area can be classified as lacustrine plain characterised with peneplain slopes in relatively flat low-lying landscape with hills and minor carps that do not exceed 25%. This reduces the vulnerability to soil erosion. Though erosion hazards are moderate, disturbance of the soils during construction phase can increase soil erosion risks.

PLATE 4: LAKE SHORE EROSION AT LANDING SITES

Show erosion at landing sites. Shore protection will have to be undertaken at the landing site as provided in the ESMP.

3.1.2 Soils

The soils in the catchment site are predominantly humic gleysols and vertic gleysols that are poorly drained, deep to very deep, dark grey in colour with mottled clay and a thick acid humic top soil. The parent material are basic igneous rocks (basalts and nepheline phonolites). These type of soils expand during wet season and crack during dry season. Away from the specific

proposed construction site, silty clay loams very deep soils are common. As such soils favour water retention, deep excavation during construction and special consideration in construction of sanitary facilities as to mitigate faecal contamination of ground water will be required. Due to their poor workability during rainy season, the proponent will endeavour to undertake the construction during relatively dry season so as to mitigate on energy losses and emissions. Plate 5 provides evidence on some of the soils in the area.

3.1.3 Hydrology

The project site can be described as lacustrine plain with slopes of 0-5% in most places and on the shores of Lake Victoria, which drains from the Yala and Nzoia river systems. The site also has good potential of ground water attributed to Nyanzian rock aquifer system; however such potential in the sub project site is constrained by cost factors.

3.1.4 Climate

The county has an inland equatorial climate modified by the effects of altitude, relief and the influence of the large body of water of Lake Victoria, the subproject is located in an agroecological zone classified as marginal cotton zone (LM-4), an indicator of severe water constraints that severally constraints agricultural production. The area has two rain seasons. The long rains are in March to May and short rains in September to December. The mean annual rainfall, subproject area over the last 30 years is 890-1020 mm with 60% of the annual total falling during long rains. The first season rainfall lies between 350-480 mm while the second season is 125-135 mm in most years unreliable. Temperatures ranges from mean minimum temperature of 16.3° C and mean maximum temperature of 29.1° C. Humidity is relatively high with mean evaporation being between 1,800mm to 2,200mm. The relative humidity ranges between 73 % the morning and 52 % in the afternoon. According to the Kenya Soil Survey and Integrated Regional Development plan for the Lake Basin Development Authority, the sub Project area can be categorized as semi-humid, semi-dry Lower Midland zones (LM4).The climate can support suitable crop varieties such as maize, beans, sorghum and cassava and sweet potatoes (Table 2), with butternut and other horticultural crops such as tomatoes having great potential under irrigation. Leucaena, an agroforestry species has the potential in soil fertility management and resilience building for livestock farmers. Column 4 of Table 1 shows the agro-ecological zone of the sub Project area

TABLE 2 AGRO -ECOLOGICAL ZONATION OF SIAYA COUNTY

Zone	Division /Subcounty	Suitable crops
LM1	Gem, Yala	Sugarcane, Maize, beans, finger millet, coffee, sweet potatoes and horticulture
LM2	Alego Usonga	Maize, beans, tobacco, finger millet, coffee, sweet potatoes and rain fed rice
LM3	Sakwa and Asembo	Maize, beans, finger millet, sorghum, cotton
LM4	Uyoma in Rarieda Sub-County and Yimbo in Bondo Sub-County	Sunflower, sorghum, cassava
LM5	Uyoma in Rarieda Sub-County and Yimbo in Bondo Sub-County	Sorghum, Millet

Source: Jaetzold et al. 2007

3.2. Socio-Economic Characteristics

The Project area is inhabited mainly by the Luo, and has a rapid population growth that is putting pressure on environmental resources especially land, water, wildlife and forests. This has led to deforestation, cultivation in ecologically fragile areas like steep slopes, river banks and swamps, as well as sub-division of land into small uneconomical units of below 3Ha per household. High poverty level (62 %, poverty index) is one of the greatest challenges facing the proposed project area and the major underlying driver of environmental degradation. Environmental degradation, further fuels incidences of poverty and limits the capacity of the people to escape from the ravages of poverty.

The main socioeconomic activities include; subsistence crop farming, livestock rearing and artisanal fishing from Lake Victoria that is the major livelihood activity and source of income to many of the residents. The average land holding in the area is 2.0 Ha and 30% of the residents are wage earners against 15 % for the county. Women account for a larger proportion of fish mongers compared to men. They are involved in selling, drying and even frying of fish as a value addition enterprise.

Unemployment is relatively high and stands at 38% with the unemployed relying on earning from petty trade, farming, artisan gold mining and remittances from relatives. The youth make 25 % of the population with active labour being about 45% of the population of the area. The area is also made of people who are above 65 years (6%) than the county on average (5%). Fisheries and agriculture are the mainstay economic activity employing about 70 % of the population in the area. Table (2) provides welfare indicators in the area.

TABLE 3: POPULATION AND KEY INDICATORS WELFARE IN PROPOSED PROJECT AREA UYOMA

Parameter	2009	2018	*
Size (Sq.Km)	92.1	92.1	92.1
Density	302(388)	352	377
Ratio of males: Females	47: 53		
Number of Persons	27,819	32418	34699
Pit latrines		78(82)%	
HIV prevalence	35(38)%	20(24.8)%	
Average Farm size		3.0Ha	
Average Distance to water point		0.6Km	
Access to Water adequate clean water		62% (65%)	
Unemployment		35(40)%	
Water point per SQ.KM		I water point per 3.5 KM2	

Source: (Government of Kenya,2018)

3.2.1 Land Use patterns

An agro-ecological zone describes agronomic conditions on basis of landform, soil types, rainfall, temperature and water availability which in turn influences the type vegetation, length of growing season and crop adaptability [FAO, 1996]. The ward spreads across agro-ecological LM4. The major land uses in the county are conservation, settlements, artisanal fisheries, and small scale agriculture. The Subproject area is predominantly rural with minor agro processing and small-scale fishing. Increasing ecological destruction and changes in land use are exerting tremendous pressure on ecosystem, placing millions of livelihoods within the sub project area at risk. However the carrying capacity of the land is on average less than the county mean due to the semi- arid climate. Irrigation has great potential in increasing agricultural productivity in the area.

PLATE 5: HOUSING SETTLEMENT AND SANITATION CHALLENGES NEAR KAMARIGA BEACH

. The bird scavengers are attracted to the site by open drying. This can be resolved by the processing facility

3.2.2. Livestock Production

Livestock-keeping is also an important sector among the people residing in the sub project area. Meat, milk and eggs provided by livestock serve as important sources of high-quality protein to complement diets that are based on starchy crops like maize, bananas, millet and cassava. Cattle are important in a few homes for traction and manure. The main type of cattle kept by farmers is of the Zebu type. The number of cattle households on average in the project area is 7 head of cattle and 15 chickens. The production level for milk remains low at 2litres per cow per day.

3.2.3 Wildlife

The varieties of wildlife found in the County include hippopotamus (Lake Victoria, Rivers Nzoia and Yala), crocodiles (Yala Swamp, parts of the Lake Victoria), Sitatunga (Yala Swamp) and monkeys and leopards. The County has several species of fish, but the most popular ones are Nile perch, Omena (Rastrineo bolaargentea), Fulu (Hatlo chromines) and Nile Tilapia. Nile perch is mainly exported to Nairobi and abroad. Other wildlife includes bush pig mainly in

Yala Swamp, Hyenas in Got Abiero, snakes e.g. pythons, cobras and various species of birds. There is a proposal for Lake Kanyaboli National Reserve. However the area is only home to birds and snakes whose status is not under threat. The flora in plate (9) is indicative of semi-arid climate.

PLATE 6: FLORA AND FAUNA IN THE PROPOSED PROJECT SITE

3.2.5. Industrial Activities

The sub Project area as is the rest of Siaya County has limited industrial activities mainly in agro processing, quarrying and artisanal mining and fishing. Further, the area does not have well developed service industry such as banking, insurance, transport and hospitality facilities. The industrial potential especially for fish processing, however, is not fully tapped. The implementation of this project will go a long way in tapping this potential with multiplier impacts on livelihoods in the area and Kenyan economy at large.

3.2.6. Tourism

The Project area has few if any tourism facilities. This contribute to creation of employment opportunities and source of market for agricultural produce. The main categories of tourism attraction include:

- ✓ Museum, Achieng'Oneko Mausoleum
- ✓ Lake Victoria Fish Cages in Lake Victoria.
- ✓ Rawalo Hills and Naya Hills
- ✓ Leisure based Tourism: Goye Beach, Madundu Beach and Luanda Kotieno

3.2.7 Education

The literacy levels in the area are more than 85%, which is relatively higher than the national average. The county has many learning institutions among them Jaramogi Oginga Odinga University, a public chartered university and many middle level colleges. About 25 % of the population are children in primary school with 12 % in secondary school. The County has 652 primary schools with a total enrolment of 248,336 pupils of which 124,381 are boys and 123,955 are girls. There are over 237 secondary schools with an enrolment of 78,468 students.

The enrolment consists of 40,463 boys and 38,005 girls. The West Uyoma ward has 21 schools, 19 of which primary schools and 2 are secondary schools.

3.2.8 Religious beliefs and cultural practices

The people living here are Christians affiliated to Protestants, Catholics and indigenous churches whose spread and distance varies. Strong attachment to African traditional religious practices, though declining is adhered to with tradition of widow Inheritance being common and driver of high HIV infection. Family leadership is patrilineal though women have some decision-making power that allows them to effectively participate in local political, economic and social discourses. However, land use and inheritance are largely controlled by men.

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3.2.9. Housing and house types

The major housing type in the area is mud walled iron roofed houses. Table 3 provides a comparison of housing type in the area with the county aggregated statistics. As housing type reflect wealth status, the Project area could be said to be relatively rich compared to other areas of the county.

TABLE 4: HOUSING TYPE IN THE PROJECT AREA

Housing type	% of Households in the Project site	County indicators
Earth floor	83	90
Cement Floor	17	12
Mud walled	85	82
Corrugated Iron Roof	78	61
Grass thatched	22	25
Brick /Stone wall	15	5%

Source: ESIA team field data analysis, 2020

3.2. 10. Vulnerable and Marginalized Groups (VMGs)

The KCSAP PAD recognizes VMGs as the unemployed youth, elderly women and men, widows and orphans and people living with HIV/AIDS. Orphanhood in Siaya County is estimated at 15 per cent (KNBS, 2018). Percentage distribution of orphans between the ages of 0-14 years is about 12 as per the same survey. According to the KIHBS survey old age dependency ratio in Siaya is 13% of the population (KNBS, 2018). Vulnerability is driven largely by the HIV/Aids related mortalities. About 30% of the subproject residents are wage earners against 15 % for the county. The higher than average proportion of wage earners in the sub Project area could be attributed to fisheries along the lake.

3.2.11. Land tenure

The land for the proposed Kamariga omega drying facility is private registered land under Kamariga BMU in Uyoma West of Siaya (appendix V) gives a copy of the land ownership certificate).

3.2.12. Communication

The means of communication in the subproject area are as listed in Table 4. Access to the means of communication is relatively high especially the mass media. This could be advantageous in advocacy initiatives on issues such as GBV. The mobile network coverage in the area is relatively high at 83 % compared to an average of 70% of the county but lower than the national connectivity rate of 85%. Network signal is good with all networks well represented.

TABLE 5 : ACCESS OWNERSHIP AND COMMUNICATION

Communication channel	% of Households with access/ownership
Radio	78 (75)
Tv	15 (13)
Mobile Phone	83 (90)
Computer	<1 %

Source: Field data collection, 2020

3.2.13. HIV/AIDS prevalence, Knowledge, Attitudes and Practices

The HIV prevalence in Siaya is above the national level, at 24.8 % and among the highest prevalence in Kenya. However, this has been going down from a high of 38% in 2010 and 27 % in 2015 (Government of Kenya, 2018). Drivers of HIV in the county can be attributed to several social, economic and cultural factors related to polygamy, circumcision, wife inheritance and poverty. The employment opportunities and influx of job seekers into the project site during construction of the proposed Kamariga Omena drying facility may escalate the spread of HIV/Aids in absence of Mitigation measures as proposed in the ESMP, such as sensitization of the workers and involved in the construction, promotion of the use of protective sex and voluntary testing.

3.2.14. Energy sources and their accessibility

Among the sources of energy and lighting in the subproject area are fuelwood (3%), tin lamp (10%), paraffin lantern (10%), solar (3%) and battery lamp/torch about 12%. About 92%. Of the main source of energy for cooking is fuelwood (firewood and charcoal) and The use of solar in the pumping of water may spur its adoption at household level and indirectly contribute to green growth development and climate mitigation. Clearly there is need for household energy source interventions with agroforestry providing an opportunity for meeting household fuel wood needs while providing for other co-benefits such as soil fertility improvement and carbon sequestration. This intervention should go hand in hand with technologies that mitigate indoor pollution risks from fuel wood. Table 5 provides the energy sources and their accessibility at household level in the project area.

TABLE 6 : ENERGY AND THEIR SOURCES IN SUBPROJECT SITE, CENTRAL SAKWA

Energy source Type	%Households
Paraffin	75 (70)
Electricity	18 (24)
Gas Lamps	10(6)
Fuel wood	92(84)
Charcoal	13 (15)

Source: Field data analysis, 2020; Parenthesis refer to county aggregated levels and basis of comparison

3.2.15. Water Access and Sanitation

Streams, wells, boreholes, roof catchment, rivers, Lake Victoria, water holes, dams, ground catchments and piped supplies are the main sources of water for communities in Siaya. However, the Project area's groundwater potential is highly limited by lithology. The distribution of water sources most of which is surface water depends on the season and also weather patterns. Though the long-term objective of the Government is to enable household's access water within 500m of their settlement, the intervention measures the Ministry of water has put in place so far in terms of piped schemes, point water sources like boreholes, shallow

wells have not been met in the area. The average distance to a water point in the project area is 0.8 Km and it takes about 50 minutes which above the county average of 0.5 Km and time of 0.5 hours respectively. About 78% of the residents have pit latrines but there is no sewerage system in the area. This could imply risk of surface water contamination with faecal material.

3.3 Conflict and Grievance Resolution Mechanism (GRM)

The main grievances experienced with the area involve land succession and inheritance, natural resources, grabbing of public utility spaces and land boundary disputes, tenancy and labour. Domestic violence relating to sexual exploitation and abuse and gender-based violence are also common occurrences. The methods used to resolve such conflicts and which can be drawn upon by the BMU in the area include.

- ✓ Extended family members
- ✓ Religious institutions/ religious leaders
- ✓ Chief/Assistant chief
- ✓ Elders
- ✓ Courts

CHAPTER FOUR

4.0 ANALYSIS OF PROPOSED PROJECT ALTERNATIVES

During the course of formulating the proposed project, several project alternatives were considered to ensure that the best option of project development was adopted. This included a no project alternative which meant that the current status quo remains where debilitated infrastructure such as open air drying on the ground, inadequate stores, posing contamination and possible disease outbreaks. No project alternative would imply, the funds are not utilized and the beneficiaries would continue to be exposed to increased post-harvest losses and wastage due to poor drying conditions. Chances of contamination of *Omena* fish would be high due to inadequate preservation measures. The monetary losses incurred by the fisher-folks would continue to increase, making the beneficiaries vulnerable to food insecurity

4.1 Site alternatives

Two alternative sites were considered; the current site and alternative site around 500m from the current site. Though the current Kamariga Beach landing site for products is easily accessible thus reducing emissions in transport to alternative site, it is located in riparian land. It is also vulnerable to flooding, which has become frequent due to climate change. Construction at this site will also increase effluent load into the lake. The alternative site is vacant plot under Kamariga BMU. This site requires connection to the power line 150 m away. The site has ample space for future expansion if need be. The construction activity will not interfere with the water flow or any ecosystem in the neighbourhood in any way. However, the proponent will compensate for loss of vegetation through landscaping and community tree planting.

4.2. No project scenario

The no construction alternative would imply that the current post harvest practices with attendant food safety risks and high cumulative odourous emissions continue to undermine health and income for the fisherfolk. Such a decision will imply high risk of public health risks such as salmonella, low income and increased vulnerability to correlated shocks that amplify poverty in the community. The funds committed for the project implementation will not be utilized missing on the multiplier impacts in the economy. From the analysed project alternatives, it is evident that a drier will greatly empower the fisherfolk, an optimal course of action and justifiable from social, environmental and economic point of view.

4.3. Analysis of Alternative construction Materials and Technology

Technology choice has been dictated by power saving needs, scale, health and safety as well as the geomorphology. The proposed construction of omena drying facility will be done using modern, locally and internationally accepted materials to achieve public health, safety, security and environmental as well as aesthetic requirements. Equipment that saves energy will be given first priority without compromising on cost or availability factors. The auxiliary structures will be made using locally available source where appropriate. Cement, sand, ballast, metal bars and fittings that meet the Kenya Bureau of Standard requirements.

Alternative technologies available include the conventional brick and mortar style. Due to cost and durability, the brick and mortar style is most popular more so in Kenya. The scale and extent of the project is determined by design, the area allocated and funds available. Other various technologies available include: Hardened quality plastic pipes, timer construction, prefabricated space frame construction, steel frame and aluminum frame. The technology to be adopted will be the most economical and one sensitive to the environment. Heavy use of wood

during construction is discouraged because of destruction of forests. The exotic species would be preferred to indigenous species in the construction where need arises.

4.4. Scale and demand alternatives

The size of the drier will be dictated by current and anticipated landed Omena volumes (10 tons per day) in the medium term including trends in fishing dynamics which suggest that such volumes are unlikely to increase and necessitate the expansion of the intended capacity and/or cause operations at excess capacity, both of which are uneconomical. The proposed project is expected to greatly contribute in the enhancement of product quality and income to the community especially the fisher folk in the short, medium as well as the long term.

CHAPTER FIVE

5.0. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

The section analyses the institutional and governance framework and how it relates to the Project implementation. This is set out in three main subsections; local, World Bank safeguards and international framework.

5.1 General overview

Environment and Social Impact Assessment (ESIA) has received international recognition as vital tool for establishing, appraising and measuring the merits and demerits of proposed and ongoing projects, plans, policies and programs the world over (Lohani 1986). These techniques form key tools and instruments for ensuring sustainability of the projects when utilized during planning and management of the project activities and operations during decision-making. It forms a major component towards enhancing conscientious environmental management and conservation (World Bank, 1993; World Bank, 1999; UNEP, 1998). It is key component in project implementation, routine monitoring, review and evaluation to ensure sustainability and commitment to sustainable development in the project cycle/life-span (IFC, 1998).

Kenya has a number of strategies, governance frameworks, laws and guidelines on climate action such as, the Climate Change Response Strategy (G.o.K, 2010); Climate Smart Strategy (G.o.K, 2017); Agricultural Sector Transformation Strategy (G.o.K, 2019) and Green Economy Strategy under the vision 2030 (G.o.K, 2007). The Green Economy Strategy and Implementation Plan (GESIP), underpins Kenya's commitment to undertake a transition to a green economy (G.o.K, 2007). The Nationally Determined Contributions (NDCs) submitted by Kenya as part of the Paris Agreement. Global Green House Gas Mitigation largely focuses on policies for sustainable agriculture development and climate change action (G.o.K, 2015). The low carbon pathways towards food and nutrition security productivity and resilience in the agricultural sector are reiterated in the national adaptation plan (G.o.K, 2018).

Kenya has established and gazetted various regulatory legislations and provisions that necessitate certain projects and development plans/programs to undergo an ESIA (Tole, 1997). ESIA is recommended for all new projects with the potential to pose environmental impacts/risks at the onset. The Environmental Management and Coordination Act, Cap 387 of 1999 (revised 2015), direct that the proponent of a project undertake an ESIA/EA study and prepare a report thereof for presentation to the National Environmental Management Authority (NEMA). To facilitate this, regulations on ESIA and audits were established under the Kenya Gazette Supplement No. 56 of 13th June 2003 (The Environmental Impact Assessment and Audit Regulations, 2003). Besides, a number of other national policies and legal statutes, including World Bank ESS policies have been reviewed to enhance environmental sustainability in national development projects and conformity with funding requirements. Some of these policy and legal provisions are discussed in more details in the following sections.

5.2. National Policies

The sub project touches on a number of national policies during implementation as well as planning phases. This is discussed under:

5.2.1 Vision 2030

Vision 2030 is divided into three fundamental pillars: Economic, Social and Political pillars. The social pillar aims at realizing a just and cohesive society enjoying equitable social development in a clean and secure environment. In section 22, under Social Strategy, and paragraph 5.4, the strategy envisions Kenya becoming a nation that has a clean, secure and

sustainable. Environment by 2030. Value addition in the agricultural value chain is given prominence.

Relevance

The proposed omena processing sub-project is contributing towards achievement of this strategy as it focuses on value addition in a clean and food secure environment.

5.2.2 Sessional Paper No. 10 of 2012 on Kenya Vision 2030

The session paper covers broad categories of development issues including the waste management, pollution to reduce hazards and adjustment to climate change crises such as droughts. The policy recommends the need for enhanced re-use/recycling of residues including wastewater and increased public awareness raising and appreciation of clean environment as well as the participation of stakeholders in the management of wastes within their localities.

Relevance

The proponent shall put in place measures in recycling of wastre residues and increases the level of public awareness on *waste management and water recycling* as need arises

5.2.3. National Policy on Water Resources Management and Development

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 calls for development of appropriate sanitation systems to protect people's health and water resources from institutional pollution. Industrial development projects, therefore, should be accompanied by corresponding waste management systems to handle the wastewater and other waste emanating there from.

Add relevance

The proponent proposed omena drying facility will put in place appropriate sanitation systems as per the Public health regulations. If possible waste management systems should be recyclable in nature so that wastes disposal can be minimised as much as possible

5.2.4 Kenya Youth Development Policy 2019

The policy seeks to provide an opportunity for improving the quality of life for the youth in Kenya through their empowerment and participation in economic and democratic processes as well as in community and civic affairs. It also advocates for creation of a supportive social, cultural, economic and political environment that will empower the youth to be active actors in national development.

Relevance

The proponent will ensure that the policy is implemented by creating opportunities for youth to earn decent and sustainable livelihoods; and to enhance effective civic participation and representation among the youth

- ✓ *The proposed omena drying facility will create an opportunity for building capacity of the youth in green processes, technology and waste management by promoting solar energy and identifying innovations for waste management*

5.2.5. National Gender and Development Policy, 2011

The National Gender and Development Policy provide a framework for advancement of gender equity and an approach that would lead to greater efficiency in resource allocation and utilization to ensure empowerment of women. The main objective of the Policy is to enable the mainstreaming of the needs and concerns of men and women in development processes.

- ✓ *This policy will is relevant in ensuring that gender equity is adhered. Women are majority of the Omena Vendors and this project will improve their livelihoods*

5.2.6 National Policy for Prevention and Response to Gender Based Violence 2014

The policy seek to ensure; a coordinated approach in addressing GBV and effective programming; enhanced enforcement of laws and policies towards GBV prevention and

response; increase in access to quality and comprehensive support services across sectors; and improve sustainability of GBV prevention and response interventions.
GBV is based on socially ascribed (gender) differences between males and females. Gender can be seen as the allocation of roles, attitudes and values that are deemed by the community to be appropriate for each sex. These roles define power relations between men and women regarding who makes decisions and who owns resources. They are learned and reinforced through interactions in the home and community.
Relevance
The proponent will ensure that there is no aspect of GBV based on the roles of the weak and vulnerable members of the community who will benefit from the project by undertaking the following measures

- ✓ *Put in place multi-sectoral Standard operating Procedures for GBV Prevention and response, GBV workplace policies, sexual harassment policies, men to men programmes and male involvement programmes.*
- ✓ *Put in place standards and mechanisms for debriefing/ counseling service providers dealing with GBV across sectors*
- ✓ *Protect vulnerable persons by implementing a witness protection programme for GBV victims and survivors.*
- ✓ *Establish an elaborate communication strategy incorporating all actors including the public, service providers, government agencies and non-state actors so as to effectively respond to GBV.*

5.2.7 Beach Management Units (BMU) Regulations, 2017

These regulations created Beach Management Units (BMUs) comprising of stakeholders within fishing communities with mandates of conservation, protection, monitoring and control of fishery resources and the environment, and fisheries planning and development in collaboration with the government. The participation of fisher-folks is in line with the general principles of Code of Conduct for Responsible Fisheries (FAO, 1995). BMUs act as co-management institutions and provide for fisheries management at grassroots level
Relevance
The Kamariga Beach Management Units will take lead during construction, operation of the proposed project.

5.2.8 National Climate Change Action Plan

The National Climate Change Action Plan (2018-2022) identifies priority adaptation and mitigation actions for transforming to a low carbon climate resilient development pathway. The priority adaptation actions for agriculture in the plan include Coordination and mainstreaming of climate change into agricultural extension; establishment and maintenance of climate change related information for agriculture; and upscaling specific adaptation and mitigation actions.
Relevance
Development of the proposed omena drying facility will ensure that Green House Gas emissions are within allowable limits with minimal consequences to the larger environment. The solar powered drying facility will result in lower emission levels from the drying facility

5.2.9 Kenya climate Smart Agriculture Strategy 2017-2026

The Kenya climate Smart Agriculture Strategy (KCSA) is aimed at adapting climate change, building resilience of agricultural systems while minimizing emissions for enhanced food and nutritional security and improved livelihoods. The strategy objectives are to enhance adaptive capacity and resilience of farmers, pastoralists and fisher-folks to the adverse impacts of climate change, develop mechanisms that minimize greenhouse gas emissions from

agricultural production systems and address cross-cutting issues that adversely impact Climate Smart Agriculture

Relevance

- ✓ *The proponent will put in place energy efficient technologies and innovations that will entail reduction of the rate of emissions associated with preservation and transportation along the value chains that either use fuel efficiently or green energy*

5.2.10 Agricultural Sector Transformation and Growth Strategy 2019-2029

The importance of agriculture has been emphasized in Kenya through Vision 2030 and the Medium Term Plan III and most recently the President's Big Four priority agenda for 2017-2022, which emphasizes the importance of 100% food and nutrition security for all Kenya. To transform Kenya's agricultural sector and make it a regional powerhouse, the Government has formulated the Agricultural Sector Transformation and Growth Strategy (ASTGS). The Strategy is based on the belief that food security requires a vibrant, commercial and modern agricultural sector that supports Kenya's economic development sustainably and its commitments to regional and global growth

- ✓ *Among the key flagships is support to fisher-folks. The strategy aims at increasing incomes of the small scale fisher folks. This will create an enabling environment for the youth in promotion of Small Medium Enterprises by enhancing value addition and minimizing post-harvest losses*

5.3. Legal framework

This study was conducted within an environmental and policy framework as outlined hereunder and in particular, the Environmental Management and Coordination Act, 1999 which has explicit provision for Environmental Impact Assessment (EIA) for projects likely to have adverse environmental impacts. The project has to comply with the provisions of the Environmental Management and Coordination Act, 1999 (Revised 2015) and its subsidiary legislation, as well as sectoral laws that protect the environment from development activities

5.3.1 Constitution of Kenya 2010

The constitution is the supreme law of the land of Kenya. The Constitution requires the public to be consulted and the study has complied by consulting the public. It has also developed measures to mitigate foreseen impacts which will ensure sound management of the environment. Article 42 states "every person has the right to a clean and healthy environment, which includes the right a) to have the environment protected for the benefit of present and future generations through legislative and other measures, particularly those contemplated in Article 69, and b) to have obligations relating to the environment fulfilled under Article 70". There a number of provisions support this investment however key among others is Part 3 article 56. The State shall put in place affirmative action programs designed to ensure that minorities and marginalized groups— (b) are provided special opportunities in economic fields; (c) are provided special opportunities for access to employment; (d) develop their cultural values, languages and practices; and (e) have reasonable access to water, health services and infrastructure.

Relevance

- ✓ *The Constitution is vital in identifying the need for this development initiative, since it endeavours to improve the general wellbeing of the people both environmentally and socio-economically and it will govern the means to ensuring the method in which the proposed omena fish drying project is carried out, by providing an ESIA which is provided in this report.*

5.3.2 The Environment Management and Coordination Act, 1999 (Revised 2015)

The Act also deals with pollution prevention and waste management which is relevant to this project, as it will generate different categories of waste during construction and operation. Part II of the Environment Management and Coordination Act, 1999 states that every person in Kenya is entitled to a clean and healthy environment and has the duty to safeguard and enhance the environment. In order to ensure this is achieved, part VI of the same Act directs that any proponent of a new project should undertake EIA/EA study and prepare an appropriate report for submission to the National Environmental Management Authority (NEMA), who in turn may issue a license as appropriate.

Relevance

This is one of the activities that require an ESIA and the project has conducted an ESIA study and is the subject of this report which also conforms to World Bank environmental social safeguards policies and guidelines

- ✓ *In carrying out the ESIA study and preparing this report the requirements of this regulations and those of the World Bank Environmental and Social Safeguards have been integrated and followed throughout the process. The proponent did the screening and scoping then as advised by the NEMA office commissioned this ESIA study*
- ✓ *The proponent shall observe the guidelines as set out in the environmental management plan laid out in the ESIA report as well as the recommendation provided for mitigation of adverse impacts arising from the project activities*

5.3.3: The Environment (Impact Assessment and Audit) Regulations, 2003

Environmental Impact Assessment (E SIA) is a critical examination of the effects of a project on the environment. The goal of an ESIA is to ensure that decisions on proposed projects and activities are environmentally sustainable. An ESIA is conducted in order to identify impacts of a project on the environment, predict likely changes on the environment as a result of the development, evaluate the impacts of the various alternatives on the project and propose mitigation measures for the significant negative impacts of the project on the environment. The EMCA, 1999 requires that during the ESIA process a proponent shall in consultation with the Authority seek views of persons who may be affected by the project or activity through posters, newspaper, radio and hold at least three public meetings with the affected parties and communities. The Project proponent pays for the entire ESIA process. The regulations provide for the detailed procedure of carrying the ESIA and audit process in Kenya. They also provide explicitly for public consultation and mechanisms for doing it. The regulations also indicate "Issues to be Considered in Environmental Impact Assessment' in the second schedule of the regulations and "General Guidelines for Carrying out an Environmental Impact Assessment Study" in the third schedule to the regulations. In conducting this exercise, the stakeholders were consulted and their views have been integrated in this report. Implementation of the incorporated ESMP and monitoring of the same is key to actualizing this regulation.

Environmental Audit (EA) is the systematic documentation, periodic and objective evaluation of activities and processes of an ongoing project. The goal of EA is to establish if proponents are complying with environmental requirements and enforcing legislation. The purpose of EA is to determine the extent to which the activities and programs conform to the approved environmental management plan. A comprehensive EA ensures a safe and healthy environment at all stages of project operations and decommissioning. Annual environmental audits will be undertaken during this sub-project operation and maintenance phase.

- ✓ In carrying out the ESIA study and preparing this report the requirements of this regulations and those of the World Bank Environmental and Social Safeguards have been integrated and followed throughout the process. The proponent did the screening and scoping then as advised by the NEMA office commissioned this ESIA study

- ✓ The proponent shall observe the guidelines as set out in the environmental management plan laid out in the ESIA report as well as the recommendation provided for mitigation, minimization, and avoidance of adverse impacts arising from the project activities

5.3.4. Environment management and coordination (waste management) regulations 2006

These are described in legal notice No. 121 of the Kenya Gazette supplement No. 69 of September 2006. These regulations apply to all categories of waste as provided in the regulations. These include:

- ✓ Industrial wastes;
- ✓ Hazardous and toxic wastes;
- ✓ Pesticides and toxic substances;
- ✓ Biomedical wastes;
- ✓ Radio-active substances

These regulations outline requirements for handling, storing, transporting, and treatment/ disposal of all wastes categories as provided therein. Wastes contaminated with petroleum products are considered hazardous. Treatment of toxic or hazardous wastes should be done using the classes on incinerators presented in the third schedule of these regulations. These regulations are relevant to handling of the various wastes during construction phase. The e-waste guidelines provide a framework for identification, collection, sorting, recycling and disposing of electrical and electronic waste (e-waste). The project proponent and agents as a responsible citizen have obligation to include these guidelines within her operations for a cleaner and sustainable environment. Through the ESIA, the ESMP has provided measures for managing waste generated through the proposed project.

- ✓ Measures to be undertaken for proper waste disposal include clearance of non-reusable and recyclable waste and disposing off in designated disposal site.

5.3.5. Environment management and coordination (water Quality) Regulations 2006

These are described in legal notice No. 120 of the Kenya gazette supplement No. 68 of September 2006. These regulations apply to drinking water, water used for agricultural purposes, water used for recreational purposes, water used for fisheries and wildlife and water used for any other purposes. This includes the following:

Protection of water sources for domestic use, industrial use, effluent discharge and Water for agricultural use. These regulations outline:

- ✓ Quality standards for sources of domestic water;
- ✓ Quality monitoring for sources of domestic water;
- ✓ Standards for effluent discharge into the environment;
- ✓ Monitoring guide for discharge into the environment;
- ✓ Standards for effluent discharge into public sewers;
- ✓ Monitoring for discharge of treated effluent into the environment

Water for the project site will be sourced from the existing service providers. In monitoring, water quality standards would be the basis for future audits. The contractor will adhere to the provisions of the ESMP such as servicing of vehicles and machinery in licensed dealers and use of oil sumps in the service area. The ESMP has outlined the water quality control measures in the ESIA including proper waste disposal measures for oil spills and other wastes, proposed fencing of water pan area, and provision of livestock troughs and communal water drawing point.

- ✓ The ESMP has outlined the water quality control measures such as standards for discharge of effluents into the environment
- ✓ The proponent will implement recommended guidelines on monitoring for discharge of treated effluent into the environment

5.3.6 Environmental Management and Coordination (Conservation of Biodiversity, Access to Genetic Resources and Benefit Sharing) Regulations 2006

The regulations are supposed to ensure Conservation of Biodiversity in the country because, Kenya has a large diversity of ecological zones and habitats including lowland and mountain forests, wooded and open grasslands, semi-arid scrubland, dry woodlands, and inland aquatic, and coastal and marine ecosystems. In addition, a total of 467 lake and wetland habitats are estimated to cover 2.5% of the territory. In order to preserve the country's wildlife, about 8% of Kenya's land area is currently under protection. One requires a NEMA approval if areas of rich biodiversity are going to be affected by a development project. The Conservation of Biodiversity Act Sections 5-9 provides for the protection of endangered species, creation of an inventory, and monitoring of their status, protection of environmentally significant areas, provision of access permits, material transfer agreements and benefit sharing. These regulations layout pollution control measures with a view of avoiding areas of environmental significance and protection of endangered species.

- ✓ This subproject is small scale and in an area without tress therefore the biodiversity is not disrupted and no habitat or any threatened species of flora or fauna is threatened
- ✓ The Proponent and contractor will ensure that great care is exercised in the protection of vegetation during construction.
- ✓ The contractor will abide by C-ESMP which provides for construction of gabions to arrest lake shore erosion

5.3.7. Environmental Management and Coordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulation, 2009.

This Act applies to all wetlands in Kenya whether occurring in private or public land. It contains provisions for the utilization of wetland resources in a sustainable manner compatible with the continued presence of wetlands and their hydrological, ecological, social and economic functions and services. The project is will only capture a fraction of runoff in the catchment.

- ✓ The Proponent shall comply with the provisions of the Act in protecting wetlands, preventing and controlling pollution and siltation of rivers during construction and operation phase by having an effluent handling plan and license of the same from NEMA

5.3.8. The Fisheries Management and Development Act No.35 of 2016

This is an Act of Parliament that provides for the conservation, management and development of fisheries and other aquatic resources in Kenya to enhance livelihoods of fisheries dependent communities. Relevant sections of this act to the subproject include Part 1 which provides for the establishment of Kenya fisheries services and it's powers in licensing fish processing establishments. Part V of the Act specifies fisheries conservation and management development measures including fisheries impact assessments, pollution control, fishing gear, fisheries management plans and the establishment of Beach Management Units (BMU).Part VI specifies fish production and marketing while Part VII provides for fish safety and quality standards that meets applicable food quality , health and sanitation standards. Part X species the licensing procedures and conditions in fishing and the establishment of fish processing establishments. The Act also provides for structured community participation (Beach Management Units) in fisheries management and setting of standards while and inclusion of Vulnerable and marginalised groups (VMGs) such as women.

- ✓ The proponent, Kamariga BMU is a registered entity under this act and is in compliance of specifications on fish landing, limitation of the gear type including mesh size used by its members, observation of closed seasons, fisheries management plan and reporting. It is also compliant on participation of VMGs through inclusion of women and people living with disabilities in its management

- ✓ The Processing plant will observe HACCP food system as precautionary measure to management and development of the processing unit, fish quality, sanitation and health standards
- ✓ The ESMP from the ESIA has incorporated specific measures on lake shore protection and ecosystem approach through catchment conservation measures, IPMP and sanitation
- ✓ The processing facility will improve livelihoods of the community in many ways .i.e. employment, increased earnings and reduced public health risks thus meeting the vision and mission of the Act.
- ✓ The Proponent has applied for establishment of fish processing unit in compliance with the Act
- ✓ The BMU will come up with and enforce policies on zero tolerance for sexual exploitation in its operation while ensuring women and youth fully participate and gain from the project

5.3.9. The Public Health Act (Cap. 242)

The primary purpose of this Act is to secure and maintain public health. Some of its provisions relevant to this project include prohibition of nuisance activities such as spillage or noise or other condition deemed to be injurious or dangerous to human health. According to Part IX Section 115 no person will be allowed to cause nuisance or condition liable to be injurious or dangerous to human health. Section 116 requires local Authorities to take all lawful, necessary and reasonably practicable measures to maintain their jurisdiction clean and sanitary to prevent occurrence of nuisance on conditional liable for injurious or dangerous to human health.

Relevance

- ✓ *Since the subproject will be implemented at a time when the whole World and the country is experiencing Covid-19 pandemic. Necessary arrangements and preventive measures will be made to prevent contractor, workers, county government team and other players from being infected with the virus guided by the Public Health Act (Covid-19 Restrictions of movement of persons and related measures)*
- ✓ *Other Mitigation measures include compliance on social distancing and use of sanitizers during all phases of the project*
- ✓ *HIV/AIDS has been captured as a risk in ESMP and the contractor required incorporate HIV awareness initiatives during construction of the Project*

5.3.10. The county Government Act No. 17 of 2012

The Act replaces the Local Government Act (Cap. 265) and gives effect to chapter 11 of the constitution, spells County government powers, functions and responsibilities and range of services under the purview of County governments. The relevant sections of the Act which impact on the project are provisions which touch on:

- ✓ County planning
- ✓ Public communication and information access for effective citizen participation
- ✓ The Integration of minorities and marginalized groups in development planning (VMGs)
- ✓ Dispute resolution concerning planning processes in particular the CIDP, sectoral and spatial plans

In particular Section 115 of the act provides for Strategic Environmental Assessments and Environmental Impact Assessments (EIAs) in Project planning as decision making tools. Among the services devolved to county governments include waste management such as sewerage systems and solid waste handling infrastructure. County authorities thus have responsibilities to establish and maintain sanitary services for the removal and destruction of, or otherwise deal with all kinds of refuse and effluent and where such service is established,

compel its use by persons to whom the service is available. To effect the Act, County governments are empowered to make by-laws in respect of all such matters as are necessary or desirable for the maintenance of health, safety and wellbeing of the inhabitants of its area as provided under the Act.

- ✓ *Undertaking this ESIA process comply with the outlined principle of citizen participation and aligns well with the CIDP, sectoral and spatial plans as the current site evidenced by registration of the BMU*
- ✓ *The Grievance Resolution mechanism has been ensured through awareness and sensitization meetings with the county department for public participation taking the lead*
- ✓ *The ESIA process captures Conflict resolution GRM protocols which is in line with county government Act on public participation and conflict resolution as well resonates and complements county government service provision obligations*

5.3.12. The Penal Code (Cap. 63)

Section 191 of the Penal Code states that, any person or institution that voluntarily corrupts or spoils water from public springs or reservoirs', rendering them less fit for its use is guilty of an offence. Section 192 of the same act says a person who makes or vitiates the atmosphere in any place to make it noxious to health of persons/institution in dwellings or business premises in the neighbourhood or those passing along public way, commit an offence.

- ✓ The proponent has taken all the necessary measures to ensure that the provisions of this Act are complied with through this ESIA/ESMP
- ✓ The proponent has taken precautionary steps towards preventing or reducing adverse effects that might arise from the activities
- ✓ The ESS safeguards codifies and complements mitigation measures on offences such as GBV, child abuse, SEA, OSHA that are to be accepted and enforced by the contractor during construction and Kamariga BMU during all Project phases

5.3.13. Occupational Health and Safety Act 2007

This legislation provides for protection of workers during construction and operation phases. It is tailored at implementation of the EHS plan in compliance with the relevant sections of this Act. The Act is relevant both during construction and operation phases of the project due to the fact that the project will involve workers at all stages. Various health hazards are likely to emanate from the proposed project's activities such as workplace accidents. Health issues will therefore be integrated into the project to ensure safety of workers. The relevant subsections relevant to the project are 13, 14, 17, 18, 21a and b, 22c and d, 25 and 51.

- ✓ The work site will be registered with Directorate of Occupational Safety and Health (DOSH) and the contractor will be required to ensure all necessary records on workers are kept during construction phase by providing PPEs, registration of workers, train workers on emergency preparedness and response while ensuring all SOPs on Covid 19 containment are adhered to
- ✓ Occupational health and safety audits will be carried out periodically to ensure compliance with this Act particularly in the construction and operation phase

5.3.14. The Land Planning Act (cap 303)

This Act is the overall planning law for land for both agricultural and constructed environments. Under this Act, all developments or changes to land use must be approved by a planning authority. Section 9 of the subsidiary legislation (the development and use of land legislation 1961) stipulates that before any plans are submitted to the Minister for approval steps should be taken as may be necessary to acquaint the owners of any land affected such plans particulars of comments and objects made by land owners should also be submitted.

Relevance

- ✓ *The Act will reduce conflicts among other land users in the area, such as residential and commercial land uses. This is because affected land plans shall be submitted to the Minister for approval and the steps taken will be acquainted to the owners of lands affected hence the land owners will be involved in the process*

5.3.15. Physical Planning Act, 1999

It provides for the preparation of a physical development plan for the purpose of improving the land and providing for the proper physical development of such land, and securing suitable provision for transportation, public purposes, utilities and services, commercial, industrial, residential and recreational areas, including parks, open spaces and reserves and also the making of suitable provision for the use of land for building or any other purposes. Section 29 of the Act empowers local authorities to control all development activities so as to ensure conformity to approved planning standards. Section 30 states that any person who carry out development without permission will be required to restore the land to its original conditions.

Relevance

- ✓ *The Act also provides an environmental impact assessment for a project which is likely to have injurious impact on the environment, and this ESIA meets that requirement. Such an EIA must be approved by the National Environment Management Authority (NEMA).*
- ✓ *Undertaking this ESIA project report was sanctioned by Kamariga Beach Management Unit is in tandem with the provisions and is in line with sectoral and spatial planning and Siaya County CIDP.*

5.3.16. The Wildlife Conservation and Management Act, Cap 376

The Act provides for the protection, conservation and management of wildlife in Kenya. The provisions of this Act should be applied in the management of the project especially where it passes through protected wildlife habitats, migratory areas or dispersal corridors. The Act establishes the Kenya Wildlife Service (KWS) and provides for the establishment of national parks and national reserves and defines how they are to be managed. As per the Act, the overall mandate of KWS is to conserve and manage wildlife in Kenya. Its key responsibilities are:

- ✓ Sole jurisdiction over National Parks; supervisory role in the management of National Reserves, Local and Private Sanctuaries;
- ✓ License, control and supervision of all wildlife conservation and management activities outside the protected areas; conservation education and training; and Wildlife Research.

Relevance

The project area is likely to be within the migratory area or disposal corridors. The migratory areas may be having migratory birds from parts of the world and hence there is need to sensitize communities on endangered migratory birds and how to accommodate them

5.3.17. The Land Registration Act, 2012

The Land Registration Act is place to revise, consolidate and rationalize the registration of titles to land, to give effect to the principles and objects of devolved government in land registration, and for connected purposes. This Act applies to Subject to section 4, this Act shall apply to:

- ✓ Registration of interests in all public land as declared by Article 62 of the Constitution
- ✓ Registration of interests in all private land as declared by Article 64 of the Constitution
- ✓ Registration and recording of community interests in land. Section 24 states that the registration of a person as the proprietor of land shall vest in that person the absolute ownership of that land together with all rights and privileges belonging or appurtenant thereto;

The registration of a person as the proprietor of a lease shall vest in that person the leasehold interest described in the lease, together with all implied and expressed rights and privileges

belonging or appurtenant thereto and subject to all implied or expressed agreements, liabilities or incidents of the lease. The Act also provides for the compulsory or otherwise acquisition of land from private ownership for the benefit of the general public. For the acquisition to take place, the minister responsible must issue a gazette notice. The Act also provides for full compensation to the affected parties. The sub-project is being undertaken on registered land under the BMU.

Relevance

- ✓ *The land is registered as private land under **Kamariga BMU** and there are no encumbrances on the right to access, use and control as specified and guaranteed under the act*

5.3.18. Labour Laws of Kenya including Employment Act 2007

This is the revised employment act in Kenya, repealing the former Employment Act Cap 226. It deals with new employment conditions of employment and the rights of workers. All workers, including those employed during the construction phase, will be employed under this Act which includes provision with respect to minimum wage, working conditions and time, and also in the resolution of disputes. This provision will guide the contractor in engagement and payment of the workers during implementation. The contractor will be given a copy of this report (C-ESMP) for reference too.

Relevance

- ✓ *The Proponent through the contractor will make sure that fairness and gender equity are followed during the recruitment of the labour force to be used during the construction phase. Preference will be given to the local community for both skilled and unskilled labour.*
- ✓ *The proponent will ensure the engaged contractor is qualified, register the site as place as provided under DOSH. The contractor and proponent will also provide requisite PPEs to the workers and the latter will always be required to wear these.*

5.3.19. The Sexual Offences Act, 2006

This Act protects people and employees from any unwanted sexual attention or advances by staff members. This act ensures the safety of women, children and men from any sexual offences which include: rape, defilement, indecent acts. This law will govern the code of conduct of the Contractor's staff and provide repercussions of any wrong doing

Relevance.

- ✓ *The ESMP provides for the implementation of a SGBV action plan with an Accountability and Response Framework as part of the Construction-ESMP (C-ESMP) and administration of the whole project cycle*

5.3.20. The Standards Act Cap 496

The Act is meant to promote the standardization of the specification of commodities, and to provide for the standardization of commodities and codes of practice; to establish a Kenya Bureau of Standards, to define its functions and provide for its management and control. Code of practice is interpreted in the Act as a set of rules relating to the methods to be applied or the procedure to be adopted in connection with the construction, installation, testing, sampling, operation or use of any article, apparatus, instrument, device or process. The Act contains various specifications touching on electrical products.

Relevance

- ✓ *The Proponent shall ensure that commodities and codes of practice utilized in the project adhere to the provisions of this Act especially in relation to siting of sanitary facilities, solar system and structural standards in the enforcement of construction standards.*

5.3.21. The Energy Act, 2019

The Energy Act, 2019 was enacted in response to calls to consolidate the laws relating to energy; promote renewable energy; promote exploration, recovery, and commercial utilization of geothermal energy; regulate midstream and downstream petroleum and coal activities, among others.

Relevance

- ✓ *The Proponent will incorporate solar energy solutions by installing solar panels to reduce energy costs. This is in line with the promotion of renewable strategies and reduction of emission from non-green energy resources as indicated in the Energy Act and in Climate Change Act*

5.3.22. National Construction Authority (2011)

The National Construction Authority Act, Number 41 of 2011 streamlines, overhauls and regulates the construction industry in Kenya. The Act contains provisions on the quality and safety standards of any construction work.

Relevance

- ✓ *The Proponent will ensure the engagement of a registered and qualified contractor as required under the water act for the construction of the project*
- ✓ *The proponent will ensure that regular site meetings by all the relevant stakeholders are held to oversight the work*
- ✓ *The work site will be registered with Directorate of Occupational Safety and Health (DOSH)*

5.4. World Bank Environmental and Social Safeguards

The following World Bank environmental safeguards (Operational Policy (OP) /Bank Procedure (BP)) will guide the proposed sub-project.

5.4.1 OP/BP 4.01 (Environmental Assessment)

The World Bank considers environmental impact assessment (ESIA) as one among a range of instruments for environmental assessment. These are procedures that ensure the proposed development is sustainable and environmentally sound. Although its operational policies and requirements vary in certain respects, the World Bank follows a relatively standard procedure for the preparation and approval of an environmental assessment study, which:

- ✓ Identifies and assesses potential risks and benefits based on proposed activities, relevant site features, consideration of natural/human environment, social and trans-boundary issues
- ✓ Compares environmental pros and cons of feasible alternatives
- ✓ Recommends measures to eliminate, offset, or reduce adverse environmental impacts to acceptable levels (sitting, design, technology offsets)
- ✓ Proposes monitoring indicators to implement mitigation measures
- ✓ Describes an institutional framework for environmental management and proposes relevant capacity building needs

The objective of the World Bank's environmental and social safeguard policies is to prevent and mitigate undue harm to people and their environment in the development process. These policies provide guidelines for the bank and borrowers in the identification, preparation, and implementation of programs and projects. Safeguard policies have often provided a platform for the participation of stakeholders in project design, and have been an important instrument for building ownership among local populations. The World Bank's environmental assessment policy and recommended processes are described in Operational Policy (OP)/Bank Procedure (BP) 4.01: Environmental Assessment. Its purpose is to improve decision making, to ensure that project options under consideration are sound and sustainable, and that potentially affected people have been properly consulted.

- ✓ The guidelines have helped to assess the potential environmental risks and impacts of the sub project in its area of influence; examine sub-project alternatives; identify ways of improving the sub-project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts. The assessment has taken into account: the natural environment (air, water, and land); human health and safety) social aspects (involuntary resettlement, indigenous peoples and physical cultural resources). The project has consulted the public on the development of the project and the ESIA as required under this Policy.

Environmental Assessment is one of the 10 environmental, social, and legal Safeguard Policies of the World Bank. Other safeguard policies of relevance to this study include:

- ✓ Bank Safeguard Policy 4.04 Natural Habitats;
- ✓ OP/BP 4.01 Environmental Assessment
- ✓ OP/BP 4.09 Pests Management
- ✓ OP/BP 4.11 Physical Cultural Resources

5.4.2. OP/BP 4.04 Policy on Natural Habitats

The policy is designed to promote environmentally sustainable development by supporting the protection, conservation, maintenance and rehabilitation of natural habitats and their functions. The policy seeks to ensure that World Bank-supported infrastructure and other development sub-projects take into account the conservation of biodiversity, as well as the numerous environmental services and products, which natural habitats provide to human society. The policy strictly limits the circumstances under which any Bank-supported sub-project can damage natural habitats (land and water area where most of the native plant and animal species are still present).

A careful evaluation of the project context was carried out in the baseline studies to determine if the project setting has any significance that may disrupted due to the implementation of the sub project. This safeguard policy requires a precautionary approach to natural resources management and requires the conservation of critical environments during project development. In order to ensure conservation and project sustainability, this policy requires that:

- ✓ *Project alternatives are sought when working in fragile environments. Key stakeholders e.g. WRA were consulted during the project design, implementation, monitoring and evaluation of mitigation.*

The proponent through this ESIA and ESMP has taken advance measures for protecting, preserving and conserving the environment in the project setting from predicted and emergent adverse impacts. Specifically the project is not being implemented in a natural habitat or an area of ecological significance

5.4.3. Pest Management (Operational Policy, OP/BP 4.09)

The policy is meant to minimize and manage the environmental and health risks associated with pesticides use and promote and support safe, effective, and environmentally sound pest management. Though the policy as no procurement of pesticides or pesticide application equipment is envisaged for the subproject per see, the envisaged horticultural and agricultural improvement activities tied to the wider project implementation objectives may involve pesticide use and subsequent increase in health and environmental risk.

- ✓ *The use of pesticides and agrochemicals will be on very small-scale level and an integrated pest management plan will not be required.*

5.4.4 OP/BP 4.11 (Physical Cultural Resources)

The objective of this policy is to avoid or mitigate adverse impacts on physical cultural resources from development sub-Project, Identify the likely physical cultural resources issues, if any, to be taken into account by the EA or If the sub-project is likely to have adverse impacts

on physical cultural resources, identify appropriate measures for avoiding or mitigating these impacts as part of the EA process. These measures may range from full site protection to selective mitigation, including salvage and documentation, in cases where a portion or all of the physical cultural resources may be lost. The proponent during the environmental and social screening exercise investigated from the community of the possibility of a history of any physical or cultural significance of the proposed project site. It was found out from the community that the land for the sub project site has not and is not known to have any physical or cultural object/resource that the proposed development may interfere with. This ESIA report has established that (OP/BP 4.11 -Physical Cultural Resources) will not be triggered through the implementation of the proposed sub project. This act resonates well with OP 4.11 on the protection of physical cultural resource under World Bank safeguards operation policy. International best policy for accidental discovery of heritage resources and burial sites will be adhered to through well-established documentation and line of communication protocols, securing the site and ceasing operations where chance finds occur as to avoid any further damage in case of such chance finds (see Appendix XII on Chance find procedures)

5.5. Relevant International Conventions and Treaties

Kenya has ratified various international conventions on environment that are applicable to this study. The Ministry of Foreign Affairs deals with international treaties at the primary stages of negotiation. The ministry offers advisory guide to the government on the need to ratify such a treaty if considered to be of national interest. Implementation portfolio then moves to the line ministry, relevant departments and co-operating agencies. If some international issues arise, various international agreements listed above or that exist will be applied for this project. Conventions are agreements that are legally binding on states that have become parties to them Kenya is signatory to several international conventions and treaties that would need to be adhered to in implementing this project and are geared towards environmental protection and conservation. Some of these include;

- ✓ ILO Conventions ratified by Government of Kenya
- ✓ Safety and Health in Construction Recommendation, 1988
- ✓ Convention on Wetlands or the Ramsar Convention
- ✓ Convention on Biodiversity
- ✓ The Convention on International Trade in Endangered Species (CITES)
- ✓ Convention on the Conservation of Migratory Species
- ✓ United Nations Framework Convention on Climate Change
- ✓ Important Bird Areas

5.5.1. International Convention on Biological Diversity (1992)

The convention promotes the protection of ecosystems and natural habitats, respects the traditional lifestyles of indigenous communities, and promotes the sustainable use of resources.

5.5.2. Ramsar Convention 1971

The convection governs wetlands of international importance. The convention was entered into force in Kenya in 1990 and it governs Lake Nakuru, Lake Baringo, and Lake Natron, which is a shared ecosystem between Kenya and Tanzania. Kenya is therefore committed to avoid degradation of wetlands under its jurisdiction. Kenya has also ratified the Agreement of the Conservation of Eurasian Migratory Water Birds (2001) and the African Convention on the Conservation of Nature and Natural Resources (1968), the Convention on International Trade in Endangered Species of Wildlife Fauna and Flora (CITES) 1973 which prohibits trade in species such as Dugongs and also in Ivory.

Relevance

- ✓ *The proponent will need to ensure that these important conventions are not violated during construction, operation or decommissioning of the proposed projects.*

5.5.3. The United Nations Framework Convention on Climate Change (UNFCCC)

This is an international environmental treaty produced at the United Nations Conference on Environment and Development (UNCED), informally known as the Earth Summit, held in Rio de Janeiro from 3rd to 14th June, 1992. The objective of the treaty is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The treaty itself sets no mandatory limits on greenhouse gas emissions for individual countries and contains no enforcement mechanisms. In that sense, the treaty is considered legally non-binding. Instead, the treaty provides for updates (called "protocols") that would set mandatory emission limits. The principal update is the Kyoto Protocol, which has become much better known than the UNFCCC itself.

Relevance

- ✓ *The proponent will adhere to energy and water saving technologies such as recycling to reduce the environmental footprints.*

5.6. Institutional framework

The project beneficiary is the Kamariga BMU of West Uyoma ward and is responsible for day to day administration of the project during the operation phase. KCSAP, Siaya has the overall responsibility of ensuring successful project implementation, especially the procurement and mainstreaming of ESS safeguards. The actual construction of the project will be undertaken by a contractor identified through a competitive bidding process. Monitoring the environmental impacts of the project and compliance to the Environmental Management Plan will be the responsibility of the National Environment Management Authority (NEMA) through the County Director of Environment, and the Subcounty Environment Committee. However, the CPCU, ESIA expert, Health and safety officer and the CESCO will undertake routine monitoring to ensure compliance and implementation of the ESMP.

CHAPTER SIX

6.0. PUBLIC PARTICIPARTION AND STAKEHOLDER CONSULTATION

6.1 Overview

A public participation and stakeholders consultations were undertaken in line with the Environment Management and Co-ordination Act 1999, and the County Government Act, 2012 as well as the World Bank ESS guidelines and policies. Plate (8-11 and 12-13 in appendix XII) provides evidence of the ESIA process compliance with the provision.

PLATE 7: A FOCUS GROUP DISCUSSION AT BMU OFFICE, THIS WAS DONE BEFORE COVID 19 OUTBREAK.

PLATE 8 : COMMUNITY ENGAGEMENT AT THE PROPOSED PROJECT SITE.

Compliance with the Ministry of Health guidelines on Covid 19 Containment

The objectives of public consultations for this Environmental Audit were to:

- ✓ To seek and examine views on health, safety, social and environmental issues from the potentially affected community;
- ✓ To lay the foundation for future negotiations on any issues that may arise so as to build consensus and reach a mutually acceptable resolution of issues.
- ✓ Provide the establishment's neighbours/community with a forum to air any issues or concerns they may have with the establishment's operations on Health Safety, social and Environment (HSSE)
- ✓ To facilitate the integration of plausible EHS management practices into the Environmental and Social Management Plan(ESMP) as recommended by neighbours/community

6.2. Methodology used in the Consultative Public Participation

The environmental and social assessment public participation exercise was conducted in January 2020 by the expert using 3 approaches (i) Focus group discussions and Key informant interviews , (ii) Field surveys and observational checklists and (iii) Public meetings. In general, the following steps were followed in carrying out the entire CPP process: -

- ✓ Identification of institutions and individuals interested in the process and compiling a database of the interested and affected parties (KII schedule in Appendix IX and Community barazas in Appendix (VI-VIII and XII)
- ✓ Administration of questionnaires to different target groups and local community members in the administrative area for the proposed project site (Appendix VII)
- ✓ Public / Technical Meetings at various levels and with different target groups

6.2.1 Stakeholders Public Meetings

Consultative experts' meetings were continuously held during the field exercise to consolidate the issues affecting the project as well as capturing issues raised by the project affected persons. Two comprehensive public meeting as well as technical meetings were held on the dates of 20 January,2020, and 4th March, 2020 with the local residents, chiefs, Village elders, and other local administrative leaders in attendance in the project area. (Minutes of meeting and list of participants Appendix VI and VII respectively). The Issues arising in the meeting are captured in as reported in the following sections;

6.2.2. Potential Positive environmental and social Impacts

- ✓ Increased employment opportunities
- ✓ Reduced exploitation from middlemen
- ✓ Conservation of the catchment through tree panting
- ✓ Resilience to weather related price swings
- ✓ Improved food security and nutrition security
- ✓ Reduced work load on women in drying the fish

6.2.3. Potential Negative environmental Impacts

Overall, no adverse community objection to the project implementation made during the consultative process by the community and other stakeholders such as the County Government of Siaya and Lead agencies such as Fisheries department. However, lake show erosion, management of effluents and emissions were perceived to be critical. The design will take into account waste management i.e. the technology in sanitary facilities and effluent management as well as food safety standards.

6.2.4. Social Concerns

Various issues, most which fall under the social category, were raised particularly during site meetings and FGDs (See appendix VIII and IX). The issues are highlighted under and their resolution is captured in Table (6).

- ✓ Sexual exploitation
- ✓ Licensing of the processing unit as provided for under the fisheries act
- ✓ Funding of income generating activities to motivate the PMC and the youth

- ✓ Management hiring of labour to minimize conflicts between the contractor and the community

6.4 Analysis of public consultation and participation

The views of these stakeholders were considered and their names and their contacts were taken for future references as required by NEMA. (See Appendix VII) for the list of participants in the Public Participation and Consultation. The local communities and major stakeholders independently gave their views, opinions, and suggestions in their best interest, bringing out the factors that affected the circumstances, influences, and conditions under which their organizations exist.

From the field work and the public meetings, it was apparent that the majority of the stakeholders were aware of the proposed project and unanimously supported its implementation. The consultant and proponent also responded to the queries that the public sought to know about the project. All the environmental issues raised can be adequately mitigated. Other issues surrounding the project were successfully settled during the public meetings since representatives, of the proponent were in attendance and responded to the issues which were unclear to the public. The comments are captured in appended sample questionnaires (Appendix VII and KII in appendix IX). The community showed unanimous approval for the project. Employment creation, adaptation to and mitigation of extreme climate change episodes, poverty alleviation and environmental conservation were the main reason for the support. From the field work and the public meetings, it was apparent that the majority of the stakeholders were aware of the project. The consultant and proponent also responded to the queries that the public sought to know about the project which is summarized in Table (7).

NB The sections above have not reported on the issues raised by men, women or VMGs who participated in the consultations in regard to which among them will be impacted by the sub-project investments. Despite the photos showing their participation and the common knowledge that omena value addition is a female dominated enterprise there is no mention of their concerns in the section.

PLATE 9: COMMUNITY MEMBER GROUP PHOTO AFTER CONSULTATION

TABLE 7: SUMMARY OF MAJOR ISSUES DURING PUBLIC PARTICIPATION

Venue	No. of participants	Major issue/concern	Response
Kamariga BMU grounds	10 Women 18 Men people during FGDs and 48 men and 20women during general baraza. 18Men and 6 Women persons during ESMP feedback	Management of effluent	Need for construction of bathrooms, sceptic tank, construction and good mainaitainace of drainage facilitis
		Management hiring of labour to minimize conflicts between the contractor and the community	Training of PMC and sensitization on GMR mechanism for accountability
		Sexual exploitation of women	BMU to come with policy and code of that stresses zero tolerance to sexual exploitation and abuse among its members and work place
		Women empowerment and gender mainstreaming	The beach Management Unit as the proponent to ensure gender issues are mainstreamed during operation phase i.e Men wwomen and the youth are well considered. The VMG in the community have to be given prioirity
		Criteria on employment during construction and operation phase	The contractor to engage with the community on hiring processes
		Lake shore erosion	Contractor to build gabions in the fish landing site
		Increased waste generation and post-harvest losses	Acquire services of licensed waste handler to dispose wastes which are likely to increase in high volumes

CHAPTER SEVEN

7.0 ANTICIPATED IMPACTS AND MITIGATION MEASURES

7.1. Introduction

The impacts that are expected to arise from the proposed project have been identified and discussed in regard to all phases of the proposed project cycle; construction, operational and decommissioning. The negative impacts will be minimal and will only last for the time of construction phase, with a few lasting for a long time during the operation phase.

7.2 Impacts during the construction phase

7.2.1 Anticipated positive impacts

7.2.1 Creation of employment opportunities

Income generation opportunities will include; employment during construction phase for both skilled and un-skilled labour. Indirect employment will be created where suppliers of foodstuffs and other goods and products will gain income by supplying their services and products to the construction site.

The community members will provide labour for site clearing, construction works, loading and offloading of construction materials provision of security at the site among others.

Enhancement measures

- The Proponent will as part of the contracting recommend to the contractor(s) to consider the area resident for most of the job opportunities at the site including masons, casual labour etc.
- The Proponent will ensure that the contractor(s) do not discriminate some of the community members or other persons based on gender, skin colour, and relationship with the members of the Kamariga omena drying facility, and offering job opportunities at the site.

7.2.2 Demand for locally available construction materials

It is estimated that part of the project cost will be used in the procurement of materials. This includes building stones/bricks, sand, steel and cement among others. The supply of these materials translates into boosting both the local and national economies. The multiplier' effect of this project also translates into increased revenue to the county and national governments in terms of tax and other service charges.

Enhancement measures

- The Proponent must ensure that as part of the contracting agreements the contractors are advised to procure most of the construction materials from the suppliers within the local community.

7.2.3 Improved infrastructure through development of foot paths

The proposed project will result in the development of drainage structures and foot bath crossings which has been provided in the Bill of Quantities.

7.3 Anticipated Negative Environmental impacts

The anticipated negative impacts during the construction phase include the following:

7.3.1 Hydrological impacts

Earth movement, disposal of vegetation and other cleared materials and the inadequate disposal of liquid and solid waste, including the human waste from the workers, may also cause physical and chemical alteration of surface and ground water quality. Since storm water discharge

constitutes a major portion of the total volume of the receiving water, adverse public health effects are likely in absence of water testing and treatment interventions. This may occur during construction phase as well during operation phase.

Proposed mitigation measures are:

- ✓ The contractor to install roof harvesting to reduce runoff
- ✓ The contractor and proponent to allow for natural seepage of water by replanting disturbed areas with grass and indigenous trees
- ✓ The proponent to recycle rinse water and wastewater for some specific noncritical applications where feasible as long as hygiene considerations are observed
- ✓ Improve the process lay out to facilitate cleaning and eliminate wet transport of wastes, thereby minimizing water consumption

7.3.2. Landscape disturbance, erosion and Vegetation loss

Surface alterations made as part of the project works could destabilize the soil and lead to soil erosion. Land clearing in the project area and excavation may generate large amounts of fill and rubble, which will need to be transferred to appropriate disposal sites. Compaction is also expected to be limited to the construction area. Increased disturbances of the soil and movement will increase the risk of erosion. Civil works, excavations, or an inadequate planning of cuts and fills, can affect the water table significantly.

Mitigation

- ✓ The proponent will a*dopt selective de-vegetation that aims at clearing only within the project site where necessary.*
- ✓ The proposed Project component on NRM and SLM to support community establishment and planting of indigenous trees in the catchment areas around the storage facility compound
- ✓ Excavations of the site will be confined only within the sections upon which construction is taking place
- ✓ Excavated earth will be held away from drainage channels
- ✓ *The proponent shall undertake landscaping of the proposed facility*

7.3.3 Surface Run-off Management

Surface run-off will mostly be from open surfaces such as parking bays and roof-tops. Some pollutants are expected from such areas. These include: Waste/spilt oils and grease from park-yards and which are undesirable in sewerage systems and the public drainage network. Some waste oils and lubricants may contain hazardous substances such as poly-chlorinated biphenyls (PCBs). Solid wastes including papers, plastics and broken pipes among other refuse may also be thrown in the compound and drains.

Mitigation measures

- ✓ Stone pitch the inlet ways
- ✓ Sensitization and afforestation of the landscape/catchment
- ✓ Adhere to structural standards in water storage

7.3.4. Noise and Vibration Generation

Different construction activities (earth movement, transport of construction equipment, heavy machinery use, mining, etc.) would temporarily increase noise. Continuous exposure to noise levels above 85 dB may cause hearing problems leading to occupational deafness. Noise and vibration produced during construction may have some temporary negative impacts to the immediate residents. These may include impairing verbal communication, temporary hearing problems/temporary threshold shift (TTS), noise annoyance or even interference of the normal

behaviour of domestic. Anticipated source of noise pollution is the excavating machine and during mobilization of the construction materials to the site.

Mitigation measures

- ✓ People participating in the construction should be provided with Personal Protective Equipment (PPE) such as ear muffles for ear protection
- ✓ Sound-attenuated equipment should be used as much as possible
- ✓ No unnecessary hooting by contractor and resident vehicles
- ✓ Noise levels should be kept within acceptable limits preferably as stipulated within the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) Control Regulations 2009 :
- ✓ Limit pickup trucks and other small equipments to an idling time, observe a common sense approach to vehicle use and encourage workers to shut off vehicle engines whenever possible during construction phase

7.3.5 Air pollution and Aerial Emissions

Different construction activities (earth movement, transport of construction equipment, heavy machinery use, mining, etc.) would temporarily increase dust emissions. The impact of dust is however expected to be minimal.

Increased use of fossil fuels during construction phase of the project is anticipated and the emissions may contain potential pollutants like NOx, Sox, Cox2/CO and other hydrocarbons, depending on the type of fuel used by the vehicles. This may also have an effect on level of greenhouse gas emissions. Excavation and the movement of vehicles carrying material such as fuel and other required construction materials and equipment during construction will result to generation of dust in the air. During operation phase, the main emission will be odours fish products.

Mitigation measures

- ✓ Ensure that maintenance on all machinery is done regularly to avoid the emission of noxious gases.
- ✓ Drivers and machine operator to avoid unnecessary running of motor vehicle engines and machinery when not in use
- ✓ Harnessing of solar energy during construction and operation phase to mitigate greenhouse gas emission
- ✓

7.3.6 Dust generation

Excavation and the movement of vehicles carrying material such as fuel and other required construction materials and equipment during construction will result to generation of dust in the air. This will take a short duration and mitigation measures are easily implemented.

Proposed mitigation measures are

- ✓ Provision of dusk masks to workers by the contractor
- ✓ Contractor to instruct drivers to avoid high speed near settlements in the project area
- ✓ Contractor to ensure water and mist sprays are undertaken during dry periods
- ✓ Contractor to ensure trucks removing waste and delivering materials such as cement are covered

7.3.7 Effluents and pollution of water sources

This may occur during construction phase as well during operation phase. Recommended mitigation measures are:

- ✓ Sweep up solid materials for use as a by-product, instead of washing them down the drain

- ✓ Fit drains with screens and/or traps to prevent solid materials from entering the effluent system.
- ✓ Use dry cleaning techniques where possible, by scraping equipment before cleaning, pre-cleaning with air guns and cleaning floor spills with squeegees
- ✓ the contractor should provide oil sumps at the construction yard and/or service and fuel at registered oil dealers yards necessary measures to prevent oil and grease spills and soil erosion which may pollute the water
- ✓ Install bio-digester for latrine facilities
- ✓ Regular testing and chlorination of water at the community water point
- ✓ Community sensitization and awareness on sanitation

7.3.8. Aerial emissions

Fish processing is associated with emission of foul odours. The following mitigation measures are recommended;

- ✓ Avoid processing batches of raw material that are of considerably lower than average quality; this will reduce the odour components
- ✓ Reduce the stock of raw materials, waste, and by-products and store this stock for short periods of time only in closed, well-ventilated place
- ✓ Keep all working and storage areas clean and remove waste products immediately from the production line
- ✓ Cover all transfer systems, wastewater canals, and wastewater treatment facilities to reduce the escape of foul odours
- ✓ Contractor to erect construction signage and secure the construction site to minimize risks of accidents and prevent injuries to the public
- ✓ The contractor and proponent to provide First Aid box and a trained person to handle site emergencies and incidences, while displaying emergency number for ambulances/provision of emergency vehicles

7.3.9 Oil spills/Fuels and Lubricants

Oils and grease spillage on the ground may cause contamination to the soil and groundwater.
Proposed mitigation and management measures are:

- ✓ Proper maintenance of vehicles and other equipment (using petroleum products) to avoid fuels and lubricants spills at the project site.
- ✓ The contractor should properly handle, storage, and disposal off oils and greases and their wastes during construction by ensuring that servicing is strictly done at designated servicing yard or external petroleum stations

7.3.10 Waste generation

The project will entail a small scale of masonry work, excavations. This will generate wastes that need to be managed. Most of the waste will be generated during the construction waste. This includes papers used in packaging cement and soil this can pose the risk of the site being a breeding for pests, pollution of the physical environment and attraction for scavengers.

Mitigation measures

- ✓ BMU and contractor to provide solid waste collection facilities and encourage waste segregation through sensitizing workers and community on waste management practices
- ✓ Contractor to practice waste separation to enable easy recycling of re-usable waste materials
- ✓ Contractor to provide temporal waste disposal receptacle on site
- ✓ Contractor to liaise with licensed waste collector to routinely collect and dispose the waste

- ✓ Contractor to dump unused excavated materials and debris in designated places
- ✓ Where feasible, reprocess omena waste into commercial by-products such as chicken feed and organic manure
- ✓ wastes should be recovered and taken to the by-product facility in time to prevent product deterioration
- ✓ Contractor to install drip pans or trays to collect drips and spills

7.3.11 Limitations of access and interruption of services

The construction will neither interrupt traffic on the present road nor limit access to populated areas and workplaces. Construction activities will not interrupt or reroute traffic, and cause interruptions in water, light and telephone service. However, it may interrupt access to water by the community during the construction phase.

- ✓ Allow access to services and resources like water as need arises

7.4 Anticipated negative Social and health impacts during construction phase

7.4.1. Labour Influx Effects

This impact is triggered during Project Construction Phase due to the Project attracting various categories of workers from local, national and international markets. The construction of the project will attract jobseekers and hawkers with possibility of thieves intruding into the area. This therefore leads to concentration of people in one 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 contractor awarded the Project will develop a labour Management Plan (LMP) in consultation with local leaders
- ✓ The contractor will ensure effective community engagement and strong grievance mechanisms on matters related to labour, with a discrete mechanism for safely and confidentially reporting issues of SEA and GBV at the community level triggered by the Project
- ✓ Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx, the contractor should engage a local community liaison person who is also trained in PSEA
- ✓ The contractor will ensure proper records of labour force on site while avoiding child and forced labour
- ✓ The contractor will ensure compliance to provisions of Workplace Injuries and Benefits Act (WIBA) 2007 by providing insurance cover for workplace injuries and aligning with the employment Act labour requirements
- ✓ The contractor will develop and implement a children Protection Strategy to ensure that no child under the legal age of 18 years in employed to the Project
- ✓ The contactor should institute a security plan e.g. through a register for all visitors and workers
- ✓ The contractor will Adopt and adapt Nyumba Kumi strategies

7.4.2 Spread of COVID-19 amongst community members during consultations and construction

During project execution (civil works), large numbers of workers will be required to assemble together in consultation engagements, meetings, toolbox talks and even at work sites; varied number of workforce including suppliers of material and services are also expected to come in

from various places in the country which may be COVID-19 hot spots; and interaction of workers with the project host community will happen as workers find accommodation close to work sites, and/or return to their homes after works. There is also the risk that the project may experience large numbers of its workforce becoming ill and will need to consider how they will receive treatment, and whether this will impact on local healthcare services including the project host community.

Mitigation measures

- ✓ The Contractors will develop SOPs for managing the spread of Covid-19 during project execution and submit them for the approval of the Supervision Engineer and the Client before mobilization. The SOPs shall be in line with the World Bank guidance on COVID-19, Ministry of Health Directives and site-specific project conditions;
- ✓ Mandatory provision and use of appropriate Personal Protective Equipment (PPE) shall be required for all project personnel including workers and visitors;
- ✓ Avoid concentrating of more than 15 persons or workers at one location. Where more than one person is gathered, maintain social distancing of at least 2 meters
- ✓ All workers and visitors accessing worksites every day or attending meetings shall be subjected to rapid Covid-19 screening which may include temperature check and other vital signs;
- ✓ The project shall put in place means to support rapid testing of suspected workers for covid-19;
- ✓ Install handwashing facilities with adequate running water and soap, or sanitizing facilities at entrance to work sites including consultation venues and meetings and ensure they are used;
- ✓ Ensure routine sanitization of shared social facilities and other communal places routinely including wiping of work stations, door knobs, hand rails

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7.4.3 Gender based violence and sexual harassment (GBV/SH)

This impact is triggered during project construction phase when the contractor(s) fail to comply with the following provisions:

a) Gender Inclusivity requirements in hiring of workers and entire project management as required by Gender Policy 2011 and 2/3 gender rule; and
b) Failure to protect human risk areas associated with, disadvantaged groups, interfering with participation rights, and interfering with labour rights.

The proposed Mitigation Measures of Human Rights and Gender Requirements are:

- ✓ Ensure clear human resources policy against sexual harassment that is aligned with national law.
- ✓ Integrate provisions related to sexual harassment in the employee Code of Conduct.
- ✓ Ensure appointed human resources personnel to manage reports of sexual harassment according to policy.
- ✓ The contractor(s) shall require 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(s) will implement provisions that ensure that GBV 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.
- ✓ The contractor shall develop specific plan for mitigating these known risks, e.g. sensitization around gender-equitable approaches to compensation and employment.
- ✓ The contractor will ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation.

7.4.4 Child Abuse

Children within project areas will be exposed to risks associated with interaction between them and Project Workers. This includes child labour and sexual abuse which coherently leads to teenage pregnancies and exposure to communicable diseases such as HIV/AIDS. The contractor will undertake the following mitigation measures.

. Mitigation measures

- ✓ The contractor will develop and implement a Children Protection Strategy that will ensures minors are protected against negative impacts associated by the Project including on SEA...
- ✓ Children under the age of 18 years should not be hired on site as provided by Child Rights Act (Amendment Bill) 2014.
- ✓ Not invite unaccompanied children to workers home, unless they are at immediate risk of injury or in physical danger.
- ✓ Throughout the project phase the proponent shall refrain from hiring children for domestic or other labour, which is inappropriate given their age, or developmental stage, which interferes with their time available for education and recreational activities, or which places them at significant risk of injury.
- ✓ Comply with all relevant local legislation, including labour laws in relation to child labour specifically provisions of Kenya's Employment Act Cap 226 of 2007 Part VII on protection of children against exploitation

7.4.5 Sexual Exploitation and Abuse (SEA)

This impact refers to sexual exploitation and abuse committed by Project staff 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 in the Project.

Mitigation Measures to Risk of SEA

- ✓ Develop and implement an SEA action plan with an Accountability and Response Framework as part of the C-ESMP. The SEA action plan will follow guidance on the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018). The SEA action plan will include how the project will ensure necessary steps are in place for:
- ✓ **Prevention of SEA**: including COCs and ongoing sensitization of staff on responsibilities related to the COC and consequences of non-compliance; project-level IEC materials;
- ✓ **Response to SEA**: including survivor-centered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management;
- ✓ Engagement with the community: including development of confidential community-based complaints mechanisms discrete from the standard GRM; mainstreaming of PSEA awareness-raising in all community engagement activities; community-level IEC materials; regular community outreach to women and girls about social risks and their PSEA-related rights;

- ✓ **Management and Coordination**: including integration of SEA in job descriptions, employments contracts, performance appraisal systems, etc.; development of contract policies related to SEA, including whistle-blower protection and investigation and disciplinary procedures; training for all project management; management of coordination mechanism for case oversight, investigations and disciplinary procedures; supervision of dedicated PSEA focal points in the project and trained community liaison officers.

7.4.6 Risk of Increased incidences of HIV/AIDS and STIs

The influx of people may bring communicable diseases to the project area, including sexually transmitted infections (STIs), or the incoming workers may be exposed to diseases to which they have low resistance. This can result in an additional burden on local health facilities and resources. Local health and rescue facilities may also be overwhelmed and/or ill-equipped to address the industrial accidents that can occur in a large construction site.

Proposed mitigation measure for this are:

- ✓ Contractor(s) to sensitize workers and community members on HIV/AIDS awareness and other communicable diseases to be instituted and implemented as part of the contractor's Health and Safety Management Plan to be enforced by the Supervising Engineer. This will involve periodic HIV/AIDS and other communicable diseases Awareness Workshops for Contractor's Staff.
- ✓ Controlled access to contractor's workforce camps by outsiders.
- ✓ Contractor(s) to provide standard quality condoms at the construction site during the construction period.

7.4.7. Increased Occupational health and safety (OHS) risks

Construction work carries with its certain risks for worker health and safety. Risk of accidents is high for those who handle heavy machinery. The envisaged work does not require any form of explosive or blasting thus negative impacts are not foreseen. During construction phase, the risk of accidents will be from sources such as falling objects and machinery and inhalation of dust and electrocution. Occupational health and safety issues that occur during the operational phase in fish processing projects primarily include the following:

- ✓ Physical hazards
- ✓ Lifting, carrying, and repetitive work injuries
- ✓ Exposure to chemicals
- ✓ Exposure to heat
- ✓ Confined space
- ✓ Exposure to noise and vibrations

Mitigation measures

Occupational health and safety risks are likely to increase during construction and operation phases. The proposed mitigation measures against OHS risks include;
The proponent will adhere to OSHA regulations and other related work place regulations and good practices. Specifically

- ✓ The contractor and proponent will provide PPEs such as helmets and gunboots to workers and ensure that they are using them at all time when engaged at the site
- ✓ The Contractor to place labels and warning signs in areas posing risk of injury or accidents
- ✓ The contractor to have Incident and Accident Registers on site for recording of injuries or any OHS incidence
- ✓ Contractor and proponent to hire a qualified health and safety officer to oversee OSH issues
- ✓ the contractor and proponent should ensure there is a temporal toilet/pit latrine

- ✓ Contractor to erect construction signage and secure the construction site to minimize risks of accidents and prevent injuries to the public
- ✓ The contractor and proponent to provide First Aid box and a trained person to handle site emergencies and incidences, while displaying emergency number for ambulances/provision of emergency vehicles

7.4.8. Risk of Accidents

During Construction phase, increased traffic flow into and through the site will occur. This increases the risk of accidents unless the traffic is properly controlled. Erection of proper signage and appropriate warning at least 100m from the hazard will mitigate against the chances of accidents. Hauling of equipment (plant and machinery) and other materials and supply to the project site may pose a potential risk of accidents to animals and even people, especially children.

Mitigation measures

During Construction phase, increased traffic flow into and through the site will occur. This increases the risk of accidents unless the traffic is properly controlled.

Proposed mitigation measures

- ✓ Drivers to be instructed not to speed especially near settlements when supplying materials to the site to prevent accidents especially to animals and children
- ✓ Provision of PPEs to all workers by the contractor and proponent
- ✓ Installation of warning signage at the construction site and identified
- ✓ Contractor to implement a fall protection program that includes training in climbing techniques and use of fall protection measures
- ✓ Use of helmets and other protective devices

7.4.9 Risks of increased spread of COVID-19 at work sites

During project execution (civil works), large numbers of workers will be required to assemble together in meetings, toolbox talks and even at work sites; varied number of workforce including suppliers of material and services are also expected to come in from various places in the country which may be COVID-19 hot spots; and interaction of workers with the project host community will happen as workers find accommodation close to work sites, and/or return to their homes after works. The potential for the spread of any infectious disease like COVID-19 by projects is high. There is also the risk that the project may experience large numbers of its workforce becoming ill and will need to consider how they will receive treatment, and whether this will impact on local healthcare services including the project host community. The presence of international workers, especially if they come from countries with high infection rates, may also cause social tension between the foreign workers and the local populations.

The proposed Mitigation Measures against spread of COVID-19 amongst workers are:

a) The contractor(s) shall put in place measures to prevent and manage the spread of the COVID-19.
b) The contractor(s) will develop a SOPs for managing the spread of COVID-19 during project execution and submit them for the approval of the Supervision Engineer and the Client before mobilization. The SOPs shall be in line with the World Bank guidance on COVID-19, Ministry of Health Directives and site-specific project conditions.

c) Mandatory provision and use of appropriate Personal Protective Equipment (PPE) shall be required for all project personnel.
d) The project shall put in place means to support rapid testing of suspected workers for COVID-19.
e) Avoid concentrating of more than 15 persons or workers at one location. Where more than one person are gathered, maintain social distancing at least 2 meters. All workers and visitors accessing worksites every day or attending meetings shall be subjected to rapid COVID-19 screening which may include temperature check and other vital signs.
f) Install handwashing facilities with adequate running water and soap, or sanitizing facilities at entrance to work sites including consultation venues and meetings and ensure they are used.
g) Ensure routine sanitization of shared social facilities and other communal places routinely including wiping of workstations, door knobs.

7.5 Impacts during the operation phase

7.5.1 Anticipated positive impacts during operation phase

7.5.2 Reduced post-harvest losses

With the Omena processing facility, the BMU the potential to plan the marketing and even forward contracts and market hedging hence improved earnings that it currently dictated by middlemen. The reduced losses that can reach up to 50 % of the Omena and to scavengers or through rotting and contamination hygienic processing that will be curtailed by hygienic processing will highly lead to increased earning to the fisherfolk.

7.5.3 Resilience building in the community

Hygienic processing reduces market and price risks especially the selling of Omena products at throw way prices to middlemen during wet/ cold seasons. The stabilized prices means increased income and resilience of the community to weather and market related risks. The subproject intervention will contribute to creation of decent jobs, increase value of the omen and support many livelihoods hence resilience of the community.

7.5.4 Improved food and nutritional security

Sanitation goes hand in hand with food security. The high standards in handling of the fish products will increase access to the nutritious yet affordable fish products at the community level and in the Kenyan market at large thus enhancing food security outcomes.

7.5.5. Livelihood diversification

The proposed project will enhance livelihood diversification through sustainable land management and natural resource management interventions, projects and farm level conservation works. Diversification will contribute towards employment creation, income generation and food security in the project area.

7.5.6 Biodiversity conservation and enhancement

Landscaping and planting of trees and ornamental plants at the processing plant will enhance the aesthetics and spur the community to adopt the same. Tree planting will enhance biodiversity of the area. The group nursery will provide seedlings to the community and enhance environmental conservation

7.5.7 Improved beach hygiene and public health

The proposed construction of sanitary facilities (bio-digester technology) in the project and fencing of the Omena drying facility will mean less contamination and pollution of the water and the environment. All this will result in improved sanitation and risk of water borne diseases. The control of scavenging birds (plate 11) will also reduce the risk of spreading zoonotic diseases to humans and poultry in the area.

PLATE 11: BIRDS FEEDING ON OMENA AND OCHONGO DURING DRYING:
This increases contamination, loss of quality and economic losses to the
Fisherfolk. The processing facility has the potential to reverse this.

7.5.8 Enhanced food safety

Open drying increases the chances of cross contamination especially with outbreak of cholera, and salmonella, a common occurrence along the beaches and fish products. With the improved standards in handling and processing the fish products .i.e. adherence to HACCP protocols will greatly reduce the likelihood of contamination of the products thus eliminating spread and risk of such water borne diseases.

7.6 Anticipated negative environmental impacts during operation phase

7.6.1. Health risks and Environmental contamination from pesticides

There will be minimal use of fumigants or agrochemicals. The fumigation of the factory during processing and use of anti- termites in the foundation during construction is also envisaged.

Mitigation measures

- ✓ Proponent shall promote use of Integrated Pest Management in an event that there will be pests
- ✓ If absolutely necessary then application of bio-pesticides will be considered.

7.6.2. Increased water usage

Fish processing uses a lot of water in washing the raw products and cleaning the processing premises. The use of detergents in this processes increases environmental pollution risks hence it is critical in mitigation of the adverse environmental impacts. Water for the processing facility will supplied through the appropriate service provider.

Mitigation measures

- ✓ Use high pressure rather than high volume for cleaning
- ✓ Install meters to monitor water usage
- ✓ Pre-soak floors and equipment to loosen dirt before final cleaning
- ✓ Reuse relatively clean waste water for other applications
- ✓ Consider use of compressed air instead of water where possible
- ✓ Use pressurised spray nozzles to increase effectiveness in cleaning of surfaces and reduce water consumption
- ✓ the wastewater from the final rinse can be collected and used for the initial rinse on the following day
- ✓ determining the required amount or concentration for effective cleaning scraping followed by an initial rinse to reduce the consumption of detergents
- ✓ Put in place rain water harvesting structures by constructing roof catchment

7.6.3 Increased energy use

The Omena drying processing will require electricity to operate the drier, provide lighting, run air compressors and production of steam and hot water for cleaning and sanitising.

- ✓ Use of solar to generate energy will be given priority
- ✓ Proponent to implement switch-off programs and install sensors to turn off or power down lights and equipment when not in use
- ✓ During operation phase BMU to ensure regular maintenance as to optimise energy efficiency of equipment and schedule maintenance activities on regular basis to avoid inefficiencies and breakdowns

7.6.4 Fire

Fire damage is unpredictable given that the proposed project will not involve a lot of flammable materials. However, if appropriate measures are not put in place, a fire outbreak can accidentally occur and cause damage to property and even lead to death.

Mitigation measures

- ✓ Declare places with flammable construction materials as "NO SMOKING ZONES" and display conspicuous notices of the same.
- ✓ Train workers and the management on emergency (fire) preparedness and management.
- ✓ Provide fire extinguishers at the site e.g. at the fish hatchery, at the fish feeds formulation unit, at the office etc.

7.6.5 Solid wastes

Increase in waste generation will come from packaging materials and operations such as when separating omen from chaff.

Mitigation measures

- ✓ Provide bins for separate collection of wastes into appropriate sorts such as recyclable and non-recyclable, general wastes and infectious wastes e.g. used masks and label the collection bins appropriately.
- ✓ Where possible material considered as waste may be re-used or recycled or be given to who may consider them useful for others uses.
- ✓ Order materials according to needs to reduce waste.
- ✓ Maintain and repair equipment rather than replacing it to reduce waste.
- ✓ Regularly collect solid wastes and dispose them to prevent accumulation at collection areas.
- ✓ Cover the solid waste collection areas to minimize invasion by pests and rodents or other animals.

7.6 Anticipated negative social impacts during operation phase

7.6.1 Gender based violence and sexual harassment (GBV/SH)

This impact is triggered during project operation phase when the Proponent or project management fail to comply with the following provisions:

- Gender Inclusivity requirements in hiring of workers and entire project management as required by Gender Policy 2011 and 2/3 gender rule; and
- Failure to protect human risk areas associated with, disadvantaged groups, interfering with participation rights, and interfering with labour rights.

The proposed Mitigation Measures of Human Rights and Gender Requirements are:

a) Ensure clear human resources policy against sexual harassment that is aligned with national law.
b) Integrate provisions related to sexual harassment in the employee Code of Conduct.
c) Ensure appointed human resources personnel to manage reports of sexual harassment according to policy.

d) Ensure all employees and any personnel thereof engaged in the project implementation to individually sign and comply with a Code of Conduct with specific provisions on protection from sexual exploitation and abuse.
e) Implement provisions that ensure that GBV at the community level is not triggered by the project, including:
f) Effective and on-going community engagement and consultation, particularly with women and girls.
g) 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.
h) Develop specific plan for mitigating these known risks, e.g. sensitization around gender-equitable approaches to compensation and employment.
i) Ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation.

7.6.2 Sexual Exploitation and Abuse by project workers against community members

This impact refers to sexual exploitation and abuse (SEA) committed by project staff 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 in the project.

The proposed mitigation measures to risks of SEA include:

a) Develop and implement a SEA action plan with an Accountability and Response Framework as part of the C-ESMP. The SEA action plan will follow guidance on the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018).
b) The SEA action plan will include how the project will ensure necessary steps are in place for:
c) Prevention of SEA: including Code of Conducts and ongoing sensitization of staff on responsibilities related to the Code of Conducts and consequences of non-compliance; project-level IEC materials.
d) Response to SEA: including survivor-centered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management.
e) Engagement with the community: including development of confidential community-based complaints mechanisms discrete from the standard GRM; mainstreaming of PSEA awareness-raising in all community engagement activities; community-level IEC materials; regular community outreach to women and girls about social risks and their PSEA-related rights.
f) Management and Coordination: including integration of SEA in job descriptions, employments contracts, performance appraisal systems, etc.; development of contract policies related to SEA, including whistle blower protection and investigation and disciplinary procedures; training for all project management; management of coordination mechanism for case oversight, investigations and disciplinary procedures; supervision of dedicated PSEA focal points in the project and trained community liaison officers.

7.6.3 Risk of Increased incidences of HIV/AIDS and STIs

The influx of people may bring communicable diseases to the project area, including sexually transmitted infections (STIs), or the incoming workers may be exposed to diseases to which they have low resistance. This can result in an additional burden on local health facilities and resources. Local health and rescue facilities may also be overwhelmed and/or ill-equipped to address the industrial accidents that can occur in a large construction site.

Proposed mitigation measure for this are:

a) Sensitize workers and community members on HIV/AIDS awareness and other communicable diseases to be instituted and implemented as part of the contractor's Health and Safety Management Plan to be enforced by the Supervising Engineer. This will involve periodic HIV/AIDS and other communicable diseases Awareness Workshops for Contractor's Staff.
b) Controlled access to private offices and working places by outsiders.
c) Provide standard quality condoms at the site at all times.

7.6.4 Grievances/conflicts

Common grievances expected to arise during the proposed project implementation include:

a) Disruption of income streams, physical harm, and nuisance from operation activities;
b) Health and safety risks;
c) Socially-unacceptable omena drying facility staff relations with the communities and other stakeholders;
d) Conflicts over water sources; and
e) Pollution and other environmental related impacts.

Mitigation measures

The following are possible mitigation measures to manage grievances:

a) Establish a grievance redress mechanism (GRM) for the proposed project;
b) Seek to establish amicable relationships with stakeholders and manage the impact of the project activities on affected communities;
c) Put in place a pre-emptive community liaison structure aimed at identifying potential issues arising from project-related impacts and addressing them before they become grievances;
d) Establish a grievance redress mechanism targeting communities and other project stakeholders but not applicable to commercial and employee-employee relationships, and which will allow stakeholders to easily put forth their concerns relating to the project, implementation and have them addressed in a prompt and respectful manner;
e) Ensure the grievance redress mechanism is available to the affected community members and stakeholders at no cost;
f) Address all raised grievances, real or imagined and take reasonable steps to maintain confidentiality of the parties to the mechanism and regardless of the complainants' participation in this process, give a guarantee that the complainant's statutory rights to undertake legal proceedings remain unaffected; and
g) Educate all project stakeholders on the availability and use of the grievance redress mechanism in a manner that is understandable to all, before, during and after construction of the proposed project.

7.6.5 Child abuse

Children within the project area will be exposed to risks associated with interaction between them and workers in the drying facility. This includes child labour and sexual abuse which coherently leads to teenage pregnancies and exposure to communicable diseases such as HIV/AIDS.

a) The Proponent will develop and implement a Children Protection Strategy that will ensure minors are protected against negative impacts associated with the project.
b) All staff must sign, committing themselves towards protecting children, a contract which clearly defines what is and is not acceptable behaviour.
c) Children under the age of 18 years will not be hired at the site as provided by Child Rights Act (Amendment Bill) 2014.
d) Refrain from hiring children for domestic or other labour, which is inappropriate given their age, or developmental stage, which interferes with their time available for education and recreational activities, or which places them at significant risk of injury.
e) Comply with all relevant local legislation, including labour laws in relation to child labour specifically provisions of Kenya's Employment Act, 2007 (Cap. 226) Part VII on protection of children against exploitation.

7.6.6 Risk of increased spread of COVID-19

During project operation, there will be a lot of interactions among different people at the site. The potential for the spread of any infectious disease like COVID-19 is high. There is also the risk that the project may experience large numbers of its workforce becoming ill and will need to consider how they will receive treatment, and whether this will impact on local healthcare services including the project host community.

The proposed Mitigation Measures against spread of COVID-19:

a) The Proponent shall put in place measures to prevent and manage the spread of the COVID-19.
b) The Proponent will develop a SOPs for managing the spread of COVID-19 during project operation. The SOPs shall be in line with the World Bank guidance on COVID-19, Ministry of Health Directives and site-specific project conditions.
c) Mandatory provision and use of appropriate PPE shall be required for all project personnel.
d) The project shall put in place means to support rapid testing of suspected workers for COVID-19.
e) Avoid concentrating of more than 15 persons or workers at one location. Where more than one person are gathered, maintain social distancing at least 2 meters. All workers and visitors accessing worksites every day or attending meetings shall be subjected to rapid COVID-19 screening which may include temperature check and other vital signs.
f) Install handwashing facilities with adequate running water and soap, or sanitizing facilities at entrance to work sites including consultation venues and meetings and ensure they are used.
g) Ensure routine sanitization of shared social facilities and other communal places routinely including wiping of workstations, door knobs.

7.6.7 Impacts related to occupational and public/community safety and health

There are three main types of occupational health and safety hazards that may be of concern. These are physical, chemical and biological. Potential physical hazards will include noise and accidents. Chemical hazards will involve exposure to harmful gases and chemicals by

inhalation, ingestion and skin contact. Biological hazards involve exposure to pathogenic organisms which may cause diseases. Specific areas of concern include fire hazards, noise and vibrations, congestion, body contact, failure to observe social distancing thus exposing other people to COVID-19, poor sanitation, gender-based violence, sexual harassment and accidents at the site. Poor sanitation could result from presence of potential environmental pollutants at the site including wastewater, decomposing solid wastes, dust and exhaust emissions. Accidents including cuts, pricks and bruises; electrocution from naked electrical cables; falling in uncovered holes and/or trenches and from raised places and suffocation from lack of oxygen in confined spaces. Accidents could result from lack of supervision and job training, improper handling of machinery and hand tools and inappropriate carrying out of tasks.

Mitigation measures

Mitigation options to some of the impacts have been discussed. Additional mitigation measures to other impacts are:

a) Supervise all works at the site e.g. plumbing, masonry, etc.
b) Support all structures under construction.
c) Keep all passages clear at all times.
d) Adopt proper working procedures and when working with chemicals, machines and equipment.
e) Fence the site for protection, privacy, reduction of trespass and theft, and control of entry by straying animals and therefore avoid conflicts between people at the site and the people in the neighborhood.
f) Clean all spilt hazardous materials using an appropriate disinfectant.
g) Ensure that trained first aid personnel are always available on site to handle emergencies.
h) Have a fully equipped First Aid Kit (containing a first aid manual and is equipped with sterile adhesive bandages, safety pins, cleansing agent/soap, latex gloves; sterile gauze pads triangular bandages, non-prescription drugs, scissors, tweezers and antiseptic amongst others) at the site at all times.
i) Put in place an appropriate emergency response plan including having emergency contacts (such as ambulance, fire tender and police) conspicuously displayed.
j) Dispose wastes from the site regularly and ensure high standards of cleanliness of all waste collection and disposal facilities.
k) Ensure adequate water supply for high standards of sanitation that keeps to the minimum chances of disease outbreaks.
l) Frequently undertake workers through refresher courses in order to make them have a basic understanding of the tasks under them, the hazards involved, and how to manage them.
m) Construct a pit latrine at the site and always keep it clean.
n) Conduct regular maintenance of the proposed site and facilities thereat to increase the life of the proposed building making it safe for habitation.

o) Ensure employee welfare including provision of free or subsidized medical attendance if injured on work, making provisions for leaves and offs, and operation of shorter-shift period for workers in highly polluted working areas.
p) Provide appropriate PPE including face masks, goggles, scarfs, boots and overalls among other protective clothing to all workers and people at the site and sensitize them to use them whenever they are in environments that warrant the use of such PPE especially in all situations where the body and skin are potentially exposed to hazards such as chemicals, harmful dusts, highly infectious wastes, sharp objects, burns and extreme temperature and/or when working in areas that present threatening experiences.
q) Ensure high standards of construction as recommended in the approved structural designs and regular maintenance to increase the life of the structures at the site.

7.7. Project Lifespan and Decommissioning

In the unlikely event of decommissioning, the BMU shall be expected to demolish the facility and restore the host environment close to its original state. Decommissioning is expected after 50 years, or if the capacity is to be upgraded in future. Possible impacts are primarily related to disposal and handling of the inert and non-biodegradable wastes from demolition. The demolition exercise shall involve the following:

- ✓ Demolishing and removal of all the concrete works
- ✓ Demolishing and removal of all the sanitary utilities
- ✓ Demolishing and removal of the wooden and roofing materials
- ✓ Carefully removing all the electrical fittings and associated cables
- ✓ Ensuring proper handling of the demolished materials and have an authorized and guided transportation and disposal away from the site
- ✓ The scrap metal will be sold for recycling

7.4.1 Negative Environmental and Social impacts and Mitigation measures during decommissioning

7.4.1 Negative impacts

The negative impacts during decommissioning are same as those in the construction phase.

7.4.1.1. Noise and Vibration Generation

Continuous exposure to noise levels above 85 dB may cause hearing problems leading to occupational deafness. Noise and vibration produced during decommissioning may have some temporary negative impacts to the immediate residents. These may include impairing verbal communication, temporary hearing problems/temporary threshold shift (TTS), noise annoyance or even interference of the normal behaviour of domestic.

Proposed mitigation and management measures

To control the generation of noise and ensuring compliance with relevant noise standard include:

- ✓ Avoid idling of machinery or engine when not in use.
- ✓ Restrict activities that create noise to daytime only.
- ✓ Provision of Personal Protective Equipment and clothing (PPE/C) to those actively engaged in the works at the site

7.4.1.2. Motor vehicle emissions

The potential sources of air pollution include traffic emission from excavator and material transport vehicles. This impact is considered low risk. The proposed mitigation and management measures include;

- ✓ Ensure that maintenance on all machinery is done regularly to avoid the emission of noxious gases.

- ✓ Drivers and machine operator to avoid unnecessary running of motor vehicle engines and machinery when not in use

7.4.1.3. Oil spills/Fuels and Lubricants

Oils and grease spillage on the ground may cause contamination to the soil and groundwater.
Proposed mitigation and management measures are:

- ✓ Proper maintenance of vehicles and other equipment (using petroleum products) to avoid fuels and lubricants spills at the project site.
- ✓ The contractor should properly handle, storage, and disposal off oils and greases and their wastes during construction by ensuring that servicing is strictly done at designated servicing yard or external petroleum stations

7.4.1.4 Solid Waste Generation

The decommissioning of the project will entail a small scale of removal of structures which is expected to be in small amounts with low impact.

The proposed mitigation measures are as follows

- ✓ The contractor should ensure that construction wastes generated and not reusable or recyclable is cleared from the project site and disposed of accordingly in line with appropriate law by the regulatory agency at the region which is NEMA and County Government.
- ✓ Contractor to practice waste separation to enable easy recycling of re-usable waste materials
- ✓ Contractor to provide temporal waste disposal receptacle in site.
- ✓ Contractor to liaise with licensed waste collector to routinely collect and dispose the waste

7.4.1.5. Occupational Health and Safety (OHS)

During decommissioning of the auxiliary structures (latrine, livestock troughs) and other masonry structures accidents may also be caused by falls in excavated sites or injuries by wrongly placed equipment, tools or other construction materials.

The proposed mitigation measures

The Contractor to place labels and warning signs in areas posing risk of injury or accidents

- ✓ The contractor labels and warn the public on the danger of decommissioning activities
- ✓ The contractor to provide all workers with full protective gear
- ✓ The contractor to train and provide First-aid Kit to the workers
- ✓ The contractor to have a book (Incident and Accident Registers) on site for recording of injuries or any OHS incidence
- ✓ Contractor to prepare a contingency / emergency management and preparedness plan for accident response
- ✓ Ensure the availability of Emergency contacts for police, ambulance

7.4.1.6 Spread of COVID-19 amongst workers

(ii) Avoid concentrating of more than 15 community members at one location. Where two or more people are gathered, maintain social distancing of at least 2 meters.

(iii) The team carrying out engagements within the communities on one-on-one basis will be provided with appropriate PPE for the number of people they intend to meet.

7.5. Positive Impacts during decommissioning

Several positive impacts include short term employment and recycling of the material for income generation. Should decommissioning involve expansion of the site, then the positive impact will include expansion of area under horticultural production and amount of water available to wider area of the location.

CHAPTER EIGHT

8.0. ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN

Environmental and Social Management& Monitoring Plan (ESMMP) provides a logical framework within which the negative environmental and social impacts identified during the ESIA study can be mitigated and any beneficial environment effects can be enhanced. Monitoring and management practices as well as monetary compensation are considered and cost estimates included as applicable. Responsibilities and time frames for the implementation of the various aspects of the ESMMP will be identified. The ESMMP will be provided to prospective bidders for the construction contracts to ensure that environmental mitigation costs are factored into their costing. The Contractor(s) will also be required to prepare a separate and specific ESMMP for their works in order to control construction impacts and ensure compliance with applicable environmental and health and safety legislation and standards. KCSAP especially the County Project Coordination Unit and County Environment and Social Officers (CESOs) will ultimately be responsible for ensuring that the ESMMP is implemented on site via reviewing the Contractor's ESMMP and ensuring its implementation on site via audits.

The ESMMP has been developed to assist in prioritization of key findings of the ESIA mitigation measures. The ESMMP is based on ISO 14001 principles comprising the following: The environmental issues of concern, recommended mitigation measures, responsibilities, timeframes and costs (Table 4). The Environmental and Social Management& Monitoring Plan also includes environmental monitoring measures with the following objectives:

- ✓ To verify the execution of the measures proposed in the ESIA and to evaluate the effectiveness of these measures.
- ✓ To verify if the impacts anticipated in the ESIA have occurred and to detect environmental problems that could not have been identified previously, in order to adopt solutions adequate for the conservation of the environment.
- ✓ To provide reliable information to be used for the verification of environmental impacts with the purpose of improving the techniques of prediction of environmental impacts and the quality and opportunity of application of corrective measures. The monitoring program will cover, among others, the following aspects.

TABLE 8: SUMMARY OF ENVIRONMENTAL AND SOCIAL MANAGEMENT MONITORING PLAN- KAMARIGA BMU FISH DRYING PLANT

Environmental and social Issue	Specific Mitigation plan	Cost (Kes)	Responsibility	T/Frame	Indicators	Sources of data
Clearance of vegetation, soil erosion and loss of biodiversity	Replant the area with grass and indigenous tree species to replace the lost plants Protect the lake shore at the landing site	Contractor cost	Design Engineer and contractor Contractor, CPU	2 months 2months	No. of seedlings replanted and surviving	Requisition invoices Site observation Interviews Site observations
Waste management	Provide solid waste collection facilities and encourage waste segregation through sensitizing workers and community on waste management practices engage licensed waste handler to regularly collect and dispose the wastes ensure recycling of recyclable wastes such as paper, metals, plastics BMU to apply waste reduction strategy that collects marketable waste such as flakes and market them as chicken feed and organic fertilizer	Contractor cost	BMU and contractor	1 month	Number of licences waste handlers Number and type of suitable waste disposal facilities installed Amount in tonnes of flakes that have been marketed as chicken feed	Records of tonnage of waste management facilities Reports/Observation

Environmental and social Issue	Specific Mitigation plan	Cost (Kes)	Responsibility	T/Frame	Indicators	Sources of data
Hydrological Impacts	install roof harvesting to reduce allow for natural seepage of water by replanting disturbed areas with grass and indigenous trees	Contractor cost	Contractor	Constructor	Roof area designated for rain water harvesting	Reports
Health Operation and safety of the processing facility	Comply with places of work regulation and ensure health and safety of the workers and community Install side drains Establish an environmental audit and protocol and schedule as per the EIA/Audit regulations Secure the factory through construction of a chain link fence and locked at all time Provide appropriate protective clothing (overalls, head covers/caps, gloves, nose muffs) and training of workers on use of these PPEs.	Contractor cost	Contractor BMU	Continuous	Number and length of side drains installed Environmental Audit Report Length of chain-link fence Number and types of PPE provided	DOSH licenses Audit report Records and observations Reports/site visit Observation

Environmental and social Issue	Specific Mitigation plan	Cost (Kes)	Responsibility	T/Frame	Indicators	Sources of data
Effluent offload	Sweep up solid materials for use as a by-product, instead of washing them down the drain Fit drains with screens and/or traps to prevent solid materials from entering the effluent system.	Contractor cost	Contractor	Continuous	Amount of Solid materials kept for use Length of screens and traps installed in the drainage systems	Reports Reports
Surface runoff	Stone pitch the waterways around the building Sensitization and afforestation of the landscape/catchment	Contractor cost	Contractor	1 Month	Length of stone pitches around the proposed building Number of trees grown around the landscape	Reports
Oil spills/Fuels and Lubricants	Proper maintenance of vehicles and other equipment (using petroleum products) to avoid fuels and lubricants spills at the project properly handle, storage, and disposal off oils and greases and their wastes during construction by ensuring that servicing is strictly done at designated servicing yard or external petroleum stations	Contractor cost	Contractor	Continuous	Number and types of vehicles and machines Date of due service Amount and types of oils and greases	Maintenance record register of vehicles Stores Ledger cards for the oils and grease

Environmental and social Issue	Specific Mitigation plan	Cost (Kes)	Responsibility	T/Frame	Indicators	Sources of data
Air, dust and noise pollution	✓ People participating in the construction should be provided with Personal Protective Equipment (PPE) such as ear muffles for ear protection ✓ Sprinkling to minimize dust emission during construction ✓ Restrict construction activities to day time	Contractor cost	Contractor	Continuous	Number and types of PPEs i.e ear protectors Amount of litres of water sprinkled	
Effluents and pollution of water sources	provide oil sumps at the construction yard and/or service and fuel at registered oil dealers yards necessary measures to prevent oil and grease spills and soil erosion which may pollute the water Community sensitization and awareness on sanitation Construct ablution block with bathrooms Construct a septic tank	Contractor cost	Contractor	Continuous	Number of containers for storing oil sumps at the yard Number and size of septic tank constructed Number of ablution block constructed for males and females	Stores ledger register Reports/observation Reports/observation

Environmental and social Issue	Specific Mitigation plan	Cost (Kes)	Responsibility	T/Frame	Indicators	Sources of data
Increased Energy consumption	Install Solar powered energy equipment's Implement switch-off programs and install sensors to turn off or power down lights and equipment when not in use Ensure regular maintenance as to optimise energy efficiency of equipment and schedule maintenance activities on regular basis to avoid inefficiencies and breakdowns	0.4	Contractor, and BMU	1 month	Number ad types of Energy efficiency equipments For example Number of energy saving bulbs , Number of watts of solar panels installed	Reports/Observation
Aerial emissions	Cover all transfer systems, wastewater drainage systems , and wastewater treatment facilities to reduce the escape of foul odours	Contractor cost	BMU /Contractor	1 month	Amount of raw materials and waste by products in the warehouse Length of cover of the drainage systems	Stores ledger in the warehouse Reports
Anticipated negative Social and health impacts during construction phase						

Environmental and social Issue	Specific Mitigation plan	Cost (Kes)	Responsibility	T/Frame	Indicators	Sources of data
Labour Influx Effects	Ensure effective community engagement and strong grievance mechanisms on matters related to labour, with a discrete mechanism for safely and confidentially reporting issues of SEA and GBV at the community level triggered by the Project The contactor should institute a security plan e.g. through a register for all visitors and workers The contractor will Adopt and adapt Nyumba Kumi strategies	Contractor cost	Contractor/BMU	Continuous	Number of immigrants seeking jobs Number of workers and vsitors registered in the work premise	Reports Register of the construction worker
Child Abuse	The contractor will develop and implement a Children Protection Strategy that will ensures minors are protected against negative impacts associated by the Project including on SEA… Children under the age of 18 years should not be hired on site as provided by Child Rights Act (Amendment Bill) 2014.	.Contractors cost	Contractor/BMU		Number of persons below the age of 18 employed in the project	Reports observation
Risks of Increased HIV and Aids transmission in the area	The Contractor shall institute HIV/AIDS awareness and prevention campaign amongst his workers for the duration of the contract, contracting and implementing organisation, with preference for an organisation already working on this issue in the Project area;	.Contractors cost	Contractor/BMU	continuous	Number of Trainings on HIV/AIDs Held Number of cases reported on HIV/A infections	Ministry of health records on HIV/AIDs cases reported during the construction period

Environmental and social Issue	Specific Mitigation plan	Cost (Kes)	Responsibility	T/Frame	Indicators	Sources of data
GBV at community level	The contractor will create awareness on gender-based violence at the community level and for the workers The contractor will ensure adequate referrals mechanisms are in place if a case of GBV at the community level is reported related to project implementation Separate toilets for different gender	0.2M	Contractor/BMU	continuous	Number of Training on GBV Number of GBSV cases reported in the GRM registers	Minutes and records of training Invitation register Proceedings of the training Interviews with trainees GRM register
Sexual Exploitation and Abuse by project workers against **community members**	Response to SEA: including survivor-centered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management. Engagement with the community: including development of confidential community-based complaints mechanisms discrete from the standard GRM;	-	Contractor/BMU		Number of incidences of SEA reported Number of confidential community-based complaints mechanisms discrete from the standard GRM;	Proceedings from Interviews with communities Reports GRM Register
Grievance Redress Mechanisms	Address all raised grievances, real or imagined and take reasonable steps to	-	Contractor/ CPCU and BMU	continuous	Number of grievances	Minutes and records of meetings with

Environmental and social Issue	Specific Mitigation plan	Cost (Kes)	Responsibility	T/Frame	Indicators	Sources of data
	maintain confidentiality of the parties to the mechanism and regardless of the complainants' participation in this process , give a guarantee that the complainant's statutory rights to undertake legal proceedings remain unaffected;				raised during the project phase	names, telephone numbers of the aggrieved parties
Spread of COVID-19 amongst workers	Mandatory provision and use of appropriate Personal Protective Equipment (PPE) shall be required for all project personnel including Avoid concentrating of more than 15 persons or workers at one location. Where more than one person is gathered, maintain social distancing at least 2 meters All workers and visitors accessing worksites every day or attending meetings shall be subjected to rapid Covid-19 screening which may include temperature check and other vital signs; The project shall put in place means to support rapid testing of suspected workers for covid-19; Install handwashing facilities with adequate running water and soap, or sanitizing facilities at entrance to work sites including consultation venues and meetings and ensure they are used; Ensure routine sanitization of shared social facilities and other communal places routinely including wiping of workstations, door knobs, hand rails etc;	0.2M	BMU Supervising Eng. & Contractor(s)	continuous	Availability of SOP(s), Training material, PPE, sanitising facilities etc;	Requisition invoices Site observation Interviews Archived records

Environmental and social Issue	Specific Mitigation plan	Cost (Kes)	Responsibility	T/Frame	Indicators	Sources of data
Anticipated Negative Environmental impacts during operation phase						
Contamination of Omena and the by products on pesticides	Formulate an IPM guideline Train farmers on safe use of pesticides Procure PPE demo kits and hold demonstrations at farm level	0.3 M	BMU, CPU, Farmers	Continuous	Number of Trainings on IPM held Committees on IPM formed	Minutes and records of training Invitation register Proceedings of the training Interviews with trainees
Effluent discharge	Use pressurised spray nozzles to increase effectiveness in cleaning of surfaces and reduce water consumption Determine the required amount or concentration for effective cleaning scraping followed by an initial rinse to reduce the consumption of detergents Use dry cleaning techniques where possible, by scraping equipment before cleaning, pre-cleaning with air guns and cleaning floor spills with squeegees	0.2	BMU	Continuous	Number of effective pressurized nozzles installed in the fish facility	Reports
Health risks and Environmental contamination from pesticides	Proponent shall promote use of Integrated Pest Management in an event that there will be pests ✓ If absolutely necessary then application of bio-pesticides ✓ Sensitization and awareness training on pesticide risks ✓ Contiguous sensitization on the proper use of pesticides ✓ Put in place a PMP	0.05	BMU work closely with the county dept of public health	Continuous	Amount in litres and types of bio pesticides Number of trainings on the use of IPM and biopesticides	Reports

Environmental and social Issue	Specific Mitigation plan	Cost (Kes)	Responsibility	T/Frame	Indicators	Sources of data
					PMP	
Fire	✓ Declare places with flammable construction materials as "NO SMOKING ZONES" and display conspicuous notices of the same. ✓ Train workers and the management on emergency (fire) preparedness and management. Provide fire extinguishers at the site e.g. at the fish hatchery, at the fish feeds formulation unit, at the office etc.	0.02	BMU	Continuous	Number and size of fires extinguishers installed Number of trainings on fire management and preparedness	Reports
Solid wastes	Provide bins for separate collection of wastes into appropriate sorts such as recyclable and non-recyclable, general wastes and infectious wastes e.g. used masks and label the collection bins appropriately. Cover the solid waste collection areas to minimize invasion by pests and rodents or other animals.	0.02	BMU	Continuous	Number and type of suitable waste disposal facilities installed Number of licences waste handlers Amount in tonnes of waste collected at anyone time	Records of tonnage of waste management facilities Reports/Observation Reports/Observation
Anticipated negative social impacts during operation phase						

Environmental and social Issue	Specific Mitigation plan	Cost (Kes)	Responsibility	T/Frame	Indicators	Sources of data
Gender based violence and sexual harassment (GBV/SH)	✓ . ✓ Implement provisions that ensure that GBV at the community level is not triggered by the project, including: ✓ Effective and on-going community engagement and consultation, particularly with women and girls. ✓ Ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project implementation.	0.05	BMU	Continuous	Number of reported cases on GBV Number of Community engagement and consultations Number of referral mechanisms	Reports GBV Register
Sexual Exploitation and Abuse by project workers against community members	✓ Response to SEA: including survivor-centered coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting mechanisms; written procedures related to case oversight, investigation and disciplinary procedures at the project level, including confidential data management. Engagement with the community: including development of confidential	0.05	BMU	Continuous	Number of reported cases on SEA	Reports SEA Register

Environmental and social Issue	Specific Mitigation plan	Cost (Kes)	Responsibility	T/Frame	Indicators	Sources of data
	community-based complaints mechanisms discrete from the standard GRM;					
Risk of Increased incidences of HIV/AIDS and STIs	✓ Sensitize workers and community members on HIV/AIDS awareness and other communicable diseases to be instituted and implemented as part of the contractor's Health and Safety Management Plan ✓ Controlled access to private offices and working places by outsiders. Provide standard quality condoms at the site at all times.	0.01	BMU/CPCU	Continuous	Number of workers sensitized Number of boxes of Condoms availed to workers	Reports
Grievances/conflicts	✓ Establish a grievance redress mechanism (GRM) for the proposed project; ✓ Seek to establish amicable relationships with stakeholders and manage the impact of the project activities on affected communities; ✓ Address all raised grievances, real or imagined and take reasonable steps to maintain confidentiality of the parties to the mechanism and regardless	-	BMU/CPCU	Continuous	Number of GRM cases reported Number of cases addressed	Reports GRM Register

Environmental and social Issue	Specific Mitigation plan	Cost (Kes)	Responsibility	T/Frame	Indicators	Sources of data
	of the complainants' participation in this process, give a guarantee that the complainant's statutory rights to undertake legal proceedings remain unaffected;					
Child abuse	✓ The Proponent will develop and implement a Children Protection Strategy that will ensure minors are protected against negative impacts associated with the project. ✓ All staff must sign, committing themselves towards protecting children, a contract which clearly defines what is and is not acceptable behaviour. ✓ Children under the age of 18 years will not be hired at the site as provided by Child Rights Act (Amendment Bill) 2014.	-	BMU	Continous	Number of reported incidences of child abuse One Child Protection strategy in place	Reports
Risk of increased spread of COVID-19	✓ The project shall put in place means to support rapid testing of suspected workers for COVID-19. ✓ Avoid concentrating of more than 15 persons or workers at one	0.2	BMU	Continuous	Number of people in the Omena facility plant at any one time	Reports

Environmental and social Issue	Specific Mitigation plan	Cost (Kes)	Responsibility	T/Frame	Indicators	Sources of data
	location. Where more than one person are gathered, maintain social distancing at least 2 meters. All workers and visitors accessing worksites every day or attending meetings shall be subjected to rapid COVID-19 screening which may include temperature check and other vital signs. ✓ Install handwashing facilities with adequate running water and soap, or sanitizing facilities at entrance to work sites including consultation venues and meetings and ensure they are used. Ensure routine sanitization of shared social facilities and other communal places routinely including wiping of workstations, door knobs.				Number Reported cases of high temperatures among workers Amount in litres of clean running water and soap	
Impacts related to occupational and public/community safety and health	✓ Keep all passages clear at all times. ✓ BMU to adopt and implement Good management Practice (GMP) and Hazard Analysis and Critical Control Points (HACCP) food safety programs ✓ Adopt proper working procedures and when working with chemicals, machines and equipment.	0.15	BMU	Continuous	Number of fully equipped first aid kits Number of PPEs	Reports

Environmental and social Issue	Specific Mitigation plan	Cost (Kes)	Responsibility	T/Frame	Indicators	Sources of data
	✓ Clean all spilt hazardous materials using an appropriate disinfectant. ✓ Ensure that trained first aid personnel are always available on site to handle emergencies. ✓ Have a fully equipped First Aid Kit (containing a first aid manual and is equipped with sterile adhesive bandages, safety pins, cleansing agent/soap, latex gloves; sterile gauze pads triangular bandages, non-prescription drugs, scissors, tweezers and antiseptic amongst others) at the site at all times. ✓ Conduct regular maintenance of the proposed site and facilities thereat to increase the life of the proposed building making it safe for habitation. ✓ Provide appropriate PPE including face masks, goggles, scarfs, boots and overalls among other protective clothing to all workers and people at the site and sensitize them to use them Ensure high standards of construction as recommended in the approved structural designs and regular					

Environmental and social Issue	Specific Mitigation plan	Cost (Kes)	Responsibility	T/Frame	Indicators	Sources of data
	maintenance to increase the life of the structures at the site.					

Total is KES 1.03M

Decommissioning phase		
Solid wastes	• Use of an integrated solid waste management system (recycling, reuse, combustion and sanitary land filling) • Remove from site and/or recycle/re-use at and/or away from site all machinery, equipment, structures and partitions that will not have been used up • Ensure source separation and collection of wastes into recyclable and non-recyclable wastes by installation of double waste collection bins at each collection point • Hire licensed waste handlers to regularly collect and dispose-off the wastes	Contractor
Gender based violence and Sexual harassment (GBV/SH)	Make use of the project policy against sexual harassment, Code of Conduct and grievance redress mechanism	Contractor
Risk of spread of Covid 19	• Where one-on-one engagements for the PAPs are needed, observe social distance and adhere to PPE (masks) wearing Avoid concentrating of more than 15 community members at one location and where more than one person are gathered, maintain social distancing of at least 2 meters	Contractor,
Risk of increased HIV/AIDS and STIs	• Sensitize workers and community members on HIV/AIDS and STIs, and create awareness on other communicable diseases as part of the Contractor's Health and Safety Management Plan to be enforced by the Supervising Engineer • Enforce controlled access to Contractor's Workforce Camps by outsiders	Contractor

	• Provide standard quality condoms at the site during the decommissioning period	
Sexual Exploitation and Abuse (SEA) by project workers against community members	• Develop and implement a SEA Action Plan with an Accountability and Response Framework as part of the decommissioning ESMP in accordance with the World Bank's Good Practice Note for Addressing Gender-based Violence in Investment Project Financing involving Major Civil Works (Sept 2018)	Contractor
Incidents and accidents	• Report any incidents and accidents using prescribed forms obtainable from the Occupational Health and Safety Office • Design suitable documented emergency preparedness and evacuation procedures for emergencies • Have on site stocked First Aid Kits which are easily available and accessible • Have on-site persons trained in first aid and issued with a certificate by a recognized body • Prepare a contingency plan for emergency response • Maintain an accident/incident register at the site	Contractor
Sub-total for decommissioning phase		**191,000**

Total cost of ESMP implantation	**1,221,000**

CHAPTER NINE

9.0 CONCLUSION AND RECOMMENDATIONS

9.1 Conclusion

This study has ascertained that the construction of the proposed Kamariga fish drying facility will have both negative and positive impacts on the physical and the surrounding human environment. Positive impacts include resilient livelihoods, increased income, employment during construction and operation phases, improved sanitation, as well as catchment conservation. Negative impacts include increased incidences of water pollution, noise and dust pollution during construction, removal of vegetation to create space for drier and associated facilities, risks of occupational hazards and risk of soil erosion in all phases. The project design has integrated measures to mitigate some of the adverse impacts with a view to ensuring compliance with applicable laws and procedures. Additional and more detailed measures are provided in the ESMP and will help in mitigating the impacts. Overall, the ESIA study concludes that excavation and construction of a water pan will not generate significant negative and irreversible impacts that can compromise the ecological and environmental wellbeing of the area as well as health and safety of the residents. It is thus recommended that on submission of this report to NEMA a conditional approval for the proposed sub Project activities is granted through issuing an EIA license.

9.2 Recommendations

It is recommended that the proposed project proponent be allowed to go ahead provided the outlined mitigation measures are implemented to as outlined in the ESMP. The ESMP should be translated into Contractor-Specific Environmental and Social Management Plan (CESMP) and shared with the contractor who wins the subproject bid. The CESMP is binding on the contractor. Accordingly, the contractor is required to engage a qualified Environmental and Social Safeguards specialist as well as food Safety and Health consultant to oversee implementation of the satisfactory implementation HACCP and GMP food systemsin the ESMP. On approval, it is recommended that the proponent should implement the proposed project based on the proposed plans and if alterations are necessary, advice should be sought from the CESSCO and subsequently environmental expert.

- ✓ The proponent should share the ESMP with the Contractor and other responsible stakeholders and that the ESMP form part and parcel of the Contractor's contract to ensure that their obligations as outlined in the ESMP are executed
- ✓ The proponent will be required to undertake annual environmental and social audit pursuant to the provisions of the Act and World Bank ESS guidelines, as well food safety audits

In case of future closure of the fish drying facility, key stakeholders and the community should be involved in the planning and execution of the closure as to ensure that direct and indirect users are well prepared and able to adjust to the decommissioning, all environmental and socio-economic impacts arising are addressed, alternative sources of livelihoods for the community are created and the land is reclaimed and restored to achieve its initial ecological and ecosystem functions.

9.2.1 Compliance with the Water Quality Regulations

The proponent as a registered BMU has complied with the standards set out in the fisheries Management and Development Act No.35 of 2016 by applying a licence for the establishment of a fish processing plant. The contractor will commence construction upon written authorization to go ahead with the construction works as the process for processing the permit proceeds. The proponent must ensure compliance with NEMA Environmental Management and Co-ordination (Water Quality) Regulations, 2006; the Water Act (No. 43 of 2016), and other related regulations. Regular testing of the water should be carried out (every 3 months or as may be agreed upon by the relevant authority) for the relevant parameters and mitigatory

action thereof. Food safety audits and testing of workers in compliance with food safety regulations will also be undertaken regularly.

9.2.3 Emergency Response Plan (ERP)

During the project construction, commissioning, operation and decommissioning, sustainable environmental management practices and adherence to stipulated structural designs and regulations will be observed. The proponent is committed to working closely with NEMA, environmental experts and relevant government agencies in adherence and implementation of the ESMP. In particular the proponent will institute regular monitoring of the work space particularly the machinery room, electrical wiring and testing the machinery. This is a risk reduction measure. The proponent should train the project management committee on detecting and responding to any risk situation and be part of the ERP team together with the local administration. All relevant departments should be alerted early enough for proper measures to be taken. The proponent should establish proper channel of information and risk communication.

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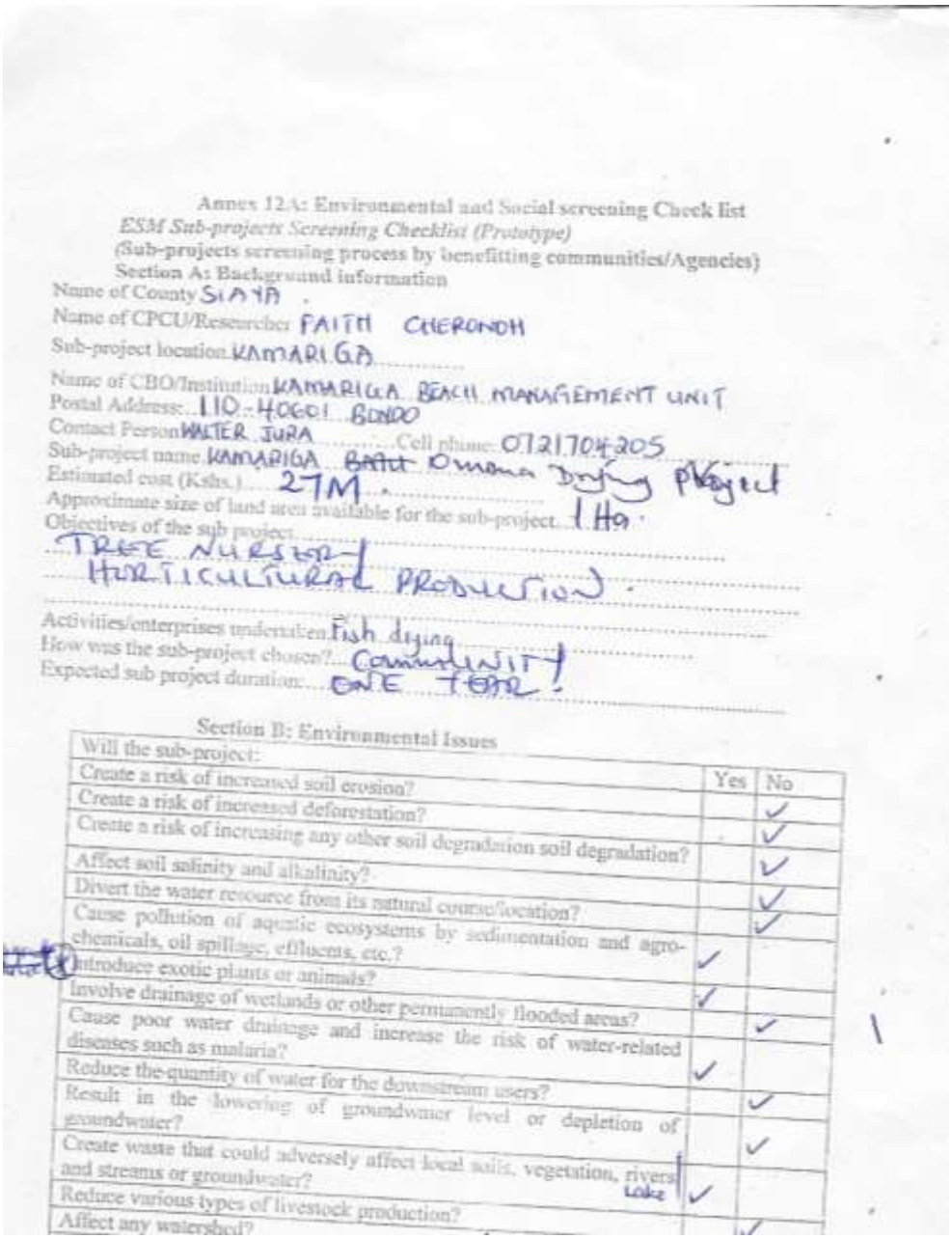
APPENDIXES

Appendix I: Environmental Social Management Framework Checklist and Appraisal



Annex 12A: Environmental and Social screening Check list

ESM Sub-projects Screening Checklist (Prototype)

(Sub-projects screening process by benefitting communities/Agencies)

Section A: Background information

Name of County SIAYA

Name of CPCU/Researcher FAITH CHERONOH

Sub-project location KAMARIGA

Name of CBO/Institution KAMARIGA BEACH MANAGEMENT UNIT

Postal Address: 110-40601 BONDO

Contact Person WALTER JURA Cell phone: 0721704205

Sub-project name KAMARIGA ~~BMU~~ Omena Drying Project

Estimated cost (Kshs.) 2TM.

Approximate size of land area available for the sub-project 1 Ha.

Objectives of the sub project

TREE NURSERY
HORTICULTURAL PRODUCTION.

Activities/enterprises undertaken Fish dying

How was the sub-project chosen? COMMUNITY

Expected sub project duration: ONE YEAR!

Section B: Environmental Issues

Will the sub-project:	Yes	No
Create a risk of increased soil erosion?		✓
Create a risk of increased deforestation?		✓
Create a risk of increasing any other soil degradation soil degradation?		✓
Affect soil salinity and alkalinity?		✓
Divert the water resource from its natural course/location?		✓
Cause pollution of aquatic ecosystems by sedimentation and agro-chemicals, oil spillage, effluents, etc.?	✓	
Introduce exotic plants or animals?	✓	
Involve drainage of wetlands or other permanently flooded areas?		✓
Cause poor water drainage and increase the risk of water-related diseases such as malaria?	✓	
Reduce the quantity of water for the downstream users?		✓
Result in the lowering of groundwater level or depletion of groundwater?		✓
Create waste that could adversely affect local soils, vegetation, rivers and streams or groundwater? Lake	✓	
Reduce various types of livestock production?		✓
Affect any watershed?		✓

Will the sub-project:	Yes	No
Displace people from their current settlement?		✓
Interfere with the normal health and safety of the worker/employee?	✓	
Reduce the employment opportunities for the surrounding communities?		✓
Reduce settlement (no further area allocated to settlements)?		✓
Reduce income for the local communities?		✓
Increase insecurity due to introduction of the project?		✓
Increase exposure of the community to HIV/AIDS?	✓	
Induce conflict?		✓
Have machinery and/or equipment installed for value addition?	✓	
Introduce new practices and habits?	✓	
Lead to child delinquency (school drop-outs, child abuse, child labour, etc.?		✓
Lead to gender disparity?		✓
Lead to poor diets?		✓
Lead to social evils (drug abuse, excessive alcohol consumption, crime, etc.)?	✓	

Section D: Natural Habitats

Will the sub-project:	YES	NO
Be located within or near environmentally sensitive areas (e.g. intact natural forests, mangroves, wetlands) or threatened species?	✓	
Adversely affect environmentally sensitive areas or critical habitats – wetlands, woodlots, natural forests, rivers, etc.)?		✓
Affect the indigenous biodiversity (Flora and fauna)?		✓
Cause any loss or degradation of any natural habitats, either directly (through project works) or indirectly?		✓
Affect the aesthetic quality of the landscape?		✓
Reduce people's access to the pasture, water, public services or other resources that they depend on?		✓
Increase human-wildlife conflicts?		✓
Agrochemical use		
Will the sub-project:		
Involve the use of pesticides or other agricultural chemicals, or increase existing use?		✓
Cause contamination of watercourses by chemicals and pesticides?		✓
Cause contamination of soil by agrochemicals and pesticides?		✓
Experience effluent and/or emissions discharge?	✓	
Export produce? Involve annual inspections of the producers and unannounced inspections?		✓
Require scheduled chemical applications?		✓
Require chemical application even to areas distant away from the focus?		✓
Require chemical application to be done by vulnerable group (pregnant mothers, chemically allergic persons, elderly, etc.)?		✓
Use irrigation system in its implementation?		✓

2

6. Training

a) Have you ever received any training on any of the following topics related to crop production?

Integrated Pest Management Yes..... No...✓...

No. of times /past year. .....

b).Pesticide Usage Yes..... No...✓.....

No. of times /past year. .....

c).Pesticide Safety: Yes..... No...✓.....

No. of times /past year. .....

d).Insect Identification Yes..... No...✓.....

No.of times /past year. .....

e).Disease Identification Yes..... No...✓.....

No. of times /past year. .....

f).Quality aspects of production Yes..... No...✓.....

No.of times/past year.....

7) Is there anything else that you want us to know about your crop production?

.....

.....N/A.....

.....

.....

.....

If the answer to the above is 'yes', please consult the IPM that has been prepared for the project.

Section F: Vulnerable and Marginalized Groups meeting requirements for OP 4.10

Are there:	Yes	NO
People who meet requirements for OP 4.10 living within the boundaries of, or near the project?	✓	
Members of these VMGs in the area who could benefit from the project?	✓	
VMGs livelihoods to be affected by the sub project?		✓

If the answer to any of the above is 'yes', please consult the VMGF that has been prepared for the project.

Section G: Land Acquisition and Access to Resources

Will the sub-project:	Yes	No
Require that land (public or private) be acquired (temporarily or permanently) for its development?		✓
Use land that is currently occupied or regularly used for productive purposes (e.g. gardening, farming, pasture, fishing locations, forests)		✓
Displace individuals, families or businesses?		✓
Result in temporary or permanent loss of crops, fruit trees and pasture land?		✓
Adversely affect small communal cultural property such as funeral and burial sites, or sacred groves?		✓
Result in involuntary restriction of access by people to legally designated parks and protected areas?		✓
Be on monoculture cropping?		✓

5

If the answer to any of the above is 'yes', please consult the mitigation measures in the ESMF, and if needed prepare a (Resettlement Action Plan) RAP.

Section H: Proposed action

(i) Summarize the above:	(ii) Guidance
☐ All the above answers are 'No' ☐ There is at least one 'Yes'	• If all the above answers are 'No', there is no need for further action; • If there is at least one 'Yes', please describe your recommended course of action (see below).

(iii) Recommended Course of Action

If there is at least one 'Yes', which course of action do you recommend?

☐ CPCUs and County Director of Environment (CDE) will provide detailed guidance on mitigation measures as outlined in the ESMF; and

☑ Specific advice is required from CDE and CPCUs regarding sub-project specific EIA(s) and also in the following area(s)

☐ All sub-project applications/proposals MUST include a completed ESMF checklist. The KCSAP-CPCU and CDE will review the sub-project applications/proposals and the CDEs will sign off;

☐ The proposals will then be submitted to NPCU for clearance for implementation by communities in the proposed subprojects.

Expert Advice

☐ The National Government through the Department of Monuments and Sites of the National Museums of Kenya can assist in identifying and, mapping of monuments and archaeological sites; and

☐ Sub-project specific ESIAs, if recommended, must be carried out by experts registered with NEMA and be followed by monitoring and review. During the process of conducting an EIA the proponent shall seek views of persons who may be affected by the sub-project. The WB policy set out in OP 4.01 requires consultation of sub-project affected groups and disclosure of EIA's conclusions. In seeking views of the public after the approval of the sub-project, the proponent shall avail the draft ESIA report at a public place accessible to project-affected groups and local NGOs/CSOs.

Completed by: WAI

Name: WALTER JURA

Position / Community: CHAIRMAN

Date: 20/02/2020

Field Appraisal Officer (CDE): William CDE-TO

Signature:

Date: 20/02/2020

20 FEB 2020

6.

Appendix II : Assessment Checklist and Findings

	Permits	Standards	Length of impact			Effect on Environment			Mitigation Required
Assessment factors			T	P	None	MA	SA	Beneficial	
Regulatory Factors									
1.Air Pollution Control (including CFCs			x	-		X	-	x	Maintenance of machinery
Drinking Water Management			x	-		X	-		Chlorination
Water Pollution			x			X			Water quality and effluent management
Hazardous Waste Management			x	-		-			Effluent management system
Solid Waste Management			x	-		X	-		Recycling and waste minimisation
PCB Management			x	-		X	-		
Radioactive Materials Management			-			-			
Environmental factors									
Natural Factors 1. Fish and Wildlife 2. Vegetation 3. Endangered Species 4. Water and Hydrology			 - x - x			 x - x x			Habitat restoration

5. Air and Noise 6. Physiography 7. Soils and Erosion 8.Historical, Archaeological, Paleontological Resources 9. Prime Farmlands 10. Wetlands 11. Floodplains 12. Wild and Scenic Rivers 15. National Wilderness			x x x - - - - - - - -			x - - - - - - - - -			
B. Human Factors 1. Demography 2. Housing 3. Utilities 4. Fire hazards 5. Social Services 6. Recreation and Aesthetics 7. Land Use 8.Traffic and Transportation 9. Quality of Life			- - - X X X x x -			- - - X X x x		x	
C.Socio-economic Factors 1.Residential Dwellings 2. Local Employment 3. Public Health and Well-Being			- 					X X	Code of practice and policies on GBV , SEA and Child protection

4. Relocation of Public Utilities 5.Traffic and Congestion 6. Safety 7. Effect on Population Trends 8 Adverse Community Reaction to the Project 9. GBV 10.SH 11. Child Labour			- - x - - X X X			x - 			

MA =Moderately adverse; SA Significantly adverse; () Temporal; (P) Permanent; (-) absence of the issue (benefit), (x) presence of the issue

Appendix III: Practising Licences

FORM 7 (r.15(2))

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/11751

Application Reference No: NEMA/EIA/EL/15517

M/S **DR. VOLENZO TOM ELIJAH**
(individual or firm) of address

P.O. Box 41-30105, SOY

is licensed to practice in the

capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert**
registration number **7332**

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

Issued Date: **2/13/2020** Expiry Date: **12/31/2020**

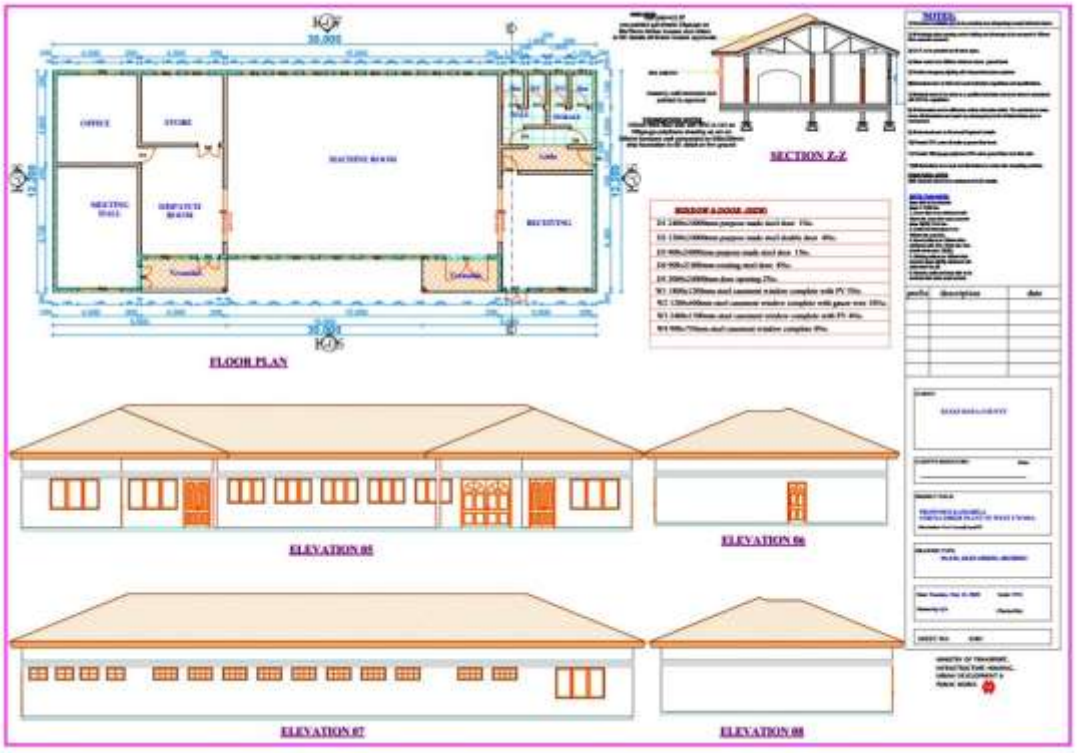
Signature.....

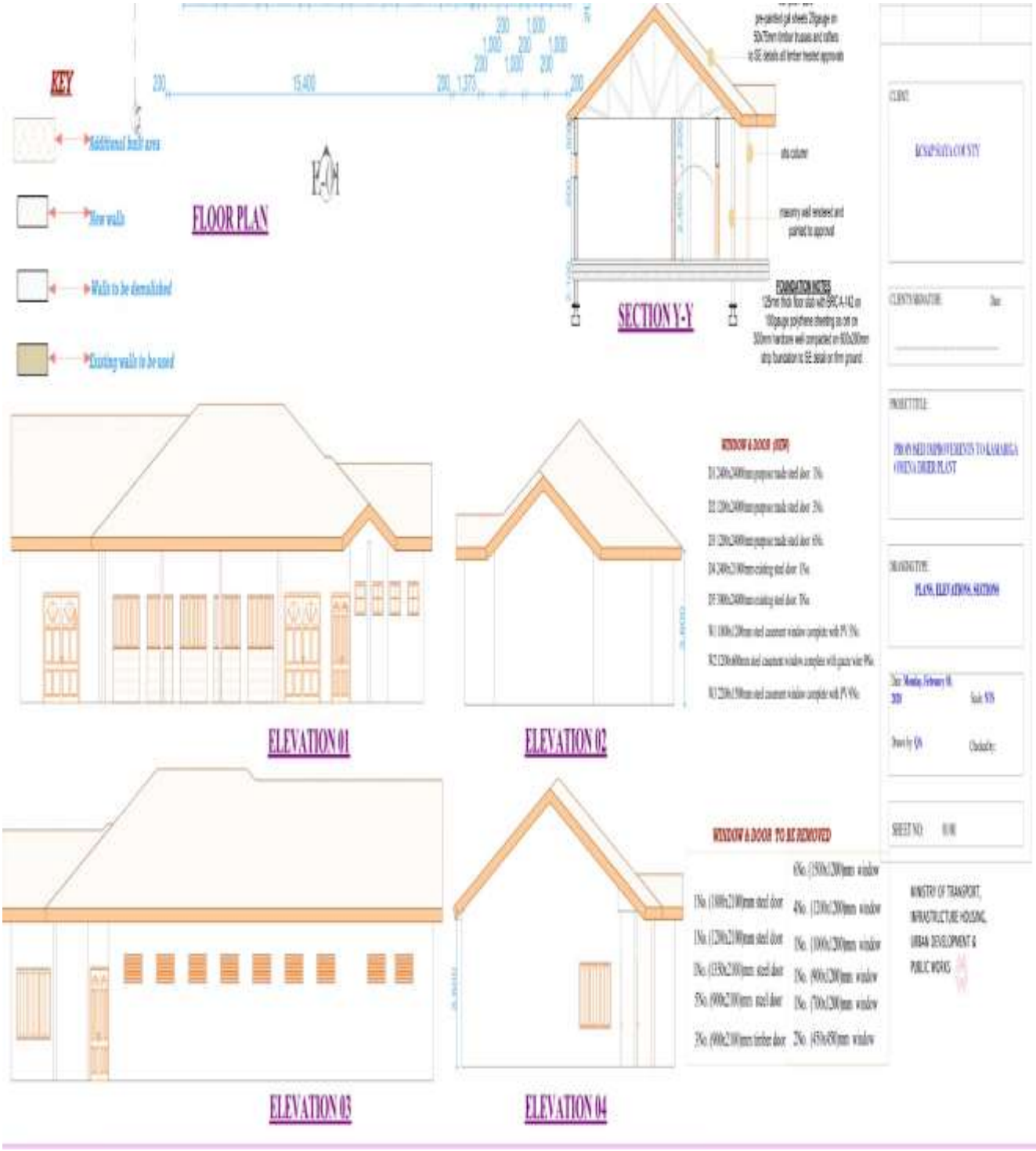
(Seal)
Director General
The National Environment Management Authority

P.T.O.

ISO 9001: 2008 Certified

Appendix IV : Ground Layout Of The Proposed Kamariga Fish Drying




KEY
Additional built area
New walls
Walls to be demolished
Existing walls to be used
FLOOR PLAN
SECTION Y-Y
ELEVATION 01
ELEVATION 02
ELEVATION 03
ELEVATION 04
WINDOW & DOOR SCHEDULE
WINDOW & DOOR TO BE REMOVED
MINISTRY OF TRANSPORT, INFRASTRUCTURE HOUSING, URBAN DEVELOPMENT & PUBLIC WORKS

Appendix V: Evidence of landing ownership title deed

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

(No. 3 of 2012, section 108)

THE REGISTERED LAND ACT

(Chapter 300) (REPEALED)

Title Deed

Title Number [illegible]/1900

Approximate Area (0.14)Ha

Registry Map Sheet No. 10

This is to certify that [illegible]

is (are) now registered as the absolute proprietor(s) of the land comprised in the above-mentioned title, subject to the entries in the register relating to the land and to such of the overriding interests set out in section 28 of the Land Registration Act (No. 3 of 2012) as may for the time being subsist and affect the land.

GIVEN under my hand and the seal of the [illegible] District Land Registry

this 4th day of Nov 20 20

Land Registrar

Appendix VI: Record of Issues (FGD) Meetings

Agenda
Prayer
Opening Remarks
Introductory remarks
Participatory Assessment in ESIA
Filling of questionnaires
Community reaction and approval
Closing remarks and way forward

The meeting was opened with a word of prayer and self-introduction. The **CESSCO** gave introductory remarks mostly touching on the KCSAP Project and the history of the subproject. The Agricultural officer in charge of the ward also sensitized on the Agricultural component of the project. The CESSCO then invited the NEMA registered expert to give a few remarks on the ESIA process, in particular the importance of public participation.

Filling questionnaires

Prepared questionnaires were introduced with the Nema Expert going in through all the items on the questionnaire to clarify all the issues. Translation of the questionnaire items into DHOLUO language (Though majority of the attendees could read in English). The questionnaire was distributed and members given the opportunity to fill them. The respondents were given leeway to consult whenever issues were not clear.

Community reaction

- ✓ The need for catchment conservation and other agricultural productivity projects
- ✓ Sex for fish practices among of the fishermen
- ✓ Managing the lake shore erosion
- ✓ HIV/AIDS menace

The CESSCO and the Project engineer gave satisfactory responses to all the raised matters as follows;

- ✓ Catchment conservation shall be taken care through another Project component on natural resource management and that the BMU should come up with proposals on the same
- ✓ Sensitisation on HIV/AIDS is integrated into the implementation framework
- ✓ Sex for fish is considered as sexual exploitation World Bank takes it as serious social issue. The BMU should come with code of conduct for its members and explicitly have a policy of zero tolerance on sexual exploitation
- ✓ Community members would practice integrated Pest Management and Agroecology principles to reduce surface contamination
- ✓ Community would be encouraged to build latrines in homesteads

On conservation and income generating activities, the CPU will assess any submitted proposal and fund in line with the Project funding guidelines but in the meantime capacity building on pan management committees, Environmental social safeguard committees and social accountability integrity committees will be undertaken

Voting and proposal approval

The community unanimously voted for the project asking KCSAP to expedite the process as it would greatly alleviate the water scarcity in the area

Closing remarks

The area chief was invited to make a comment. In his remark, he welcomed the initiative and pledged his support for the implementation process. The meeting adjourned with a word of prayer from one of the BMU members.

Appendix VII: Evidence of Public Consultation (Attendance and Sample Questionnaire)

Republic of Kenya

Kenya Climate Smart Agriculture Project (KCSAP)

Office of the CPCU - Siaya

Kenya Climate Smart Agriculture Project

REGISTRATION FORM

ACTIVITY: Public Participation - Kamanga DATE.................

NO	NAME	Gender (Male/Female)	ORGANIZATION	DESIG	Contact Mobile number	SIGN
1.	DAVID AMISI OBONDI	male	B.M.U	" "	0715528519	
2.	TYSON OMOLO	MALE	" " "	" "	0757882719	
3.	MARTIN OCHIENG	MALE	B.M.U	" "	0714067921	
4.	CHARLES ONGALA	MALE	B.M.U	MEMBER	0720402708	
5.	WALTER JURA ODONDI	MALE	B.M.U. CHAIR	"	0724704205	
6.	William Odondi Jalango	MALE	Bmu vice chair	office	0723 018465	
7.	Maurice Okoth Aloo	Male	b.m	member	0724727794	
8.	Joshua Ouma	male	Bm	member	0719360301	
9.	WYCLIFE OKECH NYANGWEI	MALE	B.M.U		0728427484	
10.	JUDITH ODUO	Female	Bmu	member	0701351419	

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NO	NAME	Gender (Male/Female)	ORGANIZATION	DESIG	Contact Mobile number	SIGN
1.	ALICE ADHIAMBO ODHIAMBO	F	OGENGA W. PAN	MEMBER	07908/534	
2.	WILLIAM OKELO ADHIAMBO	M	OGENGA MAJOR PAN	MEMBER	0729503847 0719790037	
3.	LEONARD OPUL NDEMU	M	OGENGA MAJOR PAN	V. LEADER	0736837012	
4.	MARY AWAMBO	F	"	MEMBER	0790217958	Mary.
5.	PHOEBE OTIENO	F	"	MEMBER	0799981116	
6.	EMILLY OHTANGO	F	"	"	0717546374	
7.	BENTA ATIARO	F	"	"	0708753705	
8.	JANE OGUIL	F	"	"		XX
9.	LEONARD OTIENO AWAMBO	M	"	"	0729981116	
10.	LENAH AKOTH ODONGO	F	"	"	0714209366	

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NO	NAME	Gender (Male/Female)	ORGANIZATION	DESIG	Contact Mobile number	SIGN
1.	Vincent Mito Otta	M	GG.S	WARD ADMINISTRATOR	0726314769	[signature]
2.	JENIPHER ACOLA	F	MOALF	WARD AGRI-OFFICER	0727695178	[signature]
3.	Volenzo Tom	M	MMUST	[illegible]	07[illegible]2154	[signature]
4.	Aggrey Odeny	M	DCAL&F	AMS	0713443484	[signature]
5.	PATRICK OCHOLA	M	A/CHIEF	A/CHIEF	0724969612	[signature]
6.	Bernard Ayagah	M	DOALF	CESSCO	0724[illegible]	[signature]
7.						
8.						
9.						
10.						

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ACTIVITY: .... DATE..

NO	NAME	Gender (Male/Female)	ORGANIZATION	DESIG	Contact Mobile number	SIGN
1.	LEONARD OSEWE ODIEMO	M	OGENGA WATER PAN	MEMBER	0722939999	[signature]
2.	GEORGE NGOSE [illegible]	M	"	MEMBER	0712571722	[signature]
3.	BENARD OSIDO NTAMILA	M	"	"		[signature]
4.	MICHAEL D. AMOLLO	M	PROVINCIAL ADMIN	ASST. CHIEF	0700846385	[signature]
5.	ARTHUR OSIMBO	M	MCA	OFFICER	0717524129	[signature]
6.						
7.						
8.						
9.						
10.						

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Project name Kamongo Omena Drier Project

Village Pith Beve Sub location Kagwe Location Utonya West

Name George Odhiambo Taliasi ID no. 20639120

TEL [illegible] Email odhiambo[illegible]@gmail.com

Date 30/Jan 2020 Signature [illegible]

Age 45 Gender Male

i). How long have you lived in this place? 45 Yrs.

ii).Were you aware of this project before? Yes

iii).In your opinion what are the likely impacts of the project on the community and the environment (Yes/No)

Impact category	Positive	Negative	Comment
Environmental	✓		
i. Biodiversity	✓		
ii. Aesthetics(natural beauty)		✓	
iii. Erosion			
iv. Water/Air pollution	✓		
Social			
i) HIV/AIDS AND STIs	Yes		
ii) Culture	Yes		
iii) Gender relations	Yes		
Economic			
i) Employment	Yes		
ii) Business and trade	Yes		
iii) Value of Land	Yes		
iv) Household income	Yes		

iv)In your opinion, are there better alternatives to the project?

Category	Yes	No
Technology	Yes	
Siting	Yes	
Raw material	Yes	

v).In your opinion, can the project design be improved ? Yes/ No ✓

vi).Briefly explain your answer The project shall improve livehood of the members through improved income as the commodity shall be sold at favourable prices.

vii). Based on your opinion (iii to v), do you support project implementation? Yes/ No

viii). Briefly give your comment on why you support/Oppose the project?

I support the implementation of the drier project since it will create employment to the women fishmongers, youth and the elderly. The drier plant will enable us make profits as there will be no loses due to weather changes.

Project name KAMAGUGA OMENA DRIER

Village [illegible] Sub location KAGUG Location WEST UYOMA

Name MARTIN OCHIENG ID.no 21582587

TEL 0714067921 Email —

Date 3/11/2020 Signature [illegible]

Age 44 YRS Gender MALE

i). How long have you lived in this place? MORE THAN 10 YRS

ii). Were you aware of this project before? YES

iii). In your opinion what are the likely impacts of the project on the community and the environment (Yes/No)

Impact category	Positive	Negative	Comment
Environmental			
i. Biodiversity	✓		
ii. Aesthetics(natural beauty)	✓	✓	
iii. Erosion	✓		
iv. Water/Air pollution			
Social			
i) HIV/AIDS AND STIs	✓		
ii) Culture	✓		
iii) Gender relations	✓		
Economic			
i) Employment	✓		
ii) Business and trade	✓		
iii) Value of Land	✓		
iv) Household income	✓		

iv) In your opinion, are there better alternatives to the project?

Category	Yes	No
Technology		✓
Siting		✓
Raw material	✓	

v). In your opinion, can the project design be improved ? Yes/ No ✓ (Yes)

vi). Briefly explain your answer It needs to be expanded such that it can dry large capacity

vii). Based on your opinion (iii to v), do you support project implementation? Yes/ No ✓ (Yes)

viii). Briefly give your comment on why you support/Oppose the project?

I support it because it will give us easy time on drying our products and we shall also get ready market for our products.

Project name Kamaiga Omena Drier

Village [illegible] Sub location Kagwa Location West Uyoma

Name [illegible] ID.no [illegible]

TEL [illegible] Email [illegible]

Date 30-01-2020 Signature [illegible]

Age 49 yrs Gender Male

i). How long have you lived in this place? 49 yrs

ii).Were you aware of this project before? Yes

iii).In your opinion what are the likely impacts of the project on the community and the environment (Yes/No) Yes

Impact category	Positive	Negative	Comment
Environmental i. Biodiversity ii. Aesthetics(natural beauty) iii. Erosion iv. Water/Air pollution	✓ ✓ ✓ 	 ✓	will reduce
Social i) HIV/AIDS AND STIs ii) Culture iii) Gender relations	 ✓ ✓	✓ 	remain the same
Economic i) Employment ii) Business and trade iii) Value of Land iv) Household income	✓ ✓ ✓ ✓		will increase

iv)In your opinion, are there better alternatives to the project?

Category	Yes	No
Technology	✓	
Siting	✓	
Raw material	✓	

v).In your opinion, can the project design be improved ? Yes/ No

vi).Briefly explain your answer Yes it will generate income to many members and it will reduce losses that we have experienced

vii). Based on your opinion (iii to v), do you support project implementation? Yes/ ~~No~~

viii). Briefly give your comment on why you support/Oppose the project?

Employment opportunity will increase e.g machine operators, clerks etc

reduce losses we experienced before

Increase the value of the product

hygiene will improve in the product,

Better market to the product,

other hospitality will come closer e.g hotels, shops [illegible]

Project name: Kamariga

Village: Kagwa Sub location: Kagwa Location: Kagwa

Name: [illegible] ID.no.

TEL: [illegible] Email

Date: [illegible] Signature: [illegible]

Age: 39 Gender: Female

i). How long have you lived in this place? [illegible]

ii).Were you aware of this project before? we are aware to business

iii).In your opinion what are the likely impacts of the project on the community and the environment ~~(Yes~~/No)

Impact category	Positive	Negative	Comment
Environmental i. Biodiversity ii. Aesthetics(natural beauty) iii. Erosion iv. Water/Air pollution	✓ ✓ ✓		No comment
Social i) HIV/AIDS AND STIs ii) Culture iii) Gender relations	✓ ✓		
Economic i) Employment ii) Business and trade iii) Value of Land iv) Household income	✓ ✓		

iv)In your opinion, are there better alternatives to the project?

Category	~~Yes~~	No
Technology	✓	
Siting	✓	
Raw material	✓	

v).In your opinion, can the project design be improved ? ~~Yes~~/ No

vi).Briefly explain your answer

vii). Based on your opinion (iii to v), do you support project implementation? ~~Yes~~/ No

viii). Briefly give your comment on why you support/Oppose the project?

Because of [illegible] the area

Project name Kamanga beach project
Village ...... Sub location Kagwe Location Kagwe
Name Abraham Ateng ID no. 22229362
TEL 0759077725 Email N/A
Date 24/1/2020 Signature
Age 30 years Gender Male
i). How long have you lived in this place? 40 years
ii). Were you aware of this project before? Yes
iii).In your opinion what are the likely impacts of the project on the community and the environment (Yes/No)

Impact category	Positive	Negative	Comment
Environmental i. Biodiversity ii. Aesthetics(natural beauty) iii. Erosion iv. Water/Air pollution	✓ ✓ ✓ ✓		
Social i) HIV/AIDS AND STIs ii) Culture iii) Gender relations	✓ ✓ ✓		
Economic i) Employment ii) Business and trade iii) Value of Land iv) Household income	✓ ✓ ✓ ✓		

iv)In your opinion, are there better alternatives to the project?

Category	Yes	No
Technology	✓	
Siting	✓	
Raw material	✓	

v).In your opinion, can the project design be improved ? Yes/ No
vi). Briefly explain your answer It will increase and create employment

vii). Based on your opinion (iii to v), do you support project implementation? Yes/ No
viii). Briefly give your comment on why you support/Oppose the project?
I support this coz it will improve our leaving standard

Project name: Kanunga Beach Project.

Village: [illegible] Sub location: [illegible] Location: [illegible]

Name: [illegible] ID no. [illegible]

TEL: [illegible] Email: [illegible]

Date: [illegible] Signature: [illegible]

Age: [illegible] Gender: Male

i). How long have you lived in this place? 2 years

ii). Were you aware of this project before? Yes.

iii). In your opinion what are the likely impacts of the project on the community and the environment (Yes/No)

Impact category	Positive	Negative	Comment
Environmental	✓		
i. Biodiversity	✓	✓	
ii. Aesthetics(natural beauty)	✓		
iii. Erosion	✓		
iv. Water/Air pollution	✓		
Social			
i) HIV/AIDS AND STIs	✓		
ii) Culture	✓		
iii) Gender relations	✓		
Economic	✓		
i) Employment	✓		
ii) Business and trade	✓		
iii) Value of Land	✓		
iv) Household income	✓		

iv) In your opinion, are there better alternatives to the project?

Category	Yes	No
Technology	✓	
Siting		✓
Raw material	✓	

v). In your opinion, can the project design be improved? Yes/ No ✓

vi). Briefly explain your answer: As process goes on new idea will be come forward.

vii). Based on your opinion (iii to v), do you support project implementation? Yes/ No ✓

viii). Briefly give your comment on why you support/Oppose the project?

It will empower our community

Appendix VIII : Minutes Of Community Validation Barazaon Proposed Projcet Planning

Held at Kamariga Beach West Uyoma Ward Rarieda Sub County on the Validation of Omena Drying plant on 4th March , 2020

1.1 Introduction

The Public Participation forum was held on 4th March 2020 at the Kamariga Beach in collaboration with the Department Of Agriculture (Kenya Climate Smart Agriculture Program) World Bank Departments of Health, Water (National Environmental Management Authority), The Directorate of Communication and Office of The Sub County Administrators.

1.2 Profile of Participants

The forum brought together members of the public from the ward The participants were drawn from different sectors which included Opinion leaders, Residents, Development Committee Representatives, Women Representatives, Youths Groups, People Living With Disability, The Clergy, Projects Management Committee Members and the Beach Management Unite.

1.3 Agenda and Format of Workshops

The fora commenced with a word of prayer and self-introductions were done subsequently. The Ward Administrators welcomed members and gave opening remarks followed by The Head of Public Participation who emphasized the importance of Public Participation before any project the public have the power to approve or reject as the activity is enacted in the constitution, She urged the Beach Management Unit (BMU) to stop lamenting on the project and attend all the public participation, budget cycle and civic education.

Agriculture: Mr. Ben from the Kenya Climate Smart Agriculture said this was a World Bank funded project, Ministry of Fisheries and County Government of Siaya they operates in three Sub Counties in Siaya this are Ugunja, Rarieda and Bondo the four main roles are

Increase Climate Smart Agriculture

Agro-wealth Advisory

Strengthening Research (KALRO)

Coordination and Emergency

Lead agencies in implementation comments

NEMA representative Mr. Samson Ochwiri as the organization responsible for environment we will be monitoring the project and approvals will be based on merits the building should be 30 metres from the water body. The previous building before new ESIA report (this has been solved and the project have the alternative site, recent evidence of the title is attached)

Engineer Agriculture: The first proposal was done in 2013 where solar dryer was to be installed. All the waste products will NOT be diverted to the water body, the dryer will be used specifically for its purpose, the plant can accommodate wherever quantity that comes from the lake and the neighbourhood lakes this includes the Omena and the big fish.

General reactions

Been approved by NEMA, the factory should have its own management unit with the manager, Operators and Cleaners, the project should not stall because of luck of electricity,

The Chief Officer Agriculture on his part stated that the participation of the members of public in the validation of the design and modification of the project. This is a food processing plant which will compete in the international market this going to change the face of Kamariga and create employment opportunities and the standards should not be compromised

The CECM for Agriculture asked members of the public to approve the project as they proposed the project, The project will change the life style of the community and will stop

wastage of the Omena, lets fully own the project. The project has a timeline and if not utilized the partner can think otherwise.

Community Reactions and resolutions

Jane Gaunya	We need a barrier/wall around the project and the roof should be replaced	The barrier and roofing are all captured in the BQ
Edmond Dima	Can the solid waste be converted to compost manure or biogas	Solid waste will be sold to the local community as manure
Wycliffe Anguka	Any provision of power backup in case of power black outs	This can only be done for the dryer which will finally have effect on the cost of production
Victor Anguka	The location and position of the project as the lake gets full	The public land is limited and the position was based on that but the NEMA expert to advise
Tom Allo	Foundation of the building was not stable what are the plans	Machines will be put in the building thus engineers must work on the foundation
Auto Chuo	The PMC needs training on the management of the project	The supplier will conduct a two weeks training on the operation and maintenance to the plant management
Achieng Auma	Any criteria of employment of staff working at the project	ple with qualification based on the ent or The County Government can bring nt partners to run the plant

PLATE 12: COUNTY DIRECTOR OF PUBLIC PARTCIPATION ADDRESSING COMMUNITY

Plate 13: CHIEF OFFICER AGRICULTURE ADDRESSING COMMUNITY VALIDATION

Appendix IX : Key Informant (KI) Interview Schedule

The World Bank funded Kamola Water Pan - KCSAP Project is being implemented in Siaya County. As the project falls under the second schedule of EMCA, an Environmental Impact Assessment is to be undertaken. This is in addition to mainstreaming of World Bank ESS guidelines and operational procedures. As a Key informant resource your contribution in decision making and ultimate licensing of the project is critical. Please make your comments regarding the following

Are you aware and been involved in theof the project? Yes……... No……

What are the main statutes in your docket that touch on this project?

Are there any issues of concern (Social and environmental) that you think should be considered in this project?

In your Professional judgement does the implementation of the project require licensing/ permits from your department/ Authority/ Ministry?

Any other comment.

Thank You for your cooperation

Summary of key issues from KII

- ✓ There is no known heritage site in the project area however chance find procedures should be observed
- ✓ Not afforested area
- ✓ permit to construct processing plant in accordance with fisheries Act 26 to be processed though the construction may continue on NEMA approval
- ✓ Effluent management and need for effluent license during operation
- ✓ DOSH and registration of plant as work place

APPENDIX XI : chance Finding Procedures

1. Purpose of the chance find procedure

The chance find procedure is a project-specific procedure that outlines actions required if previously unknown heritage resources, particularly archaeological resources, are encountered during project construction or operation. A Chance Find Procedure, is a process that prevents chance finds from being disturbed until an assessment by a competent specialist is made and actions consistent with the requirements are implemented.

2. Scope of the chance find procedure

This procedure is applicable to all activities conducted by the personnel, including contractors, that have the potential to uncover a heritage item/site. The procedure details the actions to be taken when a previously unidentified and potential heritage item/site is found during construction activities. Procedure outlines the roles and responsibilities and the response times required from both project staff, and any relevant heritage authority.

3. Induction/Training

All personnel, especially those working on earth movements and excavations, are to be inducted on the identification of potential heritage items/sites and the relevant actions for them with regards to this procedure during the Project induction and regular toolbox talks.

4. Chance find procedure

If any person discovers a physical cultural resource, such as (but not limited to) archaeological sites, historical sites, remains and objects, or a cemetery and/or individual graves during excavation or construction, the following steps shall be taken:

1. Stop all works in the vicinity of the find, until a solution is found for the preservation of these artefacts, or advice from the relevant authorities is obtained;

2. Immediately notify a foreman. The foreman will then notify the Resident/Supervising Engineer and the Environment Officer (EO)/Environmental Manager (EM);

3. Record details in Incident Report and take photos of the find;

4. Delineate the discovered site or area; secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities take over;

5. Preliminary evaluation of the findings by archaeologists. The archaeologist must make a rapid assessment of the site or find to determine its importance. Based on this assessment the appropriate strategy can be implemented. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage such as aesthetic, historic, scientific or research, social and economic values of the find;

6. Sites of minor significance (such as isolated or unclear features, and isolated finds) should be recorded immediately by the archaeologist, thus causing a minimum disruption to the work schedule

of the Contractor. The results of all archaeological work must be reported to the National Museums of Kenya (NMK), once completed.

7. In case of significant find the National Museums of Kenya (NMK) should be informed immediately and in writing within 7 days from the find.

8. The onsite archaeologist provides the NMK with photos, other information as relevant for identification and assessment of the significance of heritage items.

9. The NMK must investigate the fact within 2 weeks from the date of notification and provide response in writing.

10. Decisions on how to handle the finding shall be taken by the responsible authorities. This could include changes in the layout (such as when finding an irremovable remain of cultural or archaeological importance) conservation, preservation, restoration and salvage;

11. Construction works could resume only after permission is granted from the responsible authorities.

12. In case no response received within the 2 weeks' period mentioned above, this is considered as authorization to proceed with suspended construction works.

One of the main requirements of the procedure is record keeping. All finds must be registered. Photo log, copies of communication with decision making authorities, conclusions and recommendations/guidance, implementation reports - kept.

5. Additional information

Management options for archaeological site

a) ***Site avoidance.*** If the boundaries of the site have been delineated attempt must be made to redesign the proposed development to avoid the site. (The fastest and most cost-effective management option)
b) ***Mitigation.*** If it is not feasible to avoid the site through redesign, it will be necessary to sample it using data collection program prior to its loss. This could include surface collection and/or excavation. (The most expensive and time-consuming management option.)
c) ***Site Protection.*** It may be possible to protect the site through the installation of barriers during the time of the development and/or possibly for a longer term. This could include the erection of high visibility fencing around the site or covering the site area with a geotextile and then capping it with fill. The exact prescription would be site- specific.

Management of replicable and non-replicable heritage

Different approaches for the finds apply to replicable and non-replicable heritage.

Replicable heritage[1]

[1] Replicable cultural heritage is defined as tangible forms of cultural heritage that can themselves be moved to another location or that can be replaced by a similar structure or natural features to which the cultural values can be transferred by appropriate measures. Archaeological or historical sites may be considered replicable where the particular eras and cultural values they represent are well represented by other sites and/or structures.

APPENDIX XII: Disclosure of ESMP at the Proposed Site

Sensitisation on Grievances Redress Mechanisms (GRM) at the proposed Kamariga omena drying Subproject, Siaya County on 6.6.2020

Background

The World Bank considers environmental impact assessment (ESIA) as one among a range of instruments for environmental assessment. These are procedures that ensure the proposed development is sustainable and environmentally sound. Although its operational policies and requirements vary in certain respects, the World Bank follows a relatively standard procedure for the preparation and approval of an environmental assessment study, which:

- Identifies and assesses potential risks and benefits based on proposed activities, relevant site features, consideration of natural/human environment, social and trans-boundary issues
- Compares environmental pros and cons of feasible alternatives
- Recommends measures to eliminate, offset, or reduce adverse environmental impacts to acceptable levels (sitting, design, technology offsets)
- Proposes monitoring indicators to implement mitigation measures
- Describes an institutional framework for environmental management and proposes relevant capacity building needs.

The specific objectives were:

- To establish a systematic approach to stakeholder engagement that will help Borrowers identify stakeholders and build and maintain a constructive relationship with them, in particular project-affected parties.
- To assess the level of stakeholder interest and support for the project and to enable stakeholders' views to be taken into account in project design and environmental and social performance.
- To promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life cycle on issues that could potentially affect them.
- To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format.
- To provide project-affected parties with accessible and inclusive means to raise issues and grievances, and allow Borrowers to respond to and manage such grievances. Scope of application Information disclosure

Process / approach

A public baraza brought together key stakeholders in the project site with the summary of the just concluded Environmental and social Management Framework (ESMF) providing the grounding for engagement. This was in line with World Bank requirement for early access to information, in informing project appraisal, and in a timeframe that enables meaningful consultations with stakeholders on project design: The mechanism, process or procedure will not prevent access to judicial or administrative remedies. Thewas disclosed to the project-affected parties about the grievance process in the course of its community engagement activities through a documentation responses. The community was thus appraised on the

a. Stakeholder engagement process highlighting participation procedures
b. Reporting procedures
c. grievanceswhich was disclosed through Dholuo language and interpreted in English /Swahili where necessary

d) Debrief on the summarised ESMP

- ✓ The purpose, nature and scale of the project;

- ✓ The duration of proposed project activities;
- ✓ Potential risks and impacts of the project on local communities, and the proposals for mitigating these, highlighting potential risks and impacts that might disproportionately affect vulnerable and disadvantaged groups and describing the various measures taken to avoid and minimize the risks.

2.1 Objectives of the grievance Redress mechanism

The general steps of the grievance process comprise: sensitization of target beneficiaries, constitution of institutional structures, capacity building, receipt of complaints; determining and implementing the redress action; verifying the redress action; amicable mediation and settlement; dissatisfaction and alternative actions; and documentation and communication. The GRM will also include timelines for implementation of redress process. The hierarchy to resolve complaints or grievances arising from implementation of the project will only become clear then. The benefitting communities will be assisted by the County Project Implementation Unit (CPCU) to establish the grievance committees. Grievances may arise from members of communities who are dissatisfied with any aspect of the implementation process. The management process will be elaborated after training

- ✓ to receive and facilitate resolution of such concerns and grievances. The ESMP form the core basis and baseline in the grievance process. Where feasible and suitable for the project, the grievance mechanism will utilize existing formal or informal grievance mechanisms, supplemented as needed with project-specific arrangements.
- ✓ address concerns promptly and effectively, in a transparent manner that is culturally appropriate and readily accessible to all project-affected parties, at no cost and without retribution
- ✓ provide affected people with avenues for making a complaint or resolving any dispute that may arise during the course of the implementation and determination of entitlements of compensation and implementation of the project
- ✓ ensure that appropriate and mutually acceptable redress actions are identified and implemented to the satisfaction of complainants; and avoid the need to resort to forceful actions and/or judicial proceedings as well as providing a transparent and accountable implementation process.
- ✓ Handling of grievances will be done in a culturally appropriate manner and be discreet, objective, sensitive and responsive to the needs and concerns of the project-affected parties. The organizational capacity and commitment will be finalised after training of the sub project management committees

Scope of the Grievances Redress Mechanisms (GRM) sensitisation

- ✓ The scope, scale and type of grievance mechanism required will be proportionate to the nature and scale of the potential The grievance mechanism may include the following:
- ✓ Different ways in which users can submit their grievances such as in person, by phone, text message, mail, e-mail or via a web site;
- ✓ A log where grievances are registered in writing and maintained as a database;
- ✓ Publicly advertised procedures, setting out the length of time users can expect to wait for acknowledgement, response and resolution of their grievances;
- ✓ Transparency about the grievance procedure, governing structure and decision makers; and
- ✓ An appeals process (including the national judiciary) to which unsatisfied grievances may be referred when resolution of grievance has not been achieved. It was emphasised that mediation is an option where users are not satisfied with the proposed resolution.

4.0. Outcomes and recommendations

- To allow for meaningful and informed participation the County planning unit (CPU) will organise for in depth training of the sub project management committee on environmental issue vis avis the identification and setting of objectively verifiable indicators. This will allow for informed reporting and effective grievance mechanisms.
- The CPCU will continue to engage with, and provide information to, project-affected parties and other interested parties throughout the life cycle of the project, in a manner appropriate to the nature of their interests and the potential environmental and social risks and impacts of the project.
- The CPU will continue to conduct stakeholder engagement, and will build upon the channels of communication and engagement already established with stakeholders.
- In particular, the CPU will seek feedback from stakeholders on the environmental and social performance of the project, and the implementation of the mitigation measures through an Environmental Audit within the first year of completion.
- If there are significant changes to the project that result in additional risks and impacts, particularly where these will impact project-affected parties, the CPU will provide information on such risks and impacts and consult with project-affected parties as to how these risks and impacts will be mitigated. This will be by means of setting out any additional mitigation measures.
- Code of practice to mitigate the risks of sexual exploitation as it is a common practice along the beaches. The BMU will have zero tolerance policy on sexual exploitation

5.0. Monitoring and Evaluation

The terms of reference defining clear roles, responsibilities and authority as well as designate specific personnel to be responsible for the implementation and monitoring of stakeholder engagement activities and compliance will be elaborated during tailored training for the project management committee/implementation committee at **CPU** level

6.0. Annexes (Attendance List; Photos)

Key Issues highlighted as part of GRM

- **Sexual exploitation (sex for fish), solutions and it's mainstreaming into implementation framework**

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Office of the CPCU - Siaya

Kenya Climate Smart Agriculture Project

REGISTRATION FORM

ACTIVITY: DISCLOSURE OF ESMP AT KAMARIGA OMENA DRYING FACILITY DATE: 6/6/2020

NO	NAME	ORGANIZATION	DESIG	CONTACT: MOBILE	CONTACT: EMAIL	SIGN
1.	RICHARD ORUKO	AGRIC	ADA	0798198259	richardoruko@gmail.com	
2.	TOM VOLENZO	MMS	Lecturer	0720222154	volenzotom@gmail.com	
3.	MEIR DAYAN AKINYI	WATER	senior hydrologist	0797037376	dayan929@gmail.com	
4.	HESBON MIHESO	EDUCATION	DRIVER	0721363175	miheso1322@gmail.com	
5.	Atieno O. Willie	KCSAP	CPC	0722543246	atienowillie@gmail.com	
6.	ZACHARY ORIEKO	MOF	FO	0720978890	zackorieko@gmail.com	
7.	Charles Odhiambo	KCSAP	CPD	0723747188	charlesooko53@gmail	
8.						
9.						
10.						

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Kenya Climate Smart Agriculture Project

REGISTRATION FORM

ACTIVITY: DISCLOSURE OF ESMP AT KAMARIGA OMEGA DRYING FACILITY

DATE: 6/6/2020

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