



**Kenya Climate
Smart Agriculture
Project**

SUMMARY PROJECT REPORT

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT *FOR PROPOSED CONSTRUCTION OF FISH AGGREGATION, STORAGE AND MARKETING UNIT AT GOT AGULU, WEST YIMBO LOCATION, WEST YIMBO WARD, BONDO SUB-COUNTY IN SIAYA COUNTY.*



Kenya Climate Smart Agriculture Project

March 2022

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FACT SHEET

Project Name	Environmental Social Impact Assessment Report for the Proposed Construction of Fish Aggregation, Storage and Marketing Unit at Got Agulu, West Yimbo Location, West Yimbo Ward Bondo , Sub-County In Siaya County.
Assignment Name	Environmental and Social Impact Assessment (ESIA) Summary Project Report (SPR)
Location	Got Agulu West Yimbo Location, Ward Bondo , Sub-County In Siaya County.
GPS Coordinates	Latitude -0.0337116,Longitude 34.0247738
Project Description	Rehabilitation of fish ponds Assembling of a housing panel or installation of a Container Construction of a cold storage unit Construction of a fish aggregation unit Solar panels with accessories Solar cold storage facility Construct a concrete floor Construction of an office Purchase of motor boat engines and fishing gears
Main source of water	Got Agulu water supply lines from Lake Victoria
Proponent	Got agulu fish production and marketing Co-operative society limited
Address of the Proponent	Kenya Climate Smart Agriculture Project (KCSAP), Siaya County County Project Coordination Unit P.O Box 3 -40600, Siaya .

CERTIFICATION

For and on behalf of:

Got Agulu Fish Production and Marketing Co-Operative Society Limited:

This Environmental Social Impact Assessment (ESIA) Summary Project Report was prepared in accordance with the Environmental Management and Coordination Act (EMCA) 1999 and the Environmental Impact Assessment and Audit Regulations 2003 (revised 2015 & 2019) in order to meet the statutory requirements for the implementation of projects under schedule II.

I, the undersigned, confirm that the contents of this report are a true representation of the ESIA process the Proposed Construction of Fish Aggregation, Storage and Marketing Unit at Got Agulu, West Yimbo Location, Ward Bondo , Sub-County In Siaya County..

LEAD ESIA/ EA EXPERT

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Signature



Date. 18th-3-2022

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County Project Coordination Unit

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Designation: Conty Project Coordinator

Date 21st -3-2022

ACKNOWLEDGMENT

We, the ESIA study team Mr. Fredrick Aloo (Lead Expert), Mr. Elijah Levo (Lead Expert) and Mr. Blaise Okinyi (Associate) wish to acknowledge and express our profound gratitude to the Siaya County Project Coordinating Unit (especially Willis Atiang the County Project Coordinator and Mr Benard Ayagah the County Environmental and Social Safeguards Officer) of Kenya Climate Smart Agriculture Project (KCSAP) for commissioning this Environmental Social Impact Assessment - Summary Project Report Study .

We would also like to thank the proponent the Got Agulu Fish Production And Marketing Co-Operative Society Limited, under the Chairmanship of Mr Alfred Ochieng Oulo for coordinating and mobilising the fisherfolks to attend this important function

We appreciate the cooperation and contributions of all the stakeholders who we interacted with during this EIA report, without their support this study would not have been successful.

We would also like to affirm our appreciation to Dr. Gilbert Muthee from the National Project Coordinating Unit, World Bank ESIA Experts especially Robert and Kimberly, not forgetting Violet of NEMA Siaya County office for their guidance in the preparation of this SPR. Finally, we wish to appreciate the contributions made by the entire community for providing us with useful information and filling out questionnaires during the field visits and public participation forums.

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LIST OF ACRONYMS AND ABBREVIATIONS

AIDs	Acquired Immunodeficiency Syndrome
CBO	Community Based Organization
CIDP	County Integrated Development Plan
CMS	Convention on Migratory Species
CPCU	County Project Coordination Unit
CSR	Corporate Social Responsibility
C-ESMMP	Contractor Environmental and Social Management and Monitoring Plan
EAs	Environmental Assessments
EMCA	Environmental Management and Coordination Act, 1999 Revised, 2015
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMMP	Environmental and Social Management and Monitoring Plan
FGD	Focused Group Discussion
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GPS	Global Positioning System
HIV	Human Immunodeficiency Virus
KCSAP	Kenya Climate Smart Agriculture Project
Km ²	Square Kilometers
Ksh	Kenya Shillings
M	Meters
mm	Millimeter
MOALF	Ministry of Agriculture, Livestock and Fisheries
NEMA	National Environment Management Authority
OPs	Operational Policies
PAPs	Project Affected Persons
PPE	Personal Protective Equipment
SESA	Strategic Environmental and Social Assessment
SHG	Self-Help Group
SPR	Summary Project Report
STDs	Sexually Transmitted Diseases
UG	Underground

EXECUTIVE SUMMARY

Got Agulu Fish Production and Marketing Co-Operative Society Limited), herein referred to as the proponent or Producer Organization (PO), proposes to put up a fish aggregation, processing storage and marketing unit on their parcel of land located in Got Agulu approximately 2kms from the beach in West Yimbo Location, Bondo Sub-County In Siaya County. The parcel of land lies on the intersection of the coordinates 0°02'01.4"S, 34°01'29.2"E and 2 hectares. The proposed project site is currently undeveloped. The producer organization was registered with the registrar of cooperatives as a cooperative sometime in 2015 vide registration Certificate No CS/23069. In order to achieve KCSAP PDO, the project aim is to aggregate, process, cold storage and marketing of fish. This will translate to increased income and food security among the fisherfolks and members of the cooperative society.

The SPR was as a result of the recommendation of the County Director Environment (CDE) based on the screening report”, and was prepared in accordance with the provisions and requirements of the Environmental Management and Coordination Act (EMCA) Cap 387 and subsidiary regulation - Environmental (Impact Assessment and Audit) Regulations, 2003 and Legal Notice 31 and 32 of 2019. The Bank also requires that all environmental and social risks and impacts of the project be addressed as part of the environmental and social assessment conducted in accordance with the operational policy 4.01 set out the obligations of the Borrower in identifying and addressing environmental and social risks and impacts that may require particular attention. The report will further guide the proponent in environmental protection through the Environmental Management and Monitoring Plan (EMMP) prepared and lastly, assist NEMA in making an informed decision while approving the proposed project.

The scope of the report is to describe the project, assess both the positive and negative impacts and develop mitigation measures for negative impacts including designing Environmental and Social Management and Monitoring Plan (ESMMP) for the project. The SPR process key activities included; preliminary assessment (screening), literature review, public consultation, field reconnaissance survey, direct observation, documentation and report submission to NPCU for clearance. Later the SPR will be submitted to NEMA for approval.

The ESIA process was achieved through public participation exercise and consultation involving key informant (KI) interviews as well as desk reviews of critical planning documentation such as Project Development Objective (PDO). Public participation exercise took place at proposed project site in Got Agulu centre on 18th March, 2022 where about 58 participants (23 female and 35 male) participated in the exercise. A total of 15 questionnaire were randomly distributed to various community members. It is anticipated that the project will benefit approximately 200 Shareholders translating to approximately 600 households who are members of the fisherfolks that sale their fish to the cooperative

The report gives a summary of the findings. Analysis from the assessment reveals positive livelihood and environmental impacts, a number of social risks such as gender based violence, environmental impacts such as dust, noise, soil erosion, clearing of vegetation and waste disposal. During the operation and maintenance phase, the negative impacts are on personal health and safety (foul smell), pollution from fish processing wastes and loss of aesthetic value. Community members may also consume or sale poorly stored fish leading to contaminated fish. Social issues

discussed were on Sexual harassment, Gender based violence and Conflicts over water demand may arise the moment the plant is established. Mitigation measures against significant negative impacts will include: Fencing to avoid unnecessary intrusion, proper disposal of excavated soil during construction, Use of personal protective equipment to avoid accidents and inhalation of dust, observation of safety by all within the site and operationalization of the cold storage facility to reduce post-harvest loses and landscaping around the proposed site Others include provision of clean water to the processing unit. During operation phase mitigation measures could be fencing off the site, put in place appropriate grievance redress mechanism, sensitization on gender rights and sexual exploitation against women. Agreement with the water supply unit to provide adequate water for the plant. More vegetation should be planted to create a good microclimate for the plant. Operationalized cold storage facility which is solar powered to reduce incidences of power shortages or black outs. During decommissioning the fish processing facility brought down and the structures will be sold or recycled based on the material. The proponent will ensure that all COVID 19 prevention measures are enforced e.g. keeping social distance, wearing masks rightly, sanitizing and washing of hands regularly. The main issues and concerns raised during public consultation and meetings relate to employment by the contractor and design issues such as maintenance of the fish processing facilities. The issues were addressed by various stakeholders including the project engineer who was tasked with the revision of the bill of quantities to incorporate the need for separate toilets for each gender. The PCU and the contractor will in coordination with the local leadership undertake community awareness on GBV and put in place grievance redress mechanisms (GRM) for tracking and resolving any emerging issues during the Project implementation. The Cooperative society will aggregate the fish do value addition and link up with external markets

The review of this ESIA is undertaken during the era of the Coronavirus disease (COVID-19) pandemic outbreak. As such, specific mitigation measures have been introduced to prevent the spread of the pandemic during the construction period. Consultations will be required as part of the mitigation measures, such as training on safety issues that can minimize the risks of catching or spreading of Covid 19.

Based on the assessment, the project is, therefore recommended for approval by the National Environment Management Authority (NEMA). The conditional license will be tracked through annual environmental and social audits after operating for one year. Implementing the ESMP will cost KES 370,000 and shall be part of the project contract. The Proponent should share the ESMMP with the 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 ESMMP. The CPCU/ CESSCO, contractor, the supervising Food scientist, 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.

The total cost of the proposed fish processing

facility is estimated at Kshs, 10,000,000 while the cost of implementing ESMMP is KES 370,000

1 INTRODUCTION

1.1 Background information

The Kenya Climate Smart Agriculture Project (KCSAP) aims at increasing Agricultural Productivity and building resilience to climate change risks in the targeted small holder farming and pastoral communities in Kenya, and in the event of an Eligible crisis or emergency, to provide immediate and effective response. Siaya County is amongst the 24 Counties in Kenya beneficiary of World Bank funded Kenya Climate Smart Agriculture Project (KCSAP). The County is currently implementing 5 sub- projects. The proposed fish aggregation, processing and marketing unit is located at Got Agulu centre in West Yimbo location Bondo Sub County Siaya County.. . The project is being implemented by a producer organization Got Agulu Fish Production and Marketing Co-Operative Society Limited

The objective of the project is to set up a cold room, a point of sale and a mini processing unit. The aim of the partnership is to help the fisher folks to have a sense of ownership. It will also provide credit at a subsidized rate through provision of motorboat engines and fishing nets

1.1.1 Project justification

The main project area and surrounding of Got Agulu and Nambo beach where the site proposed does not have a cold storage facility. Once the fish is captured from the lake, they are taken to the cooperative banda for weighing and recoding then transported in a refrigerated truck to the various destinations outside the country.

Spoilage and post-harvest losses are quite high approximated at about 50 percent. The fish farmers do incur a lot of challenges in marketing their fish mainly because they do not have a producer organization in place. The fisherfolks have a huge problem of value addition and promoting the shelf life of the fish

Through the use of modern technology such as refrigerated cold storage facilities and processing of fish it would be appropriate to promote the shelf life of fish through value addition and hence increase income of the fisherfolks and finally improve on value addition

Specific objective

- i. to construct a multipurpose fish processing unit
- ii. To construct an aggregation unit with a cold storage facility
- iii. To undertake mini fish processing and set up a shop for selling the fish
- iv. To support the fisherfolks with motorized engines and the right fishing gears

1.1.2 Rationale for the ESIA

The SPR was as a result of the recommendation of the County Director Environment (CDE) based on the screening report, (see annex 5 for screening checklist) and was prepared in accordance with the provisions and requirements of the Environmental Management and Coordination Act (EMCA) Cap 387 and subsidiary regulation - Environmental (Impact Assessment and Audit)

Regulations, 2003 and Legal Notice 31 and 32 of 2019. The Bank also requires that all environmental and social risks and impacts of the project be addressed as part of the environmental and social assessment conducted in accordance with OP 4.01 set out the obligations of the Borrower in identifying and addressing environmental and social risks and impacts that may require particular attention.

1.1.3 Objectives of the ESIA- SPR

The objective of the SPR is two-fold:

1. To identify and assess all significant impacts of the proposed project on the biophysical and socio- economic environment; and
2. To draw an environmental and social management and monitoring plan with suitable mitigation measures.

1.2 ESIA Approach and methodology

1.2.1 Environmental Screening and scoping

The Consultant first undertook environmental screening and scoping to identify pertinent issues for coverage in line with the TOR and to complement the World Bank EMSF screening checklist findings. Screening checklist form revealed that the the proposed fish farming unit and its accessories fall in second schedule ponds, rivers and water resources. The investment triggers OP.4.01 on environmental assessment and Kenyan law.

The proposed project was found to be under World Bank Category B classification since the project impacts will be site specific, few if any of them are irreversible; and in most cases adverse effects will be limited (some minor including dust, noise and health and safety impacts during construction and operational phases) and mitigation measures can be designed. Such impacts have been clearly identified both at screening stage and in this SPR report with comprehensive mitigation measures being fully designed and described in ESM&MP.

1.2.2 Desktop study

Desktop study included documents review on the nature of the proposed activities, project documents including designs, policy and legislative framework as well as the environmental setting of the area among others. Key documents reviewed included the following: Kenya policies, strategies and guidelines; National and County Laws and regulations; applicable Multilateral Environmental Agreements (MEAs) and World Bank policies safeguards.

1.2.3 Physical inspection of the site and surrounding

Physical inspection of the proposed site which included field investigation at site and surrounding areas was done on 17th and 18th March, 2022. 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. The field investigations were meant for physical inspections of the site characteristics and the environmental status of the surrounding areas to determine the anticipated impacts from the project. It also included further interviews with the community and key stakeholders.

1.2.4 Public Participation

The team organized and convened public consultation meetings for all stakeholders. The Local administration and community leaders were directed to convey the consultation theme and appropriate public consultation venues. During these forums, the SPR team was in close consultation with the client. The public consultation was held on 18th March, 2022 where about 58 participants (23 female and 35 male) participated in the exercise. A total of 15 questionnaires were randomly distributed to various community members. Annex I

1.2.5 Data Analysis and Documentation

The Environmental Impacts Assessment report was compiled from the findings in accordance with the EIA guidelines issued by NEMA for Summary Project Report. The Consultant ensured constant briefing of the proponent during the exercise. The exercise culminated with the production and documentation of this summary project report which will be submitted to NEMA for review and approval.

1.2.6 Report Structure

The SPR report is presented in seven chapters. Chapter one is an introduction with the SPR development methodology and objectives, relevant background information about the proponent, project justification, project goal and outcome. The second chapter describes the project design and equipment, project description and activities and decommissioning process. The third chapter describes the location of the project, land ownership and description of the site. Chapter four entails the public consultation and participation process. Chapter five discusses the associated and potential environmental and social impacts as well as cumulative impacts of the proposed project and the mitigation measures. Chapter six recommends a cost-effective ESMMP to be adopted and other management plans to supplement the ESMMP and chapter seven provides conclusion and offers advice, recommendations on project implementation. The last section of the report is comprised of references, annexes, list of tables, list of figures as are appropriate for inclusion in the report.

1.3 Responsibilities and Undertaking

The ESIA was to be carried out to full completion within a period of 21 days from the date of consultancy award. The Consultant (Lead Expert) coordinated the day-to-day functions and any related institutional support matters. The Consultant ensured constant briefing of the client during the exercise. The Summary Project Report (SPR) from the findings was compiled in accordance with the World Bank ESS guidelines as well NEMA

2 NATURE OF THE PROJECT

2.1 Introduction

This chapter gives details of the project design. It highlights the project design and materials supported by design and plan drawn to scale and signed by an engineer. Additionally, it provides an overview of project activities during construction, operation and decommissioning phases. Included is a proof of land ownership and a description of any existing environmentally sensitive areas and description of the project area

2.2 Design Concept and Material

The siting, design concept and criteria for were developed in accordance with the general guidelines and standards used in the design of structures/pans in Kenya and are in line with international standards for best practice by the County Government of Siaya, through the Kenya Climate Smart Agriculture Project (KCSAP). An approved project design has been attached to this report (*Appendix iv*).

2.2.1 Design

The plant will cater for block ice requirements of fishermen, fish traders, fish transporters operating at Nambo beach in Got Agulu. The aim is to bring cold storage facility (ice) significantly closer to this market currently not available

Current estimated demand for ice is based on a ratio of 1:1 (fish: ice) therefore a production of 700 MT of fish will require an equal 700 MT of ice annually translating to approximately 5 MT a day. In this project there will be a detailed topographical survey and on the map precisely locating the site for construction, to enable one to exactly calculate its ice production and fish tonnage storage capacity is a must. This will lead to design of the ice plant and storage facility. It will then give a basis for preparing the bill of quantity (the volume of soil to be moved) and planning for and calculating the costs of the construction phase.

Estimation of ice requirement

It is possible to calculate the ice requirement if the operational conditions are known. These conditions are often variable and un-repetitive. Only a series of tests, under operational conditions, will establish the correct fish to ice ratio to be used to cool the fish and maintain chilled temperatures during the entire storage period.

Calculated values of ice usage can provide valuable information at the planning and design stages, and also promote a better understanding of the relative effect of the various elements which influence the rate of ice meltage. In addition, by considering all possibilities and calculating ice requirements, a more rational judgement can be made when selecting equipment and procedures to be used.

To determine the ice requirement, it is necessary to calculate the quantity of ice to cool the fish and also the quantity of ice required to maintain the fish at a chill temperature throughout the storage period. In addition, allowance has to be made to allow for losses and other contingencies in order to determine the ice manufacturing requirement.

Dimensions of the facility

The proposed fish aggregation farming unit will have a collection point, cleaning and washing unit a cold storage after processing, packaging and a place for marketing

Reference: Longitude-34°01'29.2"E Latitude-0°02'01.4"S Altitude 3842ft asl

Calculation of the ice requirement for cooling fish

The mass of ice needed to cool fish from the initial temperature to the final holding temperature can be calculated from an expression, which equates the heat taken up by the ice, on the left side of the equation, with the heat lost by the fish, on the right side of the equation.

$$M_i (L_i) = (M_f) (C_{pf}) (t_s - t_c) \quad (4)$$

Where

M_i = mass of ice which melts (kg)

L_i = latent heat of fusion of ice (80 kcal/kg)

M_f = mass of fish (kg)

C_{pf} = specific heat of fish (kcal/kg°C)

t_s = initial temperature of fish (°C)

t_c = final temperature of fish (0°C)

From equation (4) the ice requirement will therefore be:

$$M_i = \frac{(M_f)(C_{pf})(t_s - t_c)}{(L_i)} \quad (5)$$

The specific heat of lean fish is approximately 0.8 kcal/kg C and this value should be used if there is a species mix or if there is a possibility that at times all the fish are of a lean species. The specific

heat value, however, may be refined to take account of variations in the oil content of the fish and this refined value may be used if the fish composition is reasonably consistent.

$$C_{pf} = 0.5 X_I + 0.3 X_s + 1.0 x_w \quad (6)$$

Where

C_{pf} = specific heat of fish (kcal/kg)

X_I = mass fraction of lipids (oil)

X_s = mass fraction of solids

X_w = mass fraction of water

To illustrate the effect of oil content on the quantity of ice required for chilling the following comparison is made between lean and fatty fish. Example (1) - 100 kg lean fish with 1% lipids, 19% solids and 80% water at an initial temperature of 20°C:

$$C_{pf} = (0.5 \times 0.01) + (0.3 \times 0.19) + (1.0 \times 0.8) = 0.862 \text{ kcal/kg}^\circ\text{C}$$

$$M_i = \frac{100 \times 0.862 \times (20 - 0)}{80} = 21.55 \text{ kg of ice}$$

Source (FAO Fisheries report, 1992)

According to the feasibility studies undertaken on ice requirement for the plant is as indicated in the table below

Table 2.2—1: Estimating Ice requirement

Estimating Ice requirement			
Category	No	Unit requirement per day	Total requirement
Fishermen	70	150	10.5MT
Transporters	4	1.2 MT	4.8MT
	Estimated demand (peak season)		15.3MT

2.2.2 Marketing plan and dimensions of the ice plant

Location of the ice plant

The proposed site for the ice plant is within the Yala Fisheries unit offices which was found to be suitable considering that it is a government premise and the project is being implemented under public private partnership arrangement. The project will efficiently serve its customers, save on ice handling costs and spoilage, The site is also easy to connect with electricity, water is readily available, the road network is good and it is a fairly secure area

There will be manpower requirement- plant operator, bookkeeper and casuals. Technicians for repair & maintenance on need basis

Technology requirement, compressor, crushers, ice tools gravity conveyor, storage water tank, water system comprising of borehole and other accessories

Space requirement

Ice plant Size 600 sq m

Insulated Ice cold storage 10m by 5 m

Ice

Price for ice- Ksh. 10 / kg compared to competitor price of Ksh 12-15/kg

Price discounts for large quantities – above 100 kg

Different Packaging for different customers in bags of 30 kgs each

Target also non-fish customers domestic and food handling businesses

Fish

Improve product distribution- refrigerated truck

Target strategic markets like supermarket chain in Kisumu and other neighbouring towns

Promote local fish consumption

Target institutional buyers hospitals, schools among others

2.2.3 4.1.6 Market and Trade

The fish destination market is left out to the Got Agulu Fish aggregation and marketing Cooperative

Access Structures

Perimeter fencing/Restrictions:

The ice plant and cold storage facility shall be in a restricted area only accessible through a single controlled point. This will be achieved through perimeter fencing and allowing one appropriate and convenient access point.

Construction of sanitation facilities

This entail construction of a VIP Two door pit latrine outside the ice plant and cold storage facility area about 100 hundred meters away

Table 2.2—2: Estimated cost of the ice plant and cold storage

CAPITAL INVESTMENTS				
No	Item	Unit	Unit Cost	Total Cost
1	Ice Plant 10 ton ice/day	1	15,000,000	15,000,000
2	Insulated cold storage- 10 m by 5m	1	3,600,000	3,600,000
3	Installation cost	1	500,000	500,000
	TOTAL COST			19,100,000

2.3 Construction phase

2.3.1 Support infrastructure

Support infrastructure will comprise of fencing the entire works site

Ice plant cold storage ancillary works will include but not limited to the following:

- i. Perimeter fencing using barbed wire and chainlink
- ii. Clear site of all grass/vegetation an
- iii. Excavation
- iv. Concrete blinding
- v. High tensile square twisted bars BS 4461 including cutting, bending fixing spacer blocks and binding wires, as described in
- vi. Masonry
- vii. Walling
- viii. Roofing
- ix. Fixing doors
- x. Fixing windows
- xi. Construction of Septic Tank
- xii. Construction of Soak Pit
- xiii. Construction of two door pit latrine

- xiv. Construction of a water tower and installation of two 10,000m³ water tank

2.4 Materials and Equipment Needed

Strict Control of levels and the mixing ratios and measurements of all reinforced concrete and masonry works should be exercised to ensure the intended quality of construction works as well as water flow pressures so as to eliminate problems such as rapid deposition.

Table 7 below indicate the materials, tools and equipment that will be used during construction

Table 2.4—1: Materials and Equipment Needed

Materials	Construction Tools & Equipment's
Automotive, Diesel fuel, water, soil cement	Excavator
Ballast, Sand pipes of various sizes	Concrete mixer
Metal rolls, Metal bars D8, D12	Air compressor
Wire mesh	Concrete vibrators
Barbed wire, chain link	Plumbing tools
	Automatic survey
	Rock drills
	Concrete Mixer

It is important to note that during construction the following will be incorporated;

- a) Environmental Protection and Resource Conservation guidelines
- b) Occupational Health and Safety measures

2.4.1 Construction materials

Construction materials will be stored on site. Bulky materials such as rough stones, ballast, sand and steel will be carefully piled on site. To avoid piling large quantities of material on site, the proponent will order bulky materials such as gravel and stones in quotas. Materials such as cement, paint and glass among others will be stored in temporary storage structures to be built for this purpose.

The design of the project will be executed with due considerations of the existing topography of the proposed project site. In general, the design of the project will optimize the use of Best Available Technology (BAT) to prevent or minimize potentially significant environmental impacts associated with the project and to incorporate efficient operational controls together with trained staff, to ensure high level business and environmental performances

2.4.2 Construction Phase Activities

The phase entails infrastructure that comprise of soil conservation structures
The fish processing plant ancillary works will include but not limited to the following:

- ✓ Excavation works
- ✓ Construction of water piping
- ✓ Fencing of the entire project site
- ✓ Construction of two door pit latrine
- ✓ Construction of a cold storage facility
- ✓ Construction of a store
- ✓ Construction of a receiving bay

The project will be fully funded by KCSAP at a tune of Kshs 9,000,000 while the contribution from the community will be Kshs 1,000,000. In order to mitigate any negative impacts emanating from the construction activities of the proposed development, relevant and cost-effective measures have been proposed in the Environmental Management Plan.

2.4.3 Operation Phase Activities

On project completion the facilities would be utilized for the intended purpose. The project operational activities will include: putting appropriate conservations measures around by planting grass and trees Identification of fish aggregation points before onward delivery to the unit for processing and marketing, running a solar powered cold storage facility to help in minimizing post harvest losses.

2.4.4 Decommissioning Phase Activities

Decommissioning of the constructed fish processing unit will become necessary if or when the unit attains its end life i.e when it no longer become productive or when the need arises. Once this occurs, the unit will be deactivated according to the closure procedure. Non-reusable pipes will be sold to licensed scrap metal dealers. The closure of the unit will involve removing the building pannels, container and backfilling of the depression left behind as necessary. The affected area will be backfilled, landscaped and replanted with suitable indigenous grass and trees.

2.5 Types of waste to be generated

Table 8 below indicates the types of waste to be generated during project implementation and proposed options for their management

Table 2.5—1: Types of waste generated

Types of Waste	Proposed Waste Management Option
Used oil filters	<ul style="list-style-type: none"> • Accumulate safely and dispose-off through licensed hazardous waste handler
Used fuel filters	<ul style="list-style-type: none"> • Accumulate safely and dispose-off through licensed hazardous waste handler

Used Oil	<ul style="list-style-type: none"> • Accumulate safely and sell to licensed scrap metal dealers
Waste from the fish i.e ovals and scales	<ul style="list-style-type: none"> • Can be dried and converted to animal feeds • Can be used as organic fertilizers
Empty plastic & Metal containers	<ul style="list-style-type: none"> • Issue out to staff for refuse • Issue out to the local community as part of corporate Social Responsibility (CSR) contribution • Reuse within household e.g for fabricating solid waste containers • Return to the supplier for reuse
Empty gunny bags	<ul style="list-style-type: none"> • Issue out to the local community • Reuse within household • Return to the supplier
Noise	<ul style="list-style-type: none"> • Undertake operations during the day

2.6 Project Cost and Implementation Schedule

Based on the technical design's bills of quantity (BOQ) for the project implementation, the project is estimated to cost **Kenya Shillings 10,000,000**

3 LOCATION OF THE PROJECT

3.1 Proof of Land Ownership

The Got Agulu fish processing unit is located on private land with a parcel number. The land is owned by the Got Agulu fish farmer's cooperative society. Attached Annex iv. The surrounding communities and the land owners are also fishermen and have shown willingness to be included as beneficiaries and provide fish for value addition and marketing

Project Location

The project is located in Got Agulu centre, West Yimbo location. The project site lies within **Longitude-34°01'29.2"E Latitude-0°02'01.4"** . The project will also benefit members of the surrounding fisherfolks and communities in promoting value addition and minimising post-harvest losses .A geographical satellite image of the project location showing proposed site of the cold storage and process unit is presented in figure 3-1 below. The facility is situated along usege off road along Nambo beach

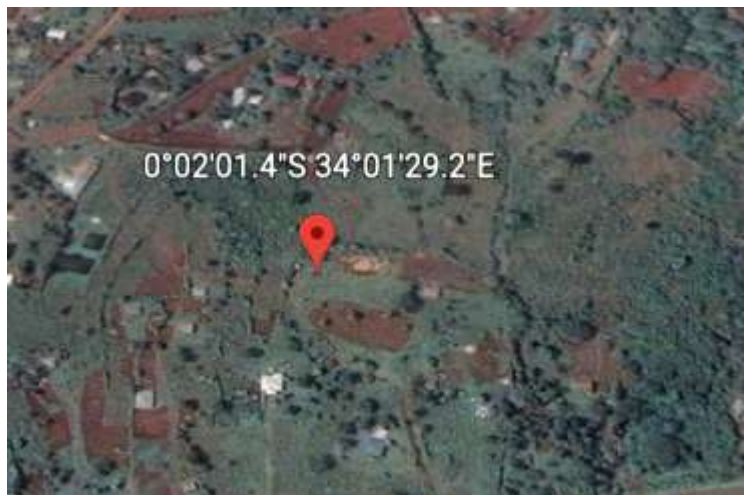


Figure 3-1 Location of project site

3.2 Environmental Management Supportive Infrastructure

The proposed site can be accessed through Usenge -Osieko road which is tarmacked all the way to nambo beach. The site is approximately 20 meters from the road. The site has access to piped water from the lake which supplies water to Got Agulu dispensay and Got Agulu secondary school. The site is connected to national grid and a transformer is located about 10 meters from the site.

3.3 Physiographic and Natural Conditions

3.3.1 Physical & Topographic Features

The project area is fairly flat and well covered by grass. Sizeable runoffs are often received during rainy season within this project location though vulnerability to soil erosion is moderate, disturbance of the soils during construction phase can increase soil erosion risks.

3.3.2 Geology and Soils

The main soil type is ferrasols and its fertility ranges from moderate to low with most soils being unable to produce without the use of either organic, inorganic or in most cases both types of fertilizers. Most of the areas have underlying murram with poor moisture retention. Bondo sub-County has various soil types ranging from black-cotton, sandy loams to laterite including red volcanic soils. East and Central Yimbo have luvisols with low moderate fertility.

3.3.3 Climatic Conditions

The area experiences long rains in March to May and short rains in September to December. The mean annual rainfall is 1000mm with 60% of the annual total falling during long rains with 60% reliability. The proposed site is drier in the southern part towards Bondo and Rarieda sub-counties. It receives rainfall ranging between 800 – 1,600mm. Temperatures vary with altitude rising from 21° C in the North East to about 22.5° C along the shores of Lake Victoria while in the South, it 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.

Climate Change issues

Siaya County is characterized by high poverty levels (47.56%) and food insecurity. Agriculture is the main source of livelihood in the County, contributing about 60% of the household income and providing almost 61% of all employment opportunities. Droughts and intense rainfall already constrain agricultural productivity and food security in Siaya County; climate projections indicate increasing events of drought and intense rains.

Intense precipitation and heat stress are both hazards that contribute to agricultural risk in the County throughout the year, whereas dry spells are common in the Second wet season. Climate has already been observed to change slightly in the County. Since 1981, the first wet season, has experienced a ~0.5°C increase in mean temperature and reduction in crop cycle, but little to no change in precipitation on average. However, there has been an increase in drought risk due to hotter temperatures. The Second wet season experienced no change in temperature but had an increase in precipitation of approximately 15-25%. This has resulted in increased risk of flooding but fewer dry years and associated drought risk. Projections for 2021-2065 show that prolonged moisture stress will occur in the first season of the year, whereas precipitation will change little in either season.

3.3.4 Land and Land use/Zonation

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, as an agroforestry species has the potential in soil fertility management and resilience building for livestock farmers.

Table 3.3—1 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

3.3.5 Capture fisheries

Got Agulu Fish Production and Marketing Cooperative Society

Table 3.3—2 Production in 2018 and 2019

	2018	2019
	Quantity	Quantity
January	3,581	1,931
February	3,220	2,600
March	2,800	3,701
April	4,100	3,917
May	5,754	4,568
June	2,360	4,200
July	2,473	4,907
August	2,824	2,840
September	3,100	2,455
October	2,800	3,392
November	1,900	1,852
December	2,246	1,930

3.3.6 Flora and Fauna

The area is largely settled, some of the most common trees in the area include *exortic trees* such as *Jacaranda mimospholia*, *Gravillea robusta*. Common grass species is *Cynodon*

plactostachyus. Some of the trees are deciduous as an adaptive mechanism to the dry conditions. The most common fauna found in the project area include birds, insects, rodents and snakes others are majorly domestic animals consisting of cattle, goat, sheep and poultry

3.3.7 Environmentally sensitive areas

There are no ecologically sensitive areas/sites such as wetlands, rivers, forests, or wildlife migratory corridors which might be adversely affected by the project activities.

3.4 Socio-economic Environment

3.4.1 Population

Table 3.4—1 Population Characteristics by Ward and Location of the West Yimbo Ward,

		Total	Male	Female	Household Size	Land Area	Density per Sq. km
Ward	West Yimbo	24,907	12,208	12,699	6801	32	779
	Got Agulu	6,445	3,217	3,228	1,744	12.2	529
	Usenge	18,462	8,991	9,471	5,057	19.8	934

Source: KNBS, 2019

3.4.2 Infrastructure and Access, Road, Rail Network, Ports and Airports, Airstrips.

Electricity is within the project site. The area has a piped water supply that will provide water to the fish processing unit. The project will provide solar energy in order to supplement power from the national grid

The means of communication in the subproject area are as listed in Table 4. It is estimated that 75.2 per cent of the households in the County own a radio, 13.7 per cent television sets, 90 per cent mobile phones with main operators being Safaricom and Airtel communication companies, 0.5 per cent landline and 1.2 per cent of the households own computers. Siaya County headquarters has a fibre optic cable that has led to increased internet connectivity. It is important to note that most of the government offices have internet connection through modems.

Table 3.4—2 : 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

3.4.3 Electricity, energy sources

The area is supplied with electricity though household connectivity remains low. Sources of energy for lighting are fuelwood (39%), tin lamp (15%), paraffin lantern (10%), solar (8%) and battery lamp/torch about 4%. The main source of energy for cooking is fuelwood (firewood and charcoal) at about 95%. The mobile network coverage in the area is relatively high at 82% compared to an average of 70% of the same for the county compared to the national connectivity of 85%. Network coverage is fairly good with all networks well represented.

3.4.4 Housing

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 3.4—3: 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

3.4.5 Health and Environment

Residence of the have access health services through Got Agulu dispensary which is 2km from the site. Usenge Dispensary is also located about km within the vicinity of the site.

3.4.6 Education

Kenya adult literacy rate was at level of 81.5 % in 2018, up from 78.7 % in 2014. The literacy levels in the area is 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. The existing primary schools within the locality are Got Agulu, Osieko and Nyayo. The secondary schools are Got Agulu and Osieko.

3.4.7 Water Access and Sanitation

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 0.1 Km. About 90% 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.

3.5 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

4 PUBLIC PARTICIPATION AND STAKEHOLDER CONSULTATIONS.

4.1 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.

4.2 Objectives

The key objectives of the consultation and public participation for proposed rehabilitation of the fish aggregation processing and marketing unit was 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 neighbors/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 HSE management practices into the Environmental and Social Management Plan (ESMP) as recommended by neighbours/community

4.3 Methodology

4.3.1 Stakeholder mapping

The environmental and social assessment public participation exercise was conducted in February 2022 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 process: -

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



Plate 4-1 Participants filling questionnaire

4.3.2 Public consultation questionnaires

The environmental and social assessment public participation exercise was conducted in February 2022 by the expert in three ways through (i) Focus group and Key informant interviews and discussion, (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 Annex I and Community barazas/meetings in Annex II
- ✓ Administration of questionnaires to different target groups and local community members in the administrative area for the proposed project site (Appendix I)
- ✓ Public / Technical Meetings at various levels and with different target groups

4.3.3 Public consultation 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. One comprehensive public meeting as well as technical meetings were held on various dates in March, 2022, with the local residents, chiefs, Village elders, and other local administrative leaders in attendance in the project area.. The issues arising in the meeting are captured in Appendix (II).

The findings are incorporated into this report and captures the issues, suggestions, concerns and recommendations from public meetings on site. The meetings were well attendend and the attendees participated actively during the meetings (Plate 4-1 and 4-2).



Plate 4-3 Lead Expert addressing participants



Plate 4-2 Participants raising their hands in appreciation

4.4 Consultation and Disclosure Outputs

The Appendices present the information on the public consultations undertaken under the environmental impact assessment for the proposed fish aggregation, processing and marketing facility. This information includes selected responses as detailed in the minutes (*Appendix II*). It was noted that members lauded the project and were eager to see the start of the project. However, there were a few areas that the members sought clarity. A summary of the key concerns raised by the participants is provided in table 4-4 below:

Table 4.4—1 Stakeholder Consultative meeting key concerns

SN.	Issues raised by the members	Concerns	Response
1.	Employment opportunities	Increased employment opportunities what about women will they be engaged	All the people will be granted equal opportunities there will be no favoritism
2.	Clearing of vegetation and fencing	We may require funds to open up the area and fence it off	An inclusion grant of Kshs 550,000 was given to the cooperative society. There is also community contribution of about Kshs1,000,00
3.	Installation of solar panels	Question was raised that what will happen if the solar panels fail to generate power or stolen	Some members of the community will be trained on operation and maintenance The community will also engage services of a watchman
4.	Increased post-harvest losses	The bulk of fish being harvested and kept for storage may get spoilt	There will be value addition by removing ovals, scales and storage facility to increase the shelf life
5.	Increased waste disposal	Is there any chance that waste from the fish plant will end up creating foul smell	There will be a waste recycling plant in place to avoid wastage and convert wastes to animal feeds or manure
6.	Erosion	Stakeholders residing around the project area will be encouraged to plant trees and construct terraces along contours to reduce soil erosion	The community requested for capacity building from the county agriculture office
7.	Credit for purchase of fish gears	Will there be credit facilities to support the fisherfolks	The Got Agulu fisheries cooperatives will provide short term credit to its members

8.	Mosquitoes/Malaria incidences	Due to accumulation of waste water incidences of malaria may rise r The surrounding community members will be provided with mosquito nets	The project management committee was asked to seek for support from the county government and local supporting institutions to provide mosquito nets
9.	Diposal of waste from the fish processing factory	How will the wasters from the fish be disposed i.e scales ovals and dead or spoilt fish	There will be a soak pit and an incinerator to burn all the containers without exposing the air to the atmosphere
10.	food security and nutrition security	How will the individuals market their fish there has been a marketing problem resulting in post harvest losses	The members of the fisherfolks will be encouraged to form groups and will be linked to markets so that they can have collective burgaing power
11.	Improved Economic status	Income at household level will be enhanced, communities will be able to sell fish and fish products at favorable prices .	The community members will be connected to producer organizations in order to fetch out better prices
12.	Enhanced livelihood resilience and alternatives	Once the fish aggregation processing unit is in place, there will be employment in operation of the factory and maintenance.	Idleness in the community will be reduced and community members will be engaged in productive labour
13.	Accidents during construction	During construction and operation phases accidents are likely to occur	The proponent will strictly adhere to safe working practices to protect the workers, neighbors and passers-by
14.	Increased incidence of fish predation	During operation phase there will predation from birds and stealing of fish from the ponds	The entire project site will be fenced and the ponds will be covered with nets to protect fish from predation

4.5 Salient issues

4.5.1 Opinion on Project implementation

All the residents admitted that they were interested in this project more solely for their improved food security and livelihoods in so doing pointed to the benefit that will accrue to them.

4.6 Anticipated impacts

4.6.1 Positive Impacts

Positive impacts identified by stakeholders include the following:

- Increased employment opportunities
- Improved food security and nutrition security
- Production of animal manure from the fish farms
- The proposed construction will ensure that there is storage of fish value addition and improved market access

4.6.2 Anticipated negative impacts

Some of the negative impacts identified include the following:

- Anticipated possible conflicts over job and access to facilities
- Increased pressure on existing water watering points and demand of water for cleaning the processing facilities
- Dust and air pollution during construction and paints from construction of cold storage facility
- During operation phase there will be increased solid and liquid waste disposal around the premise
- Incidences of erosion along the waterways
- Chances of water borne diseases and increased incidence of mosquitoes from the septic tank

4.6.3 Suggestions and comments from public consultations

- Increased influx of people
- Reduced post harvest losses and increased, aggregation and value addition through provision of inputs and agro processing machineries
- Creation employment opportunities during the project cycle from construction to operation and the staff that will be involved in the daily cores within the project after its completion such as sale of ice, prolonged shelf life of fish, market for the fish.
- Ensure that there will be support of fishing gears such as engine motor boat and fishing nets
- Construction work should strictly observe standards of Occupational Health and Safety including use of appropriate PPE. During operation, need for appropriate PPE such as gloves, gumboots to prevent occupational diseases, injuries and accidents should be emphasized.
- There will be increased efficiency that that will result in faster turn-around time of fish farming hence increased volume of capture fish once the ice plant and cold storage is constructed
- Ensure the workers/employees of the proposed project are insured through WIBA for adequate compensation due to injury while at work.
- The contractor should have a holding/launching yard for materials and equipment to control environmental pollution.
- The contractor should also strive to use high quality construction materials as detailed in the design
- Educating on HIV aids control and COVID-19 prevention

- Sensitize the community and workers on sexual harassment and gender based violence
- Promote gender empowerment throughout the phases of the project

5 POTENTIAL IMPACTS AND MITIGATION MEASURES

This chapter presents the assessment of the issues likely to arise as a result of implementation of the proposed project. The impacts are presented in-regard to their likelihood of occurrence on the physical, biological, occupational and socio-economic environments.

Table 4.5—1 Summary of expected impacts, rating and development stage

Environmental Impact	Positive/negative	Direct/Indirect	Temporary/ Permanent	Major/Minor	Occurrence	
					Design/ Construction	Operation
Enhanced resilience and livelihood diversification and food security status	Positive	Direct	Permanent	Major		Yes
Job creation by providing ice to community members who can sell or even use to prolong the shelf life of fish	Positive	Direct	Permanent	Major	Yes	Yes
Economic gains	Positive	Direct	Permanent	Major	Yes	Yes
Optimal use of land	Positive	Direct	Permanent	Major	Yes	Yes
Noise pollution	Negative	Direct	Temporary	Major	Yes	No
Oil spills	Negative	Direct	Temporary	Minor	Yes	No
Dust Emission	Negative	Direct	Temporary	Minor	Yes	No
Excavation works	Negative	Direct	Temporary	Major	Yes	No
Generate of exhaust emission	Negative	Direct	Temporary	Major	Yes	No
Increased water demand	Negative	Direct	Permanent	Major	Yes	Yes
Increased potential for accidents	Negative	Direct	Temporary	Minor	Yes	Yes
Solid waste generation	Negative	Direct	Permanent	Major	Yes	Yes
Disposal of excavation soil and other materials	Negative	Direct	Temporary	Minor	Yes	Yes
Biodiversity conservation	Negative	Indirect	Temporary	Minor	Yes	Yes

5.1 Positive Environmental and Social Impacts during construction phase

The anticipated positive impacts include the following: biodiversity conservation, availability of reliable water, improved household incomes, employment creation, enhance market economy, increased revenue generation the county

5.1.1 Positive environmental impacts

5.1.1.1 Biodiversity conservation and enhancement

Landscaping and planting of trees and flowers in the compound and its environments will enhance the aesthetics and community tree planting will enhance biodiversity of the area. The group nursery will provide seedlings to the community and environmental conservation.

5.1.2 Positive social impacts

5.1.2.1 Informal business Growth

During construction the informal sector will benefit from the operations. This will involve informal traders who will sell their produce around the proposed site. Such a move shall promote local informal entrepreneurs in the local project area

5.1.2.2 Employment opportunity

Direct employment will be mainly through skilled and unskilled labourers whose workforce shall be needed in the construction. Several workers including casual labourers, masons and carpenters are expected to work on the site from onset of the project to the end. Indirect employment will be experienced through buying construction materials and sale of food to the construction workers by the neighbouring communities.

5.1.2.3 Economic gains

The local economy shall gain much from the project in that materials for building shall be sourced locally within the county and that all the materials are charged VAT, hence increasing revenue collection in the country

5.1.2.4 Provision of Market for Supply of Building Materials

The project will require supply of construction materials most of which will be sourced locally within the vicinity and environs. This provides ready market for construction material suppliers such as quarrying companies, hardware shops and individuals with such materials.

5.1.2.5 Creation of employment opportunities for residents of the project area

The proposed project will provide short term and long-term employment opportunities to the local community. The construction phase will provide short-term opportunities for casual work and semi-skilled labour. During the operational phase, long-term employment opportunities will also be created which will generate income and improve their livelihoods

5.1.2.6 Increased revenue generation by the County and National Government

The project will contribute to the county and national government kitty. The contractor will pay Value Added Tax (V.A.T) on purchasing materials for the project. Construction workers will also pay income tax from their earnings while working on the project. The project after completion will allow the county government to collect revenue from sale of value added fish in the local markets and firewood from timber harvested from planted trees

5.2 Negative Environmental and Social Impacts during the Construction Phase and Mitigation Measures

5.2.1 Negative environmental impacts during construction phase

5.2.1.1 Loss of Vegetation cover

Construction activities will lead to loss of vegetative cover at the site. While no endangered or threatened species were identified in the area, clearing and subsequent inundation constitutes a loss of biodiversity on flora. The vegetation is also home to many invertebrate and avifauna, who will be rendered dispossessed of their habitats

Mitigation:

- ✓ Where possible the contractor to exercise selective removal of existing indigenous tree species
- ✓ The contractor to plant grass and indigenous trees within the project area as per the ESMP recommendations
- ✓ 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

5.2.1.2 Surface ground water pollution/contamination

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, are likely to cause physical and chemical alteration of surface and ground water quality. Civil works, excavations, or an inadequate planning of cuts and fills, may affect the water table significantly.

Mitigation measures

- ✓ The contractor to construct a standard temporary pit latrine for the workers
- ✓ Contractor to identify an appropriate site pit for disposal of vegetation and biodegradable plant material
- ✓ A temporary incinerator to be constructed to burn non bio degradable solid wastes such as plastics
- ✓ Civil works, excavations, cuts and fills to be compacted so that there is minimal soil loss

5.2.1.3 Oil spills/Fuels and Lubricants

During machinery operations there may be spillage of oils, petroleum hydrocarbons on site presents a hazard and the release of hydrocarbons into the environment could result in significant impacts on a variety of receptors. The pathway for pollution is soil or water, and the primary receptors include the sub-soil and groundwater. Other receptors include air (from fuel vapors) and people (through dermal contact, inhalation or ingestion). It is however worth noting that the risks of a major oil spillages occurring are minimal.

Mitigation Measures:

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

- ✓ Safety procedures for fuel storage and re-fueling should be well understood and implemented by site staff; and
- ✓ Oil residuals including waste oil, lubricants, used filters, should be carefully collected and stored for safe disposal, in order to prevent migration of contaminant hydrocarbons into storm water or groundwater resources

5.2.1.4 Air quality degradation due to dust and exhaust emissions

The following emissions will be expected to result from construction activities. This would in turn lead to poor quality of life as well as upper to lower respiratory infections and silicosis condition:

- a) Dust from excavations and earth moving vehicles as well as materials delivery;
- b) Emissions such as smoke, hydrocarbons and nitrogenous gases among others from machinery exhausts

Mitigation Measures

- ✓ Personal protective equipment (PPE) such as dust masks must be worn in the immediate vicinity of the operations during excavation;
- ✓ All machinery and equipment should be maintained in good working order to ensure minimum emissions including carbon monoxide, oxides of Nitrogen and Sulphur, as well as suspended particulate matter;
- ✓ Drivers of construction vehicles and delivery trucks should be cautioned to drive slowly near the site to avoid creating dusty conditions.

5.2.1.5 Increased generation of solid wastes

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. Temporal storage on site for solid waste such as paper can be done with eventual disposal in compliance with waste regulations. Recycling and reuse strategies can also be achieved.

Mitigation:

- Use of an integrated solid waste management system i.e., the 3 R's: 1. Reduction at source 2. Reuse 3. Recycle where possible.
- Reuse packaging materials such as cartons, cement bags, empty metal and plastic containers to reduce waste at site;
- Waste collection bins / receptacles to be provided at the project site
- Contractor to dump unused excavated materials and debris in designated places
- Contractor to re- use excavated soil for the pan wall/embankment

5.2.1.6 Noise and Vibration

The noise impact during construction is expected to be negative and short-term. Major sources of noises and vibration will come from: construction equipment to place charges and earthmoving machinery, as well as noise from the work force itself. The major receptors are expected to be the construction workers as well as any immediate neighboring premises.

Mitigations Measures:

- ✓ Conduct noise measuring to determine levels and extent of harmful noise and provide PPE (hearing protection) to persons who must operate within or visit the identified high noise areas;

- ✓ Investigate the possibility of investing in silencers on machines to reduce the quantity of noise produced
- ✓ Inform local residents of any abnormal noise generating construction activities to minimize disruption to local resident

5.2.1.7 Impact on access road

Although it is anticipated that the existing access roads are adequate for the transportation of materials, the contractor must maintain these roads during the construction period.

Mitigation Measures:

- ✓ Vehicles should abide by the speed limits and by-laws of the area;
- ✓ Movement of heavy construction vehicles should be planned appropriately

5.2.1.8 Visual impacts and aesthetics

Excavation and refurbishment works will result in changes in the physical appearance of the project site. Volumes of earth will be excavated and stockpiled while construction materials such as sand and ballast will also be stockpiled at the site. Construction waste may also litter the site and the surrounding area and cause visual intrusion. This will be of a low magnitude and will only occur during construction phase.

Mitigation

- Regular site clean-up to prevent littering
- All excavated material should be compacted to minimize soil erosion
- Restrict project activities to the actual project site
- Establishment of a site store for storage of materials, tools and equipment

5.2.2 Negative Social impacts during construction phase

5.2.2.1 Occupational Health and Safety Hazards

During construction the movement of construction materials may result in accidents if good supervision is not provided. Accidental cuts and bruises are common among construction workers as a result of the use of machinery and hand tools, an impact that needs due consideration.

Mitigation:

- Provide appropriate personal protective equipment (PPE).
- Implement a programme of assessment of routine monitoring of worker health.
- Redesign manual processes and rotate work tasks to reduce heavy lifting/repetitive activities, and where possible install mechanical lifting aids.
- Train workers in general safety procedures including first aid and fire safety.
- Use designated routes for machinery and personnel
- Engineer out sharp edges and access to dangerous parts of machinery through a hierarchy of controls (permanently fixed physical barrier, interlocked physical barrier, physical barrier, presence sensing system).
- Ensure that there are provisions for reporting incidents, accidents and dangerous occurrences

5.2.2.2 Labour Influx Effects

During construction 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

To mitigate against possible social ills associated with labour influx during construction phase and conflicts thereof, the contractor will adhere to the following mitigation plan;

Mitigation measures to Labour Influxes

- 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 comply to provisions of Workplace Injuries and Benefits Act (WIBA) 2007
- The contractor will develop and implement a children Protection Strategy, this strategy will ensure that no child under the legal age of 18 years is employed to the Project.
- The contractor should institute a security plan e.g. through a register for all visitors and workers.
- The contractor will Adopt and adapt Nyumba Kumi strategies

5.2.2.3 Increased Spread of STD, HIV & AIDS

The proposed site is within nambo beach, there is likely increase in incidences of health impacts such as sexually transmitted diseases including HIV & AIDS especially during construction of the project. Possible illicit behaviours such as prostitution may increase in the centre leading to spread of STD, HIV/AIDS due to influx of workers and perceived 'quick money' from the sub-project albeit on a smaller scale.

Mitigation

The following should be implemented to mitigate spread of STD, HIV & AIDS:

- Contractor to develop appropriate awareness content and implement awareness sessions for workers on HIV/AIDS and other STDs. This can be done through the use of educative posters and tool box meetings.
- Ensure an adequate and accessible provision of condoms to workers both male and female.

- Contractors to develop a code of conduct and ensure it's signed by all workers with physical presence on site as well as within the project area.

5.2.2.4 Increased Spread of COVID-19

The construction activities will introduce new workers to the site increasing the risk of contracting and spreading COVID-19 from workers who could be infected with the virus. Due to the current spread of COVID-19 which has become a pandemic, if not well mitigated this impact may be high.

Mitigation

The project contractor to establish prevention and mitigation measures against COVID-19 and arrangements for dealing with suspected and confirmed COVID-19 cases. The measures should include but not limited to;

- Raise awareness on the need to take COVID-19 vaccine,
- Ensuring social distancing of not less 1.5 meters between employees in all directions
- Hygiene promotion through use of suitable hand sanitizers or handwashing with soap and water
- Strict and proper use of face masks throughout all working hours and public places.
- Implement Ministry of Health guidelines for staff safety and health, including daily temperature checks for everyone in the workplace
- Increase frequency of disinfecting commonly touched surfaces/objects

5.2.2.5 Gender Based Violence(GBV) and Sexual Harassment

This impact is triggered during project construction phase when the contractor fails to comply with the gender inclusivity requirements in hiring of workers and entire project management as per required by Gender Policy 2011 and 2/3 gender rule.

Mitigation

- Ensure clear human resources policy against sexual harassment that is aligned with national law
- Integrate provisions related to sexual harassment in the employee COC
- Ensure appointed human resources personnel to manage reports of sexual harassment according to policy
- The Contractor shall require his employees, sub-contractors, sub-consultants, and any personnel thereof engaged in construction works to individually sign and comply with a Code of Conduct with specific provisions on protection from sexual exploitation and abuse
- The contractor will implement provisions that ensure that gender -based violence at the community level is not triggered by the Project, including:
- Effective and on-going community engagement and consultation, particularly with women and girls;
- Review of specific project components that are known to heighten GBV risk at the community level, e.g., compensation schemes; employment schemes for women; etc.

5.2.2.6 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

- Given that the project will be smaller in nature, it is anticipated that the mitigation will be through management and coordination to include 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.

5.2.2.7 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.

Mitigation

- The contractor will develop and implement a Children Protection Strategy that will ensure minors are protected against negative impacts associated by the Project including on SEA...
- 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 should not be hired on site as provided by Child Rights Act (Amendment Bill) 2014.
- Wherever possible, ensure that another adult is present when working in the proximity of children.
- 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.

5.2.2.8 Loss and or destruction of cultural property

This include the impacts of the project on any known cultural or archaeological site.

Mitigation Measures

- ✓ *The current site is not in known heritage site. However, during construction in case of any discovery, the site will have to be enclosed and protected*
- ✓ *The contractor must ensure that any materials found which may be of archaeological value must be handed over to a professional archaeologist for analysis and further disturbance of the area must be stopped.*

5.3 Environmental and Social Impacts and Mitigation Measures during Operational Phase

5.3.1 Positive environmental impacts during operational phase

It is anticipated that the operations phase of this project will result in:

- i. An improvement in the standard of living of the beneficiary residents. This would in turn allow them to spend their energy and time on economically and socially viable activities for their families;
- ii. Reduction in water related conflicts
- iv. Food, nutritional and livelihoods security.

- v. Improved availability of fish throughout the year

5.3.2 Negative environmental impacts during operation phase

5.3.2.1 Loss of biodiversity

Due to increased human activities during operation, biodiversity may be affected. Excavated soils may cover vegetation leading to loss of habitats.

Mitigation measures

- *Only critically affected vegetation by the projects should be removed and reestablished later*
- *Fence off and replant trees and grass around the water pan.*
- *Protect sensitive vegetation from soils excavated*

5.3.2.2 Increased incidences of malaria

Due to water body which is stagnant there are high chances of mosquitoes breeding in the water pond hence increased incidences of malaria

Proposed Mitigation

- i Provision of mosquito nets to the people residing around the fish ponds area
- ii clearing of bushes around the project area

5.3.2.3 Ensure efficient energy consumption

Mitigation

The proponent shall plan and install an energy efficient system (Solar generated) at the proposed project. This will contribute immensely to energy conservation during the operational phase of the project. In addition, workers will be sensitized to ensure energy efficiency in their operations. To complement these measures, it will be important to monitor energy use during the operation of the proposed project and set targets for efficient energy use

5.3.3 Negative social impacts during operational phase

5.3.3.1 Leadership issues in management

During operation, the management of the group will be exposed to the group increased income levels. As such, there will be tendency to mismanage funds meant for group advancement/development due to personal interests. This may limit the group growth and risk membership loss.

Mitigation:

- Capacity building to the management committee should be undertaken periodically by KCSAP
- The management of funds should be handled by duly elected finance committee with appropriate gender representation.
- There should be periodic update to the members on the incomes received and the expenditure to enhance transparency and confidence in the committee.

5.3.3.2 Occupational Health and Safety Issues

Health issues are a major concern globally; therefore, hazards associated with diseases must be dealt with. Safety may be compromised when workers incur accidents. The operation of the facility is likely to result in the following.

- ✓ Increased movement of human and operations in the processing plant
- ✓ Accidental that may occur in the processing plant.
- ✓ Breeding of mosquito from the stagnant water

Mitigation measures

- Construct the facilities as per the recommended plans that include fencing, toilets and water pumping site access steps to the reservoir and paths among others.
- Develop By-laws that are acceptable to all.
- Train the group members on water use efficiency with conservation aspects being integrated.
- Restrict livestock and human movement inside the reservoir by fencing the site.
- Put in place appropriate first aid measures

5.3.3.3 Spread of COVID-19

The potential for the spread of any infectious disease like COVID-19 is high. The project operational activities will involve among others water distribution to minimise concentration around watering points, planting of trees agroforestry. There is also the risk that the project may experience large numbers of community becoming ill and will need to consider how they will receive treatment, and whether this will impact on local healthcare services

Mitigation

The project management committee will develop SOPs for managing the spread of Covid-19 during project operations. The SOPs shall be in line with the World Bank guidance on COVID-19, Ministry of Health Directives and site-specific project conditions; -

- i Ensure all County staff are vaccinated against COVID-19 and sensitize farmers to take up the vaccine
- ii 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
- iii The project shall put in place means to support rapid testing of suspected workers for covid-19;
- iv Install handwashing facilities with adequate running water and soap, or sanitizing facilities at AI clinic venues and meetings and ensure they are used;
- v Ensure routine sanitization of shared social facilities and other communal places routinely

5.3.3.4 Gender Based violence and Sexual Harassment

While such cases are difficult to assess, there is likelihood of rape cases during project operations. This impact is triggered during project operation phase when the project management unit fails to comply with the Gender Inclusivity requirements in entire project management team as required by Gender Policy 2011 and 2/3 gender rule.

Mitigation

- Integrate provisions related to sexual harassment in the employee COC in project management committee

- The Project management committee in collaboration with county department of social services will implement provisions that ensure that gender-based violence at the community level is not triggered by the Project, including: effective and on-going community engagement and consultation, particularly with women and girls; review of specific project components that are known to heighten GBV risk at the community level, e.g. compensation schemes; employment schemes for women
- The project management committee in collaboration with county department of social services shall develop specific plan for mitigating these known risks, e.g. sensitization around gender-equitable approaches to compensation and employment; etc
- The project management committee will ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project management unit.

5.3.3.5 Sexual Exploitation and Abuse (SEA)

This impact refers to sexual exploitation and abuse committed at all stages of the Project, especially when employees and community members are not clear about prohibitions against SEA in the Project.

Mitigation

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:

I 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;

II 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;

5.4 Negative Environmental and Social Impacts during Decommissioning Phase and Mitigation Measures

5.4.1 Negative environmental impacts during decommissioning phase

5.4.1.1 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:

I Proper maintenance of vehicles and other equipment (using petroleum products) to avoid fuels and lubricants spills at the project site.

II The proponent should properly handle, storage, and disposal off oils and greases and their wastes during decommissioning by ensuring that servicing is strictly done at designated servicing yard or external petroleum stations

Increased generation of solid wastes

Decommissioning activities will generate various solid wastes ranging from debris, wrappings, concrete, human wastes to food wastes etc. Poor handling and disposal of such waste will lead to environmental pollution.

Mitigation:

- I Careful dismantling to ensure materials remain as re-usable as possible
- II Selling or donating the re-usable or recyclable materials to avoid waste
- III Cleaning and proper site rehabilitation by adhering to a NEMA approved Decommissioning plan

5.4.1.2 Loss of livelihood

During project operation there will be income generated from fish aggregation, processing and marketing

Mitigation

The impact is low as it is anticipated and can be mitigated by sensitizing fish farmers on other forms of business and other strategies for continuous market reconnaissance.

ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN
(ESM&MP)

5.5 Environmental Social Management& Monitoring Plan

Environmental and Social Management Plan (ESMP) 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 ESMP will be identified. The ESMP will be provided to prospective bidders for the construction contracts to ensure that environmental mitigation costs are factored into their costings. The Contractor(s) will also be required to prepare a separate and specific ESMP 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 EMSP is implemented on site via reviewing the Contractor's ESMP and ensuring its implementation on site via audits.

The ESMP has been developed to assist in prioritization of key findings of the ESIA mitigation measures. The EMSP is based on ISO 14001 principles comprising the following: The environmental issues of concern, recommended mitigation measures, responsibilities, timeframes and costs (Table 5-5). The Environmental and Social Management Plan also includes environmental monitoring measures with the following objectives:

- I) To verify the execution of the measures proposed in the ESIA and to evaluate the effectiveness of these measures.
- II) 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.
- III) 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 5.5—1: Environmental and Social Management and Monitoring Plan (ESM&MP)

Potential Impact	Proposed Mitigation Measures	Responsibility	Timeline	Performance Monitoring Indicator	Means of Verifiable	Cost (Ksh)
Construction phase						
Clearing/ destruction of vegetation	<ul style="list-style-type: none"> Only clear enough area for the cold storage facility Mature trees should not be cut unless extremely necessary. Plant indigenous palatable trees species around the project site 	Contractor	Continuous during Construction	<ul style="list-style-type: none"> Number of indigenous palatable species planted 300m Perimeter fence chain link round the Site 	<ul style="list-style-type: none"> reports/photographs -Site plan showing vegetation clearance 	Contractor cost
Soil erosion	<ul style="list-style-type: none"> All excavation works must be properly backfilled and compacted Foundation to be well concretized to avoid erosion 	Contractor/Project management unit	Continuous	<ul style="list-style-type: none"> Number of conservation 	<ul style="list-style-type: none"> Reports Field visits 	Contractor cost
Increased noise and vibration generation	<ul style="list-style-type: none"> Ensure PPE such as ear muffs are provided to the workers where necessary Construction work be done during the day when people are away and also the outside environment is also noisy. Ensure that the machines are serviced promptly as required 	Contractor	Continuous during Construction	<ul style="list-style-type: none"> No of PPE provided to workers No. of cases reported relating to noise pollution 	<ul style="list-style-type: none"> Noise Levels Duration/time of the day Reports 	Contractor cost
Air Quality Degradation due to dust and exhaust emissions	<ul style="list-style-type: none"> ✓ Minimize emission of exhaust fumes through servicing of machinery in use ✓ Use only heavy machinery and equipment during daytime ✓ Regular servicing of equipment 	Contractor	Continuous during Construction	<ul style="list-style-type: none"> No of Workers/vehicle operators sensitized on reduced emission No. of PPE supplied 	<ul style="list-style-type: none"> -site visit /reports Photographs Sensitization meeting report 	Contractor cost

Oil spills/Fuels and Lubricants	<ul style="list-style-type: none"> ✓ Vehicle maintenance should be done on purpose built • Impervious concrete platforms with oil and grease traps. • Standard operating practices for re-fueling mobile equipment such as a minimum 15m from any water channel should be practiced 	Contractor	Construction phase	<ul style="list-style-type: none"> • No of Oil and grease traps established 	<ul style="list-style-type: none"> • Records Register on vehicle maintenance 	Contractor cost
Increased generation of solid wastes	<ul style="list-style-type: none"> • The base camp of the contractor should not be in the catchment area of the fish ponds . • appropriately • Recycle any useful material during civil works • Use of an integrated solid waste management system i.e., the 3 R's: 1. Reduction at source 2. Reuse 3. Recycle where possible. • Reuse packaging materials such as cartons, cement bags, empty metal and plastic containers to reduce waste at site; • Waste collection bins / receptacles to be provided at the project site 	Contractor Site Engineer	Continuous during Construction	<ul style="list-style-type: none"> • No. of waste bins/receptacle • Quantity of Waste • No of designated waste collection points 	<ul style="list-style-type: none"> • Type of waste • Designed waste collection points established • Waste collection company engaged 	Contractor cost
Visual Impacts and aesthetics	<ul style="list-style-type: none"> • Regular site clean-up to prevent littering • All excavated material should be compacted to minimize soil erosion • Restrict project activities to the actual project site • Establishment of a site store for storage of materials, tools and equipment 	Contractor	Throughout the construction phase	<ul style="list-style-type: none"> • Volume of waste cleaned up • Area compacted • Number and size of materials stores erected • Area of site rehabilitated 	<ul style="list-style-type: none"> • Cleaning up of waste • Compacting loose soils • Establishment of a materials store • Site rehabilitation 	Contractor cost
Occupational Health and safety Hazards	<ul style="list-style-type: none"> • Provide workers with appropriate personal protective clothing: helmets, boots and overalls 	Contractor/Project management unit	Continuous during construction	<ul style="list-style-type: none"> • No. of HSE trainings • No. PPE provided 	<ul style="list-style-type: none"> • PPE provided • Recorded accidents occurrences and near misses 	30,000

	<ul style="list-style-type: none"> • Implement a programme of assessment of routine monitoring of worker health. • Redesign manual processes and rotate work tasks to reduce heavy lifting/repetitive activities, and where possible install mechanical lifting aids. ✓ Provide a well-stocked first aid kits on the site • Restrict human movement inside by fencing the site. 			<ul style="list-style-type: none"> • First Aid Kits availability • Availability of sanitation facility • No. of Accidents/ incidents 	<ul style="list-style-type: none"> • OSH sensitization conducted • Field visits 	
	Social Impacts					
Increased Spread of STD, HIV & AIDS,	<ul style="list-style-type: none"> • Community sensitization on HIV/AIDs • Contractor to sensitive workers and provide condoms on site as well as within the project area. 	Contractor /Project management committee	Throughout construction Period	<ul style="list-style-type: none"> • No of Cartons of condoms distributed and to the relevant persons • No. of HIV trainings and awareness campaign • Code of Conduct 	<ul style="list-style-type: none"> • Reports • 	20,000
Increased Spread of COVID-19	<ul style="list-style-type: none"> • Raise awareness on the need to take COVID-19 vaccine, • Ensuring social distancing of not less 1.5 meters between employees in all directions, • Hygiene promotion through suitable hand sanitizing facility or handwashing soap and water • Strict and proper use of face masks throughout all working hours and public places. 	Contractor/ Project management committee	Throughout construction Period	<ul style="list-style-type: none"> • Number of Handwashing facilities/sanitizers • No. of appropriate PPE (Face Masks) distributed • No. of trainings • Vaccinations undertaken 	<ul style="list-style-type: none"> • Incidences reported • Reusable phase masks distributed • Hand washing facilities • Observance of social distance 	30,000

	<ul style="list-style-type: none"> Implement Ministry of Health guidelines for staff safety and health, including daily temperature checks for everyone in the workplace Increase frequency of cleaning commonly touched surfaces / objects 			<ul style="list-style-type: none"> No. of Covid-19 incidences reported Number of persons working at the site 		
Gender based violence and sexual harassment	<ul style="list-style-type: none"> Integrate provisions related to sexual harassment in the employee COC The Contractor to ensure compliance with a Code of Conduct with specific provisions on protection from sexual exploitation and abuse Community and construction workers awareness on GBV Separate toilets for each gender Establishment of appropriate grievance redress mechanisms 	Contractor/project management unit	Throughout construction Period	<ul style="list-style-type: none"> No. of cases of GBV reported Number of sensitization workshops 	<ul style="list-style-type: none"> Human resource policy in place Code of Conducts signed Separate sanitary convenience 	20,000
Child abuse	<ul style="list-style-type: none"> Contractor develop and implement a Children Protection Strategy All staff signing and committing themselves towards protecting children, a contract which clearly defines what is and is not acceptable behaviour Children under the age of 18 years should not be hired on site as provided by Child Rights Act (Amendment Bill) 2014. Wherever possible, ensure that another adult is present when working in the proximity of children. 	Contractor/Project management unit	During construction	<ul style="list-style-type: none"> Number of school going children who have dropped out of school Number of workers to have ratified to child protection strategy No. of children/persons below the age of 18 yrs employed 	<ul style="list-style-type: none"> Child Protection Strategy Workers signing and committing to child protection strategy Age of employees 	20,000
Sub-Total						120,000
Operation phase Environmental impacts						
Solid Waste generation from fish processing unit	<ul style="list-style-type: none"> Use of an integrated solid waste management system i.e., the 3 R's: 1. 	Got Agulu fish processing and marketing	Throughout operation	<ul style="list-style-type: none"> No of Designed waste collection points established 	<ul style="list-style-type: none"> Waste storage points 	50,000

	<p>Reduction at source 2. Reuse 3. Recycle where possible.</p> <ul style="list-style-type: none"> • Reuse packaging materials such as cartons, cement bags, empty metal and plastic containers to reduce waste at site; • Waste collection bins / receptacles to be provided at the project site 	Cooperatives facility		<ul style="list-style-type: none"> • -No of Waste collection companies engaged 	<ul style="list-style-type: none"> • -Waste disposal facilities/contract collector 	
Population Pressure and Water Demand for fish processing	<ul style="list-style-type: none"> • Develop schedule on water use for fish farming • Payment for water use so that funds can be used to sustain the processing facility 	Got Agulu fish processing and marketing Cooperatives facility	Throughout operation	<ul style="list-style-type: none"> • Amount of Domestic water used in the processing facility 	<ul style="list-style-type: none"> • Reports • Field observation 	30,000
Water quality pollution by fish products	<ul style="list-style-type: none"> • Routine water quality analysis. • Train on safe use of organic fertilizers that are biodegradable upstream. • Fencing off the ponds to protect contamination 	Got Agulu fish processing and marketing Cooperatives facility	Throughout operation	<ul style="list-style-type: none"> • Length of perimeter fencing • Analysis of the water samples • Number of farmers trained on use of organic fertilizers 	<ul style="list-style-type: none"> • Reports • Field observation • Farmers practising organic farming 	50,000
Oil spills	<ul style="list-style-type: none"> • Standard operating practices for application of oils lubricants on mobile equipment to be a minimum 15m from the fish processing facility 	Got Agulu fish processing and marketing Cooperatives facility	Throughout operation	<ul style="list-style-type: none"> • Amount of Oil and grease traps used 	<ul style="list-style-type: none"> • Records Register on machinery maintenance 	10,000
Possible breeding of disease causing vector due to septic waste water	<ul style="list-style-type: none"> • Provision of treated nets to the targeted communities -Equip health centres with drugs 	Got Agulu fish processing and marketing Cooperatives facility	Throughout operation	<ul style="list-style-type: none"> • Number of targeted households provided with Mosquito nets, 	<ul style="list-style-type: none"> • Reports 	50,000

				<ul style="list-style-type: none"> Water treatment tablets and sensitized 		
Operation phase Social impacts						
Leadership issues in management	<ul style="list-style-type: none"> Periodical capacity building to the PMC by KCSAP Elected finance committee with appropriate gender representation to handle funds. Periodic update to the members financial status- transparency 	Got Agulu fish processing and marketing Cooperatives facility / KCSP	Throughout operation	<ul style="list-style-type: none"> Number of trainings conducted Number of meetings held No of reported grievances Periodic financial status updating 	<ul style="list-style-type: none"> Training of PMCs GRM mechanisms Periodic financial status update 	10,000
Conflicts on use of the cold storage facility	<ul style="list-style-type: none"> ✓ Establish a grievance redress mechanism targeting communities and other project stakeholders but not ✓ Ensure the grievance redress mechanism is available to the affected community members and stakeholders at no cost • Educate all project stakeholders on the availability and use of the grievance redress mechanism in a manner that is understandable to all, 	Got Agulu fish processing and marketing Cooperatives facility / Social services dept	Continuous	<ul style="list-style-type: none"> Number of reported cases on grievances Number of sensitization awareness creation workshops on GRM Number of community members trained on GRM 	<ul style="list-style-type: none"> Existing records 	20,000
Occupational Health and safety Hazards	<ul style="list-style-type: none"> ✓ Provide workers with appropriate personal protective clothing: helmets, boots and overalls. ✓ Provide a well-stocked first aid kits on the site ✓ Restrict livestock and human movement inside the reservoir by fencing the site. 	Got Agulu fish processing and marketing Cooperatives facility	Throughout operation	<ul style="list-style-type: none"> No. of accidents reported Number and types of PPE procured No. of sensitization meetings 	<ul style="list-style-type: none"> Reports on Safety records Reports on number first Aid Kits available Photos of signage sites 	30,000

	✓ Put Signage (Warning signs in strategic sites)					
Spread of Covid 19	<ul style="list-style-type: none"> Sensitize the Achar water pan users and county staff to take up COVID-19 vaccine 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 The project shall put in place means to support rapid testing of suspected workers for covid-19; Install appropriate handwashing at designated locations; Ensure routine sanitization of shared social facilities and other communal places routinely 	Got Agulu fish processing and marketing Cooperatives facility	Throughout operation Period	<ul style="list-style-type: none"> Presence of Handwashing facilities/sanitizers No. of appropriate PPE (Face Masks) distributed No. of trainings/sensitization Number of mem No. of Covid-19 incidences reported at offices 	<ul style="list-style-type: none"> Incidences reported Reusable phase masks distributed Hand washing facilities Observance of social distance 	50,000
GBV and Sexual harassment	<ul style="list-style-type: none"> Integrate provisions related to sexual harassment in the employee COC in project management committee PMC in collaboration with county department of social services ensure that gender-based violence at the community level is not triggered by the Project The project management committee will ensure adequate referral mechanisms are in place if a case of GBV at the community level is reported related to project management unit. 	Got Agulu fish processing and marketing Cooperatives facility	Throughout operation period	<ul style="list-style-type: none"> Number of recorded cases Number of sensitization workshops Human resource policy 	<ul style="list-style-type: none"> Code of Conducts signed No. of cases of GBV reported 	20,000
Sexual exploitation and Abuse (SEA)	<ul style="list-style-type: none"> Response to SEA: including survivor-centred coordinated multi-sectoral referral and assistance to complainants according to standard operating procedures; staff reporting mechanisms; written procedures 	Got Agulu fish processing and marketing Cooperatives facility	Throughout operation phase	<ul style="list-style-type: none"> Number of recorded cases Number of sensitization workshops 	<ul style="list-style-type: none"> Code of Conducts signed No. of cases of GBV reported 	20,000

	<ul style="list-style-type: none"> 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; 			<ul style="list-style-type: none"> Human resource policy 		
Sub-Total						340,000
Decommissioning phase						
Air Quality Degradation due to dust and exhaust emissions	<ul style="list-style-type: none"> Workers engaged in decommissioning should be provided with appropriate PPE Sprinkle water on uneven/bare areas at project site areas and nearby access roads to minimise dust 	Contractor	Continuous during decommissioning	<ul style="list-style-type: none"> No. of workers sensitized PPE provided Frequency of watering 	<ul style="list-style-type: none"> Workers/vehicle operators sensitized on reduced emission PPE provided to workers Sprinkling of water 	30,000
Increased generation of solid wastes	<ul style="list-style-type: none"> Careful dismantling to ensure materials remain as re-usable as possible Selling or donating the re-usable or recyclable materials to avoid waste Cleaning and proper site rehabilitation by adhering to a NEMA approved Decommissioning plan 	Contractor	Continuous during decommissioning	<ul style="list-style-type: none"> Recycling solid waste Rehabilitated site Designed waste collection points established Waste collection company engaged 	<ul style="list-style-type: none"> Quantity of waste Area rehabilitated No. of solid waste bins/receptacles Type of Waste 	30,000
Loss of livelihood	<ul style="list-style-type: none"> The impact is low as it is anticipated and can be mitigated by training farmers on other forms of business and other strategies 	Proponent	Continuous during	<ul style="list-style-type: none"> Training on alternative business 	<ul style="list-style-type: none"> No. of trainings conducted 	20,000

			decommissi oning			
Occupational Health and Safety Hazards	<ul style="list-style-type: none"> • Provide appropriate personal protective equipment (PPE). • Train workers in general safety procedures including first aid and fire safety. • Use designated routes for machinery and personnel • Ensure that there are provisions for reporting incidents, accidents and dangerous occurrences 	Contractor	Continuous during decommissi oning	<ul style="list-style-type: none"> • Training of workers on safety • Provision of PPEs • Install first aid kits • Reporting of incidents • Set up sanitation facilities • Designated routes for machinery and personnel 	<ul style="list-style-type: none"> • No. of HSE trainings • Number of PPEs provided • First Aid Kits availability • No. of Accidents/incidents • Existence of routes for machines and personnel 	30,000
Spread of COVID-19 amongst workers	<ul style="list-style-type: none"> • Provision and use of appropriate Personal Protective Equipment (PPE) • Maintain social distancing at least 2 meters • Install handwashing facilities with adequate running water and soap, or sanitizing facilities 	Contractor	Continuous during decommissi oning	<ul style="list-style-type: none"> • Availability of SOP(s), Training material, PPE, sanitising facilities etc; 	<ul style="list-style-type: none"> • No. of PPEs provided/procured • No. of handwashing facilities installed • Number of COVID-19 cases reported 	30,000
Sub-Total						140,000
Total Cost of ESM&MP(Kshs)						510,000

6 CONCLUSION AND RECOMMENDATION

6.1 Conclusions

This study has ascertained that the construction of the proposed fish aggregation and processing facility will have both negative and positive impacts on the physical and the surrounding human environment.

Positive impacts include increased income to the fisher farmers, employment during construction and operation phases include reduced post-harvest losses, value addition. Negative impacts include increased incidences of noise and dust pollution during construction, removal of vegetation to create space for the construction works, risks of occupational hazards and risk of habitat destruction 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 construction of the fish processing plant will not generate significant negative and irreversible impacts that can compromise the ecological, social 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.

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 Safety and Health consultant to oversee implementation of the satisfactory implementation of 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

In case of future closure of the fish processing plant key stakeholders and the community should be involved in the planning and execution of the closure of the facility 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.

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8 APPENDICES

i) Copies of filled questionnaires

PROJECT: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR PROPOSED CONSTRUCTION OF GOT AGULU FISH PRODUCTION AND MARKETING CO-OPERATIVE SOCIETY LIMITED IN YIMBO WEST, BONDO SUB COUNTY OF SIAYA COUNTY IN KENYA

The Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MOAL F&C), the state department of Crops through World Bank Funded Kenya Climate Smart Agriculture Project (KCSAP), intend to support the proponent GOT AGULU FISH PRODUCTION AND MARKETING CO-OPERATIVE SOCIETY to construct a fish aggregation, cold storage facility and marketing. The activities entail fish aggregation and marketing. In a bid to ensure safe and sustainable environment, the National Environmental Management Authority (NEMA) under EMCA (Amendment) of 2015 Section 58 requires that an Environmental Impact Assessment is done and public participation be undertaken to establish the views and concerns of the interested and/or affected stakeholders. Thus as a member of the local community/group/institution within/around the proposed project area we kindly request for your comments on the expected socio-economic and environmental impacts of the proposed project.

Your response will be treated with utmost confidentiality

Section A
Response details

Name	Institution/Organization	Telephone
EVERLINE ATIERO	Got Agulu nsh	0720959606

1. Gender
Male Female

2. Age of the Respondent.....21.....

3. For how long have you known or worked with the Society(years)

Section B
Human Natural Environmental Concerns

1 Are you aware of the proposed fish aggregation, cold storage and marketing facility (processing and bulking) unit

Yes No

1

2 Do you think the proposed construction/establishment of the unit and its activities pose any danger to the environment

Yes No

If yes explain

3 Do you have any rejection/reservation on proposed construction/establishment of the multipurpose fish aggregation and cold storage facility

Yes No

If yes explain

4 What do you think are the positive and negative socio economic and environmental impacts on the proposed project

Positive	Negative
<p>create employment to our youths</p> <p>increase income</p>	<p>- Security</p> <p>- Influxes of tourists for employment</p> <p>- Dust emission</p> <p>- Waste from the fish plant</p> <p>- Increased cases of Covid</p> <p>- Sexual harassment</p>

5 Suggest mitigation measures for any negative impact that may result from implementing the project

- Sensitization on Sexual Harassment
- Drainage of Waste by Expert
- Provide PPEs

6 a) Do you anticipate any conflict or complain against the proposed cold fish aggregation, cold storage and marketing facility with respect to:

- Land Yes No
- If yes indicate.....
- Water Yes No
- If yes indicate.....
- Public health and safety? Yes No
- If yes indicate
- Loss of livelihood? Yes No
- If yes indicate
- Cultural/heritage? Yes No
- If yes indicate
- Others

(b) If any in 6(a) above what are the mechanism to put in place to resolve the conflicts/complaints amicably

-
-
-

7 On the whole, would you have any objections to the project being implemented?.....

8 In which category do you fall? (tick where applicable: you can tick more than one box)


Neighbour resident Project official Stakeholder

3

Stakeholder Community leader/Member

Other Specify

PERSONAL INFORMATION

Signature..... 

Thank you for your cooperation

[Please provide these details for the purpose of authentication in this EIA study only

4

ii) *Minutes of public consultation meeting*



PUBLIC MEETING FOR PROPOSED CONSTRUCTION OF FISH AGGREGATION, STORAGE AND MARKETING UNIT HELD ON 18th MARCH, 2022 AT YALA FISHERIES CENTRE , AT 09:45 AM.

MEMBERS PRESENT

AGENDA

Introductions and opening remarks

Purpose of the meeting

Construction of the fish processing unit Brief

Concerns, Questions and Responses

A.O.B. & adjournment

PRELIMINARY

The meeting started with a word of prayer from Chairman Mr Alfred Ochieng at 10:00hrs. The meeting was held at the proposed site of the fish aggregation, processing and marketing facility on 18th March, 2022. The Chairman welcomed the visitors from Kenya Climate Smart Agriculture Siaya office and Nairobi and appreciated their presence.. He invited the County Project Coordinator for KCSP Siaya to give brief overview of the project

MIN. 1 - 18/3/2022: INTRODUCTION & OPENING REMARKS

The project coordinator Siaya County Mr Ating Willis welcomed the participants and asked the participants to introduce themselves. He starting by highlighting the need to put in place measures for covid-19 prevention by adhering to Ministry of Health guidelines that included wearing of appropriate masks, washing hands regularly or using alcohol based sanitizer and social distancing. He informed the participants that the project have three categories of interventions.

Sub Projects

Micro Projects

Producer organizations

He asked the participants to share with the NEMA lead expert all the possible impacts and mitigation measures so that an good ESMMP can be developed. For purposes of future audits

The Kenya Climate Smart Agriculture Project (KCSAP) County Environment and Social Safeguard Officer (CESSCO) Benard Ayagah introduced himself. This was followed by introductions from the ESIA consultants, the fisherfolks of the Got Agulu fish aggregation, preservation and marketing cooperative society.

The **CESSCO** gave introductory remarks mostly touching on the KCSAP Project and the history of producer organizations. He reported that the initial site that was proposed for the

project was a riparian land. However, the current site is appropriate and just less than a kilometre from the Bondo-Usenge-Got Agulu tarmac road.

The ward fisheries officer in charge of the ward also sensitized on the component of the project that deals with fish. The CESSCO then invited the Siaya NEMA County project officer Mrs Violet to give a few remarks on the role of NEMA in the project.

MIN. 2 – 18/3/2022: PROJECT BRIEF

The CESSCO Mr Benard Ayagah gave a brief highlight on the objective of the visit and the need to conduct an Environmental Social Impact Assessment on the proposed Got Agulu cold storage fish processing facility Project.

The participants were informed that KCSAP has three main projects as follows: Sub projects, Micro projects and Producer Organizations

- Micro projects are being implemented in 6 wards of Siaya namely: Ugunja, Sidindi, West Sakwa, Yimbo East, North Uyoma West Asembo

KCSAP does support groups of 20 to 30 people. The project has five value chains: Sorghum, Honey, Fish, Poultry and Tomato.

-The sub projects are being implemented in the entire county. In Yala KCSAP received only 2 proposals and they did not succeed. In Siaya 10 sub projects were supported by KCSAP. 9 sub projects are water pans and 1 is a fish drying facility. Already 5 sub projects have been completed and handed over

-Producer organizations

Producer organizations are SACCOs or Cooperatives and they cover all the five value chains. The aim of the producer organization is aggregate and add value to products and provide support to markets

In Siaya five producer organizations provided for support from KCSAP and they have been awarded funds under the Enterprise Development Fund (EDF)

The institutions

Raku Tomato

Bora Poultry

Siaya Honey

Siaya Fisheries

Got Agulu Fisheries

He reported that Got Agulu fish aggregation and marketing cooperative society wrote a proposal on how to partner with the government to construct a fish aggregation and processing unit.

MIN. 3 - 18/3/2022: ENVIRONMENTAL SOCIAL IMPACT ASSESSMENT (ESIA) SENSITIZATION

The ESIA expert enlightened the meeting about ESIA; its purpose objectives; legal framework including legislation and policies governing environment; the rights and role of community towards environmental protection and management. He further took the community through selected legislation governing the environment including the new constitution

Article 10 and 232 of the constitution calls for public participation and nothing can be done without the aspect of public participation.

The community was informed that it is mandatory to hold at least one baraza to give the community/neighbours/stakeholders an opportunity to give their views with respect to the

benefits; impacts both negative and positive in order to establish whether the project is economically viable, socially accepted and environmentally friendly/sound

The main objective of the consultation meeting was to

Gather comments, suggestions and concerns of the interested and affected parties in the proposed project, and incorporate them in the summary project report (SPR).

Disseminate and inform the public and stakeholders about the project with Special reference to its key components and description

Create awareness among the public on the need for the ESIA for the proposed project

Min 4- 18/3/2022: Community participation

The ESIA lead expert guided the community members on procedures of giving their opinion and that each speaker was to follow but not limited to the following criteria:

Personal identification by: location names, age, gender, mobile telephone number

I Indicate whether he or she is aware of the proposed fish processing facility and its related activities incidental thereto and connected therewith the under the project

II) Give opinion on the expected benefits from the n project

III) Give opinion on the anticipated negative/adverse impacts that may result from this project and related activities

IV) Propose mitigation measures to avoid, alleviate or reduce the adverse effects

V) Identify any conflict, complaints expected to arise due fish processing plant

VI) Suggest ways to resolve conflict, complain amicably

VII) Indicate other issues relevant to the implementation of the project

MIN. 4 –18/3/2022: IMPACTS ANTICIPATED BY MEMBERS FROM THE MEETING

Mr Alfred Omondi welcomed the introduction of the project and reported that there will be aggregation and minimal post-harvest losses

Emily Adhabu; Appreciated that they will be having a designated place for aggregation of fish ,processing and marketing but had reservation on waste disposal of solid and liquid from the fish facility She was informed that there will be a soak pit and a possibility of converting waste from fish to livestock feed

Elvit Obama: Appreciated the construction of the fish and he reported that there will minimal post-harvest loses once the plant becomes operational.

Dickson Omondi: Was hopeful that the project will increase household incomes. He however, cautioned on the need for cooperation and ownership. He emphasized that that in the past, the community members used to sell fish individually there was no any collective marketing arrangement in place

Lead Expert. Raised concern on the access road to the fisheries centre and how the machineries will be ferried to the site. The community members promised to organize and clear the road and make it be accessible to the construction site

MIN 5 - 18/3/2022: CONCERNS, QUESTION & ANSWER SESSION AND RESPONSES

The Consultant assisted by the group chairman chaired the session to allow greater participation. The community were allowed to raise questions and concerns on the project and its possible impacts. The consultant, and KCSAP representative were available to answer and provide relevant explanations to the satisfaction of participants where possible. The feedback is summarized in the Table below.

Table 1.1 Concerns by ESIA meeting attendants and Responses by Consultants and KCSAP

SN.	Issues raised by the members	Brief explanation	Response
	Employment	During the entire project phase preference will be given to the locals with emphasis on the youth	The community agreed and promised to provide both skilled and unskilled labor
	Waste management	Wastes from the plant will be in bulk especially the fish scales and the ovals	The members of the cooperative society promised to set aside a mini processing unit to convert the wastes to animal feeds or manure
	Maintenance and sustainability of the fish processing facility	Need to ensure that there is manpower skilled to run the machineries. Funds should be availed	A sustainability strategy to be put in place so that maintenance issues can be addressed a committee which has a funding mechanism
	Theft of fish equipments i.e solar panels	There was a concern that there will be theft and vandalism of equipments	The proponent to engage the youth in maintaining and running the fish farming facility
	Market for fish	There was concern that with cold storage and processing facility won't the price of fish decline	To minimize post-harvest loses the value added fish will have to be sold at a higher price

MIN 6 - 18/3/2022: SUGGESTIONS FROM MEMBERS IN ATTENDANCE

The members of the cooperative society recommend that capacity building be done to them and community members and supported with fishing gears to increase output. The community requested that there be integration of the youth in operating and maintaining the processing facility.

The members of cooperative society suggested that they be linked to markets so that can be able to sale their produce collectively to evade middle men or speculative buyers.

MIN 7 – 09/24/2021: A.O.B AND ADJOURNMENT

There being no other business, the meeting ended with a word of prayer from George Adiko at 14.00hrs.

Mr. Elijah Levo

Environmental and Social Consultant
8/11/2021

iii) Public participation attendees list



Kenya Climate Smart Agriculture Project (KCSAP)



Office of the CPCU - Siaya

REGISTRATION FORM
 ACTIVITY: PUBLIC PARTICIPATION AT GOT AGULU POS DATE: 19/03/2022

NO	NAME	ORGANIZATION	DESIG	CONTACT		SIGN
				MOBILE	EMAIL	
1.	George DADI	Got Agulu	member	0748463341	-	
2.	ENIS NGENYA Obama	Got Agulu		0706847370	-	
3.	JOHN OJIAMBO	Got Agulu		0792855772	-	
4.	JOHN OKOTH	Got Agulu		0791218722	-	
5.	ROBERT OCHENG	Got Agulu		0110025308	-	
6.	ERICK OBIKO	Got Agulu		0798182396	-	
7.	BOB OBIKO	Got Agulu		07114830229	-	
8.	DAVID OUMA	Got Agulu		078326674	-	
9.	PETER ODICO	" "	COMUM	0700675150	-	
10.	JOSEPH FUMA ONAGA	Got Agulu	COMMITTEE	0115934115	-	

Mob: +254 722 943269

P.O. Box 3 - 40600, SIAYA



Kenya Climate Smart Agriculture Project (KCSAP)



Office of the CPCU - Siaya

REGISTRATION FORM

ACTIVITY: VISIT MARKET AND FISH MARKET COMMITMENT MEET DATE: 17/03/2022

NO	NAME	ORGANIZATION	DESIG	CONTACT		SIGN
				MOBILE	EMAIL	
1.	Benson Dehueng Obongo	Got Agulu	Member	0714140393	-	
2.	Dickson Omardi Omondi	Got Agulu	Co-Ord Sec	071575003	omondidickson9@gmail.com	
3.	George Othman Akello	Got Agulu	Resolving	071575777	akellogeorge@gmail.com	
4.	Vincent Kase	Got Agulu	member	071939665	-	
5.	RAPHEL Othman BO	Got Agulu	member	075017360	-	
6.	VIOLET ATIENO	NEMA		0726306014	violetatieno2014@gmail.com	
7.	FRED Omondi	ATDC	FT.	071319444	tanjiz@permatan.com	
8.						
9.						
10.						

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Kenya Climate Smart Agriculture Project (KCSAP)



Office of the CPCU - Siaya

REGISTRATION FORM

ACTIVITY: VISIT MARKET AND VISIT CAGE PRODUCTION AREA DATE: 17/03/2022

NO	NAME	ORGANIZATION	DESIG	CONTACT		SIGN
				MOBILE	EMAIL	
1.	MARTIN NIONGE	Got Agulu	II	0709859520		
2.	Collins Ochieng Juma	Got Agulu	II	0707522697		
3.	Agnost Gats Njoroti	Got Agulu	MEMBER	07254732		
4.	Frederic Aloo	MPDC	MPDC	0726589117	Frederic Aloo Producer	
5.	Sarah Awode	Got Agulu	II	0703540350		
6.	DIANA AKUMIL	Got Agulu	II	076977508		
7.	EVEZLINE ATIENO	Got Agulu	II	0720759000		
8.	ALICE Anyango	Got Agulu	II	0759017758		
9.	DOROTHY ANYANGO	Got Agulu	II	0728100678		
10.						



Kenya Climate Smart Agriculture Project (KCSAP)

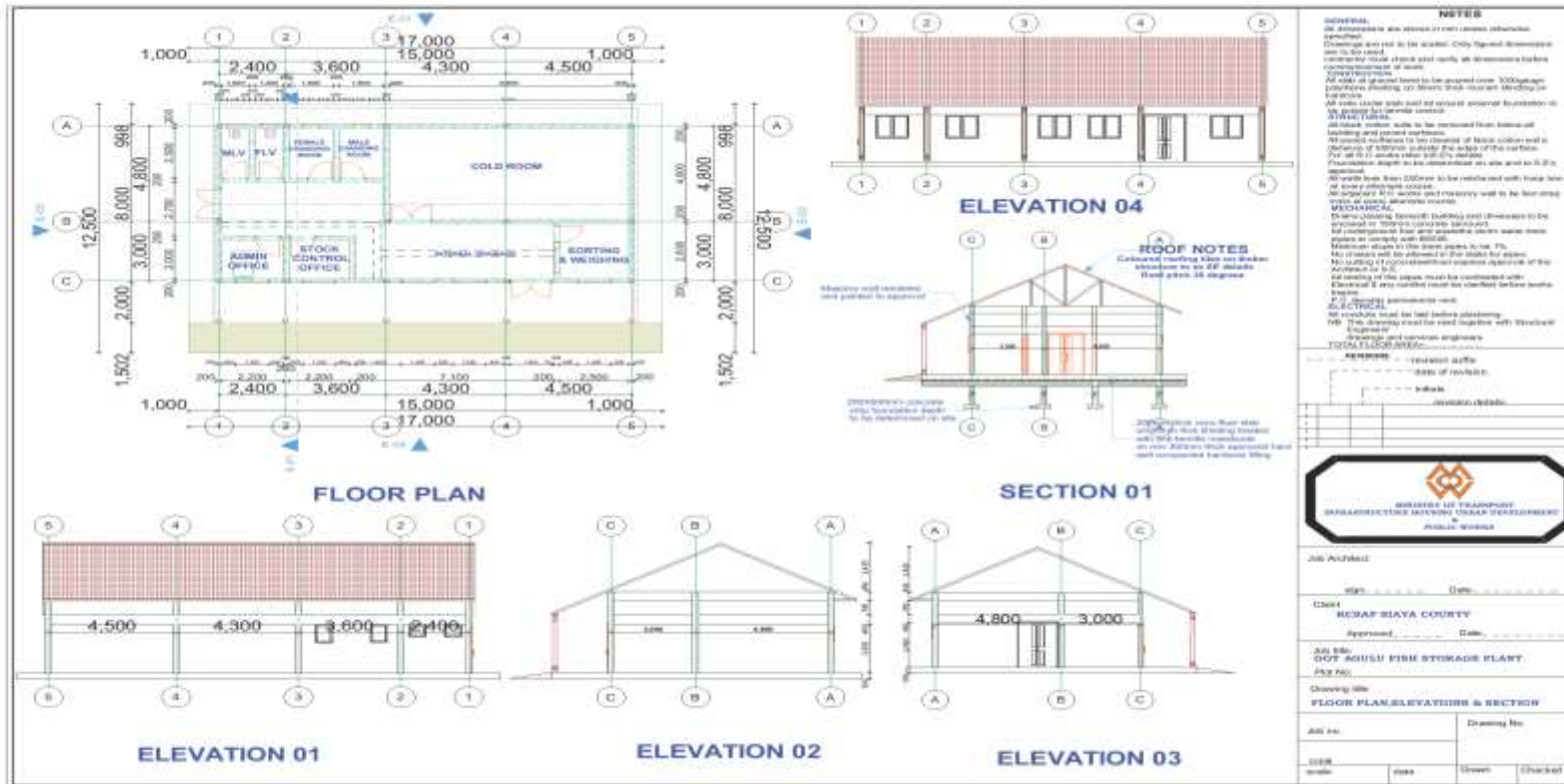
Office of the CPCU - Siaya



ACTIVITY: PUBLIC PARTICIPATION AT GOT AGULU POS REGISTRATION FORM DATE: 18/03/2022

NO	NAME	ORGANIZATION	DESIG	CONTACT		SIGN
				MOBILE	EMAIL	
1.	George DADI	Got Agulu	member	0718116331	-	
2.	EVIS NGENYA Obama	Got Agulu		0706867370	-	
3.	JOHN OJIAMBO	Got Agulu		0992855772	-	
4.	JOHN OKOTH	Got Agulu		0794218372	-	
5.	ROBERT OCHIENG	Got Agulu		0110035308	-	
6.	ERICK OBIKO	Got Agulu		0798182396	-	
7.	BOAZ OIENO	Got Agulu		0714830223	-	
8.	DAVID OUMA	Got Agulu		070326674	-	
9.	PETER ODKO	" "	Comm	0700675950	-	
10.	JOSEPH JUMA ONAGA	Got Agulu	Committee	0115934198	-	

iv) Project design/layout



v) Title Deed

REPUBLIC OF KENYA
THE LAND CONTROL ACT
(Cap. 302)

APPLICATION FOR CONSENT OF LAND CONTROL BOARD
To be submitted in TRIPPLICATE in respect of each transaction and sent to or left at the appropriate office of the Commissioner of Lands

To: THE Chairman
LAND CONTROL BOARD

L.C.R. No. _____

I HEREBY apply to the Bondo
Land Control Board for its consent to the transaction described below, and give the following information:

- (a) Present registered holder of interest (full name in BLOCK LETTERS):
FLORENCE JENIFA OKENI
ID/No. 25062766
- (b) Nationality Kenyan
- (c) Address P.O. Box 150002
- (a) Proposed purchaser, transferee, mortgagee, chargee, allottee, etc. (full name in BLOCK LETTERS):

- (b) If a limited liability company, names of directors, authorized and issued share capital and principal shareholders; if a co-operative society, names of chairperson, secretary and treasurer and total number of members:

- (c) Nationality _____ Certificate No. _____
- (d) Address _____
- Nature of transaction (e.g. sale, gift, lease, mortgage, charge, etc.; if sale or allotment of shares name of company, number and particulars of shares to be transferred):
SUB-DIVISION INTO TWO AS MARRIAGE ON THE GROUND.
- Term (i.e. the length of time for which the land affected is to be transferred or leased if sale or allotment of shares, authorized share capital of the company and numbers of shares issued at date of application)

- Description of Land—
L.R. or Parcel No. Siaya / Got Agulu / 272
Area 0.75 Ha
Locality Got Agulu
County Siaya

LAND PURCHASE AGREEMENT BETWEEN TRASHI CHANCHO DINA AND
GOT-AGULU FISH PRODUCTION & MARKETING SOCIETY
DATE: 21-2-2022

I, TRASHI CHANCHO DINA WISH TO SELL A PIECE OF LAND AT THE RATE OF
KSH. 350,000/- TO GOT-AGULU FISH PRODUCTION & MARKETING SOCIETY
THE PARCEL NO OF LAND NO. 871 IS WITHIN GOT-AGULU SUB-LOCATION
I RECEIVED 350,000/- AMOUNT
BALANCE N/A BALANCE

SELLER
SELLER'S NAME TRASHI CHANCHO DINA ID NO. 202112445 SIGN 

WITNESS
KIRINY ADIARIBU ID NO. 211111111 SIGN 

WITNESS _____ SIGN _____

WITNESS _____ SIGN _____

WITNESS _____ SIGN _____

WITNESS _____ SIGN _____

BUYER
BUYER'S NAME GOT-AGULU FISH PRODUCTION & MARKETING SOCIETY ID NO. _____ SIGN _____

WITNESS DICKSON ERUGHI OLOU SIGN 

WITNESS _____ SIGN _____

Assistant Comm. In-charge
Got-Agulu
Sub 21/2/2022

vi) Screening Checklist



Producer Organization Screening Checklist 2022

Section A: Background information

Name of County.....SIAYA.....
 Name of CPCU/NEMA VIOLET ATIGIO.....
 Producer Organization Ward.....SOUTH EAST.....OLGGO.....
 Name of CBO/Institution.....SIAYA MARKET PRODUCERS.....
 Contact Person.....ANDREW DUMA..... Cell phone.....0710950444.....
 Producer Organization name.....SIAYA MARKET PRODUCERS AND PROCESSORS.....
 Estimated cost (Ksh.)5M.....
 Approximate size of land area available for the producer organization.....1/4 ACRES.....
 Objectives of the producer organization.....PROTECTION OF MARKET AND MARKETING.....
 Activities/enterprises undertaken.....PRODUCTION AND PROCESSING OF HONEY.....
 How was the producer organization chosen?.....IT IS CLIMATE RESILIENT.....
 Expected producer organization duration.....1 YEAR.....

Section B: Environmental Issues

Will the producer organization:	Yes	No
Create a risk of increased soil erosion?	✓	
Create a risk of increased deforestation?	✓	
Create a risk of increasing any other 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?	✓	
Reduce various types of livestock production?		✓
Affect any watershed?		✓
Focus on Biomass/Bio-fuel energy generation?	✓	

If the answers to any of the above is 'yes', please include an EMP with micro-project application.

Section C: Socio-economic Issues

Will the producer organization:	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 dropouts, 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 producer organization:	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 producer organization:		
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? _____

If the answers to any of the above is 'yes', please include an EMP with sub-project application.

Section E: Pesticides and Agricultural Chemicals
 This questionnaire will be used with the farmer's groups for purpose of implementing the IPMF

1) Pest Control practices
 a) Do you use any pesticides to control pests (Insects, diseases, weeds) of crops each season?

Yes___ No___ If yes, Name them:	Name of pesticide	Name of pest, disease, weed controlled	Number of times applied/season	When did you apply (growth stage or month) Quantity purchased

If No, WHY? _____

b) If you use any of the above pesticide types, do you keep records of the:
 Application location: Yes..... No.....
 Date of application: Yes..... No.....
 Pesticide product trade name: Yes... No.....
 Operator name: Yes..... No.....
 If No, WHY? _____

c) How do you decide when to use the pesticides (tick all that apply)?
 (i) We use pesticides at regular intervals throughout the season(calendar)
 (ii) We use pesticides when we see pests in the field(control)
 (iii) We use pesticides after field sampling and finding a certain number of pests or a certain level of damage (scouting)
 (iv) Told by someone to apply (specify who) _____
 (v) Other(specify) _____

d) Do you use a knapsack sprayer? Yes No___
 If yes,
 (i) Do you own it Yes No?
 (ii) Do you rent it Yes No?
 (iii) Do you borrow it Yes No?

e) From your experience, are there any negative/harmful effects of using pesticides?
 Yes..... No.....

f) If yes, list the negative effects:
 (i)
 (ii)
 (iii)

g) Do you use any kind of protective clothing while applying or handling pesticides?
 Yes..... No.....
 Why? _____

Use irrigation system in its implementation? _____

If the answers to any of the above is 'yes', please include an EMP with sub-project application.

Section E: Pesticides and Agricultural Chemicals
 This questionnaire will be used with the farmer's groups for purpose of implementing the IPMF

1) Pest Control practices
 a) Do you use any pesticides to control pests (Insects, diseases, weeds) of crops each season?

Yes___ No___ If yes, Name them:	Name of pesticide	Name of pest, disease, weed controlled	Number of times applied/ season	When did you apply (growth stage or month) Quantity purchased

If No, WHY? _____

b) If you use any of the above pesticide types, do you keep records of the:
 Application location: Yes..... No.....
 Date of application: Yes..... No.....
 Pesticide product trade name: Yes... No.....
 Operator name: Yes..... No.....
 If No, WHY? _____

c) How do you decide when to use the pesticides (tick all that apply)?
 (i) We use pesticides at regular intervals throughout the season(calendar)
 (ii) We use pesticides when we see pests in the field(control)
 (iii) We use pesticides after field sampling and finding a certain number of pests or a certain level of damage (scouting)
 (iv) Told by someone to apply (specify who) _____
 (v) Other(specify) _____

d) Do you use a knapsack sprayer? Yes No ___
 If yes,
 (i) Do you own it Yes No?
 (ii) Do you rent it Yes No? ___
 (iii) Do you borrow it Yes No? _____

e) From your experience, are there any negative/harmful effects of using pesticides?
 Yes..... No.....

f) If yes, list the negative effects:
 (i)
 (ii)
 (iii)

g) Do you use any kind of protective clothing while applying or handling pesticides?
 Yes..... No.....
 Why? _____

marketing?

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?

.....

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 producer organization:	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 pastureland?		✓
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?	✓

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
<input type="checkbox"/> All the above answers are 'No' <input type="checkbox"/> There is at least one 'Yes'	<ul style="list-style-type: none"> • 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 ESIA's, 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:

Name: ANDREW OUMA OBEWA
 Position / Community: CHAIRPERSON

Date: 8/2/2022
 Field Appraisal Officer (CDE): William Oleg
 Signature: 
 Date: 8/2/22

vii) *ESIA Practicing License*

FORM 7 (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/ERP/13629
Application Reference No: NEMA/EIA/EI/18097

M/S. **FREDRICK ONYANGO ALOO**
(individual or firm) of address
P.O. Box 34188-00100, Nairobi

is licensed to practice in the
capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert**
registration number **9049**
in accordance with the provision of the Environmental Management and Coordination Act Cap 387.

Issued Date: 3/5/2021 Expiry Date: 12/31/2021


Signature.....
(Seal)
Director General
The National Environment Management
Authority



viii) Photo of participants filling individual questionnaire Checklist



Plate 8-1 Participants filling individual questionnaire forms