



**ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT SUMMARY PROJECT
REPORT**

**FOR
THE PROPOSED REHABILITATION OF KINGI DAM ON PLOT NO. NYANDARUA/
KIRIITA SHAURI BLOCK I 481 (LESHAU PONDO) FOR SMALL SCALE
IRRIGATION IN NYANDARUA NORTH, NYANDARUA COUNTY**

LATITUDE 0.05346⁰ N and LONGITUDE 36.42064⁰ E



CLIENT	LEAD EXPERT
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OCTOBER 2021

CERTIFICATION

This Summary Project Report (SPR) was prepared by a registered EIA/EA Expert in accordance with the Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019 for submission to the National Environment Management Authority (NEMA).

We, the undersigned, certify that all information contained in the report is accurate and a truthful presentation of all findings as relating to Kingi Dam rehabilitation project in Leshau Pondo Ward, Ndaragwa Sub-County, Nyandarua County.

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KINGI DAM FOR SMALL SCALE IRRIGATION

For and on behalf of Proponent

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KINGI DAM FOR SMALL SCALE IRRIGATION

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ACKNOWLEDGEMENT

The work of preparing this Summary Project Report (SPR) would not have been accomplished without the help and unwavering support from the County Project Coordinating Unit (CPCU) led by the County Project Coordinator (CPC) Mr. John Wachira. Our sincere gratitude goes out to this wonderful team.

We also wish to thank the Project Management Committee (PMC) of Kingi Dam, leaders from Leshau Pondo Ward and the technical staff from the department of Agriculture, Livestock & fisheries as well as Social services staff for offering their support, time and ideas during public participation and ESS screening of the project. Special thanks go to members of the beneficiary community who turned up for public participation and actively participated in the event.

May almighty God bless you all.

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ABBREVIATIONS & ACRONYMS

°	Degrees (A unit of measuring latitudes and longitudes)
°C	Degrees Celsius (A unit of measuring temperature)
°E	Degrees East
°N	Degrees North
CAP	Chapter
CESSCO	County Environmental and Social Safeguards Compliance Officer
COVID 19	Corona Virus Disease 2019
CPC	County Project Coordinator
CPCU	County Project Coordinating Unit
EA	Environmental Audit
EIA	Environmental Impact Assessment
EMCA	Environmental Management and Co-Ordination Act
ESIA	Environmental and Social Impact Assessment
ESM&MP	Environmental and Social Management and Monitoring Plan
GDP	Gross Domestic Product
GPS	Global Positioning System
IPMP	Integrated Pesticide Management Plan
KCSAP	Kenya Climate Smart Agriculture Project
KEBS	Kenya Bureau of Standards
KM	Kilo Meter
KM ²	Kilo Meter Squared
KRA	Kenya Revenue Authority
M	Meter
MM	Millimetre
NEMA	National Environment Management Authority
OSHA	Occupational Safety and Health Act
PMC	Project Management Committee
PIN	Personal Identification Number
P. O	Post Office
PPE	Personal Protective Equipment
SEA	Sexual Exploitation and Abuse
SHG	Self Help Group
SPR	Summary Project Report
TOR	Terms of Reference
VAT	Value Added Tax
WRA	Water Resources Authority

EXECUTIVE SUMMARY

This summary project report has been undertaken to fulfil a legal requirement as outlined in section 58-69 of the Environmental Management and Co-ordination Act (Amended, 2015), part II of the Environmental Impact Assessment and Audit Regulations and the Legal Notice No. 31 & 32 of 2019. The proposed project site is on plot no. Nyandarua/ Kiriita Shauri Block I 481 - Leshau Pondo within Shauri Sub-location, Kiriita location, Leshau Pondo ward, Ndaragwa Sub-County of Nyandarua County. Nyandarua County is one of the 24 counties in Kenya that is benefiting from World Bank Agricultural Support under the Kenya Climate Smart Agriculture Project (KCSAP). The proposed project development entails rehabilitation of Kingi dam for small-scale irrigation. The project aims at providing Kingi Dam Self Help Group (SHG) members with sufficient water for small-scale irrigation, domestic and livestock. The SHG has a total membership of 331 comprising of 210 men and 121 women.

The specific objectives of this proposed project are: to provide access to clean water for domestic, livestock and small scale irrigation; to improve the socio-economic life of the beneficiaries and to improve food and nutrition security in the area. The project was screened and classified as low risk projects in line with provisions of Legal Notice 31. The approach and methodology used to carry out the SPR included screening, scoping, literature review, desk review, site visit, physical observation, field data collection and public consultation.

The proposed rehabilitation will involve: fencing of the dam area; removal of vegetation (papyrus grass) from the dam edges; expansion of the existing spill way; reinforcement of the existing embankment walls; installation of a steel water tower with overhead storage tanks; installation of a solar powered pump system; construction of water kiosks; construction of livestock watering troughs and distribution of the water to famers for small scale irrigation. The proposed project budget approximate to Thirty-Six million Kenya shilling (**KES 36,000,000**). The estimated (ESMMP) implementation cost for the proposed project through its different development phases is Eight hundred and Ninety thousand Kenya Shillings (**KES 890,000**).

Public participation for this proposed project was accomplished through holding a public meeting on 21st April 2021 within the proposed project site grounds, where public views were obtained by the use of public participation questionnaires. The exercise was carried out during a season where public gatherings were restricted following the prevailing COVID-19 pandemic. A total of 61 participants availed themselves for the meeting, where 33 were male and 28 were female. During the exercise, all COVID-19 proposed prevention measures were adhered to. The investigation examined the potential impacts of the project on the immediate surroundings with due regard to construction and operation phases.

The key environmental and social issues raised included: soil erosion from the neighbouring farmlands would increase siltation in the dam; possibility of water depletion due to continuous abstraction, trees like eucalyptus if planted will affect the water levels, increased water levels in the dam may lead to malaria spread due to increased mosquitoes in the area; the dam area will be a resting place for idlers and possibility of drowning hence loss of lives and increased disease transmission like Covid-19 if measures not taken.

Some of the suggested ways to address the issues include cover crops be planted in the farmlands to help prevent/ minimize soil erosion; the dam to be expanded to have a bigger capacity; members should be mobilized to plant indigenous trees; ensure no idlers/ unauthorized entry to the dam area by fencing; sprayed neighbouring homestead to kill mosquito larva to minimize and prevent breeding; and residents to use treated mosquito nets and ensure dialogue with stakeholders and solve any conflict that may arise.

The positive impacts of this project out do the anticipated negative impacts. Mitigation measures for the identified negative environmental and social impacts have been proposed. On overall, there is no adverse environmental/ social impact foreseen that cannot be mitigated. The proponent is advised to ensure implementation of the mitigation measures proposed in all the development phases. The ESMMP should form part of the contract document that should be given to the contractor.

Approval of this project will result to huge socio-economic impacts which are in line with the current development policies; including the Kenya Vision 2030, thus making it worthwhile

investing in it. The recommendation of this assessment is that the proposed project be allowed to proceed on strict condition that the ESMMP is implemented and follow-up is made to ensure compliance as may be further directed by NEMA.

CHAPTER ONE INTRODUCTION

1.1 Background Information

The proposed project site is on plot no. Nyandarua/ Kiriita Shauri Block I 481 -Leshau Pondo (**Appendix 1: Land ownership Documents**) within Shauri Sub-location, Kiriita location, Leshau Pondo ward, Ndaragwa Sub- County of Nyandarua County. Nyandarua County is one of the 24 counties in Kenya that is benefiting from World Bank Agricultural Support under the Kenya Climate Smart Agriculture Project (KCSAP). The proposed project development entails rehabilitation of Kingi dam for small-scale irrigation. The project aims at providing Kingi Dam SHG members with sufficient water for small-scale irrigation, domestic and livestock. The SHG has a total membership of 331 comprising of 210 men and 121 women.

The specific objectives of this proposed project are: to provide access to clean water for domestic, livestock and small scale irrigation; to improve the socio-economic life of the beneficiaries and to improve food and nutrition security in the area. The project was screened and classified as low risk projects in line with provisions of Legal Notice 31.

1.2 Project Justification

The proposed project area is a residential/ agricultural area. The area is semi- arid and receives low amounts of rainfall. The main source of water within area is the dam. The community depend on rain-fed agriculture, which is not reliable. Residents obtain water from the dam. Women carry water *jericans* on their back for long distances, or use hired donkey carts as witnessed during the site visit.



Figure 1 Common Modes of Ferrying Water from the Dam

The proposed Kingi dam rehabilitation project intends to provide a reliable and sufficient water source to the community members. Water will be pumped into storage tanks and distributed to the beneficiaries' homesteads. Members will utilize the water for small-scale irrigation for both subsistence and commercial purposes. This will boost food security and improve livelihood in the area.

Development of the proposed project will therefore be of great benefit to proposed area, the County and Country at large.

1.3 Justification of conducting the SPR

The team comprised of the County Environmental and Social Safeguards Compliance Officer (CESSCO), Senior Superintendent Irrigation officer (Department of Water), Deputy Director of Environment (Department of Environment) and the Chairman of the SHG. The screening results indicated that the proposed project is a low risk, hence it required a SPR according to Legal Notice 31 of the Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019 (Screening checklist attached- Appendix 2)

1.4 SPR Terms of Reference

- i. To determine the nature of the project
- ii. To analyse the project location
- iii. To predict and assess the potential environmental impacts of the project
- iv. To propose appropriate mitigation measures for any negative impacts predicted.
- v. To allow for public participation by the people likely to be affected by the proposed project and the relevant stakeholders
- vi. To present findings that can guide informed decision making by NEMA.

1.5 Project Objectives

- i) To provide access to clean water for domestic, livestock and small scale irrigation
- ii) To improve the socio- economic life of the beneficiary community
- iii) To improve food and nutrition security in the area

1.6 SPR approach and methodology

This SPR was done through field assessments, desk studies and discussion with the proponent, stakeholders and project beneficiaries through interviews.

The steps included:

a. Screening

The project screening was carried by a team comprised of the County Environmental and Social Safeguards Compliance Officer (CESSCO), Senior Superintendent Irrigation officer (Department of Water), Deputy Director of Environment (Department of Environment) and the Chairman of the SHG. The screening results indicated that the proposed project is a low risk, hence it required a SPR according to Legal Notice 31 of the Environmental (Impact Assessment and Audit) (Amendment) Regulations, 2019 (**Screening checklist attached- Appendix 2**)

b. Scoping

The exercise involves identification of the potential significant impacts. At this stage, discussions were held with the project proponent and the project beneficiaries.

c. Field data collection

Data collection was carried out through observations during site visit and consultation with beneficiaries and stakeholders by use of questionnaires. A public meeting was held on 21st April 2021 within the proposed project site, where public views were obtained by the use of public participation questionnaires (**See Appendix 3, 4 & 5- Minutes, Attendance list and Questionnaire**). Sixty-one (61) participants availed themselves for the meeting, where 33 were male and 28 were female.

Visual inspections were also carried out in the proposed project area to identify physical features, land use, vegetation, and existing infrastructure/ land development.

d. Desk review

Reviews of relevant literature were done to gather more information on the project.

1.7 Report outline

This SPR will be organized into the following chapters: Introduction, Nature of the project, Location of the project, Public Participation and Stakeholders consultation, Potential project impacts and mitigation measures, ESM&MP, Conclusion and Recommendations, Photo Gallery, References and Appendices.

CHAPTER TWO

NATURE OF THE PROPOSED PROJECT

2.1 Overview

This chapter gives details of the nature of the project in terms of project description, project design, project activities, mobilization of machinery, site layout, material and equipment and the proposed project cost.

2.2 Project Components

The components of the proposed project will be removal of silt and papyrus plants around the edges of the reservoir, construction of steel tower for overhead water storage tanks, installation of a solar powered submersible pump, construction of water kiosk, livestock watering troughs and laying of water distribution pipelines. In addition, a section of the embankment will be marginally raised in order to increase the free board. The design details are as indicated in the attached drawings **(copy attached- Appendix 8)**.

2.3 Project Activities

The project development will involve **four phases** namely: **planning, construction, operation and decommissioning**. Different activities in each phase are discussed below:

2.3.1 Planning Activities

This will majorly involve paper work, where project related documents like the land ownership, development design and legal authorizations from relevant government departments like NEMA and WRA need to be obtained. Public and stakeholders' consultation will also be done during the planning phase. The beneficiary community will also be mobilized during this stage.

2.3.2 Construction activities

The major construction phase activities will include:

- **Mobilization of Machinery**-The proponent and contractor engaged will be required to mobilise machinery from reliable/ authorised sources.
- **Rehabilitation**- this will involve removal of vegetation (papyrus plants) that has encroached the dam from the edges and the underlying silt. This will be done carefully through specific excavation from the edges. The existing spill-way will be expanded with three more culverts while the existing embankment will be marginally raised.

- **Fencing**- the proposed project site is not currently fenced. It experiences uncontrolled access by both human and livestock. The dam and reservoir area will be fenced off. This will help keep off unauthorized entry into the reservoir area thus reducing chances of drowning.
- **Solar powered pump installation**- a solar water pump and solar panels will be installed to pump water from the reservoir into elevated storage tanks. The use of solar powered pump system is cost effective. It will reduce the operational costs thus enhance project sustainability.
- **Construction of steel water tower and installation of storage tanks** - a steel water tower will be constructed and storage tanks installed on it. This will facilitate water distribution to all beneficiaries within the proposed project area. The tower will enable gravitational water flow to homesteads within the project area, thus serving even members located far off from the dam at no extra cost.
- **Water distribution**- The proponent intends to distribute water from the water tower to all beneficiary members within the proposed project area. This will be done through pipe works along the roads reserve. The beneficiaries will be required to connect from these pipes to their various homesteads.

2.3.3 Operation Activities

These operation activities will majorly revolve around water abstraction from the dam, its' pumping to installed elevation tanks and finally its distribution to the beneficiary community within the project area. The water will be used for small-scale irrigation, domestic and livestock watering purposes.

Other operation activities will include:

a. Management of the water kiosks: The project management committee will be tasked to ensure smooth operation of the water kiosks. The revenue got will be used in catering for the pump system maintenance costs and in paying individuals employed in the project like the caretakers, pump operators and kiosk employees among others.

b. General repairs and maintenance: The installed systems will be maintained regularly as well as repair of any damage structure.

2.3.4 Decommissioning Activities

This may result from lapse of the projects' expected lifespan or failed management of the project. The activities to be undertaken during this phase will involve demolition of the installed structures in full or in part and the rehabilitation of the sites.

2.4 Site Layout

The proposed project site layout will be planned/ developed as per the designs (**Appendix 8**).

2.5 Proposed Project cost

The proposed project budget approximate to Thirty-Six million Kenya shilling (**KES 36,000,000**). The estimated (ESMMP) implementation cost for the proposed project through its different development phases is Eight hundred and Ninety thousand Kenya Shillings (**KES 890,000**). This will ensure that all the proposed mitigation measures to the adverse environmental and social impacts are implemented, thus enhancing environmental and social safety throughout the project life.

CHAPTER THREE

LOCATION OF THE PROPOSED PROJECT

3.1 Overview

This chapter gives details of location to the proposed project site, ownership of the proposed site, proximity of the proposed project site to environmentally sensitive areas, supportive environmental management project infrastructure and conformity to land use plan or zonation plan.

3.2 Location description

The proposed Kingi dam is located on Plot No. NYANDARUA/ KIRIITA SHAURI BLOCK I 481 (LESHAU PONDO) (**Appendix 1**). The proposed site is within Shauri area, Leshau Pondo ward, Shauri Sub-location, Kiriita location, Ndaragwa Sub-County, Nyandarua County. The proposed project site is at GPS coordinates: latitude **0.05346° N** and longitude **36.42064° E**. The proposed project area is accessible through the Maili Inya - Shauri earth road.

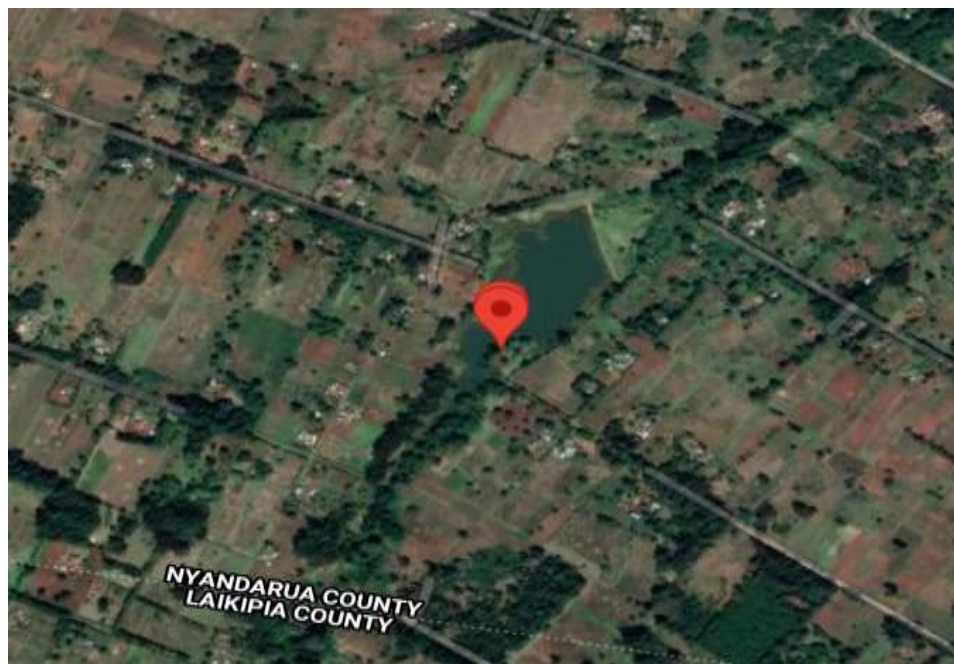


Figure 2 GPS Location of Kingi Dam (Source Google Map)

3.3 Site ownership

Kingi dam is located on plot no. Nyandarua/ Kiriita Shauri Block I 481 (Leshau Pondo). The department of Lands, Housing and Physical Planning Nyandarua County has confirmed that the dam is a public utility and that the department is in the process of procuring the title deed for the

parcel of land (**confirmation document, search document and area map Attached-Appendix 1**)

3.4 Environmentally Sensitive areas

The proposed site is within a region that is not in close proximity to an existing environmentally sensitive area.

3.5 Project Infrastructure

a. Energy: The larger proposed project area has connection to mains electricity grid. The necessary electric power guidelines and precautionary measures should always be adhered to.

b. Water: Water within the proposed project area is mainly supplied by Kingi dam, the proposed project site.

c. Road: The project area is mainly served by the Mairo Inya - Shauri road.

d. Security: The proposed project area is served by the Mairo Inya police station. The security system is therefore conducive for long-term investments like the proposed project.

3.6 Conformity to land use plan

The proposed project area has been zoned as a settlement zone. It is majorly a residential/agricultural area. The proposed project therefore conforms to the areas' land use plan.

CHAPTER FOUR

PUBLIC PARTICIPATION & STAKEHOLDER CONSULTATIONS

4.1 Overview

This chapter gives details of the objective of the public consultation, Categorization of Community Participants and Stakeholders, Methodology of Public Participation and Consultation and Summary of Issues Raised by the Community and Stakeholders.

4.2 Objective of public participation

Any proposed project is likely to have some impacts on the surrounding community and environment. The objective of public participation is to ensure that all people who are likely to be affected by a proposed project, either positively or negatively are fully informed, and given an opportunity to raise their concerns. These concerns were incorporated in the SPR in compliance with Legal Notice 32 of the EIA/ Audit (Amendment) Regulations, 2019.

4.3 Categorization of Community Participants and Stakeholders

The members contacted to give their views concerning the proposed project included community members residing within the larger proposed project area and those likely to be affected by the proposed project. Sixty-one (61) participants availed themselves for the meeting, where 33 were male and 28 were female. The categorization of participants present for the meeting was as in the table below:

Table 1: Categorization of Community Participants and Stakeholders

Type	No	Male	Female
Community members	52	26	26
Stakeholders	9	7	2
Total	61	33	28

4.4 Methodology of Public Participation and Consultation

Public participation for this proposed project was accomplished through holding a public meeting within the proposed project site grounds on 21st April 2021, where public views were obtained by the use of public participation questionnaires. The exercise was carried out during a season where public gatherings were restricted following the prevailing COVID-19 pandemic. Mobilisation for the public participation was done through the project areas' administration

office (Chiefs' office) in conjunction with the SHG leadership. During the exercise, all COVID-19 proposed prevention measures were adhered to. These included: restriction of the number invited; provision of running water and soap for hand washing; maintenance of at least 1.5 metres social distance; wearing of masks to cover nose and mouth; sub-division of the members present into smaller groups during the filling in of questionnaires and holding the meeting in an open area with free air circulation within a very short time.



Figure 3 Members of the Community Filling Questionnaires

The feedback revealed both positive and negative anticipations. Participants were given opportunity air their views.

Evidences to the above consultation are meeting minutes, meeting attendance list and filled questionnaires attached to this report (**Appendix 3, 4 and 5 respectively**).

4.5 Analysis of Issues Raised by the Community/ Stakeholders and Response

The results were as follows:

- a) The anticipated **positive impacts** of the proposed project:
 - Increased food production and security in the area
 - Increased fishing activities in the dam and their related income after sale
 - Promotion of self-employment
 - Increased job opportunities like tree nursery jobs to the youth
 - Livestock watering will be more easy
 - Cleanliness in the villages will increase due to easy water accessibility.
 - Increased irrigated farming activities.
 - Proper time management since there will be no fetching of water from the dam.

- Increased environmental conservation through the proposed planting of trees by the community members
- Increased accessibility to clean water for domestic, livestock and farming
- Increased income from sales obtained from the irrigated farming.
- Availability of a recreational site at the dam area
- Improved health due to improved diet in the area

b) (i) The **environmental issues** of concern raised during the meeting were:

- If not taken care of, soil erosion may result from the neighbouring farmlands hence increase siltation in the dam.
- Possibility of water depletion due to continuous abstraction
- If not monitored, trees like eucalyptus if planted will affect the water levels.

(ii) The **mitigation measures** suggested for the negative **environmental impacts** were:

- Planting cover crops in the farmlands to help prevent/ minimize soil erosion.
- Desilt the silted edges of the dam to increase its capacity.
- Mobilize community members to plant environmentally friendly/indigenous trees within the catchment area

c) (i) The anticipated **negative social impacts** of the proposed project:

- Increased water levels in the dam may lead to malaria spread due to increased mosquitoes in the area.
- Increased job opportunities to the youth may cause family conflicts due to their continuous absence at home/ in family matters.
- The dam area will be a resting place for idlers.
- Possibility of drowning hence loss of lives
- Increased disease transmission like Covid-19 if measures not taken.
- Increased school dropouts due to increased employment opportunities in the area.

(ii) The **mitigation measures** suggested for the negative **social impacts**:

- Mobilise youths to be responsible for the dam and take up any economic opportunities that the reservoir would create.

- Community members should be custodians of all the project assets especially equipment such as solar pump and solar panels.
- Sensitize the community on matters relating to sexual abuse and harassment.
- Fence off the dam and reservoir area to prevent unauthorised entry to the dam area.
- Provide treated mosquito nets to minimise/ prevent spread of malaria
- Stock fish in the dam as a biological way of controlling breeding of mosquitoes.
- Initiate dialogue in solving any conflicts that may arise.
- Adhere strictly the to ministry of health guidelines on COVID -19 containment
- Avoid engaging children in any of the works during construction and operation of the proposed project.

4.6 Conclusion

The conclusion drawn from the public and stakeholders' consultation meeting was that the members present accepted the proposed project and the community members are ready and willing to support it throughout its implementation.

CHAPTER FIVE

PONTENTIAL IMPACTS AND MITIGATION MEASURES

5.1 Introduction

This chapter identifies both positive and negative environmental and social impacts associated with the proposed project development. The mitigation measures to the negative environmental and social impacts have been proposed. The impacts and mitigation measures are categorised into **four project phases** namely: **planning, construction, operation and decommissioning**.

5.2 Anticipated Positive Environmental and Social Impacts during planning

5.2.1 Employment creation

The planning phase will involve different professionals and consultants. This will create temporal job opportunities to such.

5.2.2 Resource mobilization

The planning team will have an opportunity to mobilize for funding of their proposed development.

5.2.3 Compliance to legal requirements

Acquiring all statutory documents will enable the proponent to comply with legal requirements and reduce chance of legal action.

5.2.4 Correct budget appropriation

The planning team will have an opportunity to approximate the total project cost, thus ensure proper funds appropriation throughout the project cycle.

5.2.5 Community/Stakeholder Engagement

Community/ Stakeholder engagement enhance project ownership and sustainability

5.3 Anticipated Negative Impacts and Mitigation Measures during planning

5.3.1 Community/ Stakeholders engagement

The public members will often be required to attend planning meetings like public participation. This will consume their individual time and resources and there is also a risk of contracting COVID-19 disease.

Mitigation measures:

- Strict time management during all meetings/ forums
- Rotate membership of various forums.
- Strictly adhere to the ministry of health guidelines on COVID-19 containment measures

5.4 Anticipated Positive Environmental and Social Impacts during Construction

5.4.1 Employment opportunities

Employment opportunities will be created for skilled and semi-skilled workers. Those to benefit will include among others excavator operators, masons, plumbers and casual laborers

5.4.2 Improved aesthetic value of the site/ area

Rehabilitation of the dam will enhance aesthetic value of the area.

5.4.3 Improved economic growth

The project will contribute towards economic growth through the utilization of locally available construction materials. Their purchase from local producers/ distributors will generate more income and revenue.

5.4.4 Increased business opportunity for vendors

Construction will create vending opportunities to the locals which will include food vending, construction will sell food to construction workers.

5.4.5 Improved livelihood

Increase income will enhance workers purchasing power that may result to better livelihood.

5.5 Anticipated Negative Impacts and Mitigation Measures

5.5.1 Air pollution

Combustion of fuel from construction machinery and dust may lead to air pollution. Trench digging works along the piping routes may also emit some dust if done in extremely dry weathers or during the mid-day when its' too sunny.

Mitigation measures:

- Construction vehicles to maintain low speed at construction sites
- Service and maintain vehicles and machinery regularly
- Provide and strictly enforce the use of PPEs
- Trenches in the early mornings or later in the evenings to minimize dust spread.

5.5.2 Noise pollution and vibrations

Movement of vehicles, operating construction machinery and workers may temporarily cause noise and vibration that are nuisance though temporary.

Mitigation measures:

- Provide and enforce use of appropriate PPEs

- Limit construction to daytime only (0800- 1700 hours)
- Locate noisy equipment and fit with silencers
- Service and maintain machinery regularly
- Where possible machinery should be interchangeably used with human labour
- Switch of engines when idle

5.5.3 Waste generation

Construction works are bound to produce large quantities of both solid and liquid waste. The solid waste will compose of packaging materials like bags of cement, gravel packs, empty cartons, rejected materials, metal cuttings, waste plumbing and lighting fixtures. Other solid waste will be generated from the food remains/ wrappers and packages of the construction crew and in some cases from broken machinery and replaced vehicle/ machinery spare parts if any. Liquid waste may involve vehicle/ machinery oil refilling and servicing remains like waste oils, used grease and general dirty water from the site. If not properly maintained, accumulation of such waste may make the working environment non-conducive, reducing its visual quality.

Mitigation measures:

- Provide waste bins and a temporary disposal area.
- Segregate waste into decomposable or non-decomposable.
- Use construction materials that have minimal packaging
- Recycle/ reuse construction materials
- Use durable, long lasting construction materials that do not need frequent replacement
- Sensitize workers and members on proper waste management strategies
- Proper disposal of waste grease and oils from vehicle/ machinery
- Engage a NEMA licensed waste handler

5.5.4 Water quality and quantity

Excavation works will affect the quality and quantity of water in the dam, which may affect water availability to the locals who use the resource.

Mitigation measures:

- Ensure that excavation works are done in a systematic manner
- Notify the community on construction works so as to get alternative sources of water for the period

- Ensure waste does not get into the reservoir

5.5.5 Removal of vegetation and loss of habitat

During site preparation and clearance, vegetation removal and excavation activities will result to loss of habitat in the affected areas.

Mitigation measures:

- Limit excavation activities to specific development areas only.
- Compensate for lost vegetation through landscaping with site friendly species

5.5.6 Impacts on soils

Construction activities may have major negative but short-term impact on soil. This is due to the removal of vegetation from the dam site that will leave considerable areas of soil exposed to the elements, leading to soil erosion. Heavy machinery will be traversing the site during construction leading to soil compaction and erosion.

Mitigation Measures:

- Restrict vegetation removal to areas under rehabilitation
- Install appropriate drainage systems to direct water away from the slopes
- Restrict vehicle movement to designated paths
- Designate a main access route for heavy machinery
- Avoid site preparation during strong winds.
- Train beneficiaries on soil and water conservation measures.
- Restore vegetation on cleared areas by planting trees and grass

5.5.7 COVID-19 Pandemic

Construction activities will take place during COVID-19 season. To avoid infections, adhere to the recommended protocols.

Mitigation measures:

- Regulate the number of people allowed into the site at a time
- Provide running water and soap at site/ area for regular hand washing and/or alcohol based hand sanitizers
- All people wear masks appropriately
- Maintain at least 1.5 m social distance while at the work stations
- Sensitize workers on COVID-19 and monitor temperature regularly

5.5.8 Occupational Health and Safety

During construction works, workers are likely to have accidental injuries and hazards from the intensive construction related activities. The health of all people involved in the project, especially the construction crew, should be taken into consideration. The contractor should adhere to the rules set by different authorities to protect workers.

Mitigation measures:

- Provide, enforce and supervise use of PPEs.
- Provide a well-stocked first aid kits
- Prevent spillage of petroleum products on site
- Provide serviced firefighting equipment and train workers on firefighting skills
- Constitute and operationalize Environment, Health and Safety committee at site
- Provide clean and potable water for workers
- Ensure proper site planning and management to prevent accident
- Train works on proper use of tool and machinery
- Report any accidents and injuries and ensure medical attention is sort

5.5.9 Sexual Exploitation and Abuse (SEA)

Implementation of the project will offer opportunities that may trigger sexual exploitation or sexual abuse among the workers or the local community.

Mitigation measures:

- Develop and implement a SEA action plan with an Accountability and Response Framework as part of the C-ESMP.
- Create a Grievance Redress mechanism desk for community engagement.
- Regular community sensitization on social risks.
- Train and institutionalize disciplinary procedures and actions.

5.5.10 Children protection

Children in or around a construction site may be vulnerable to child labour, sexual abuse, teenage pregnancies and exposure to diseases.

Mitigation measures:

- Ensure workers have valid identification documents to ascertain age

- Contractor to develop and implement a Children Protection Strategy.
- All personnel must sign & adhere to Child Protection Policy.

5.5.11 Labour Influx Effects

This impact is triggered due to the project attracting various categories of workers from local and other areas. 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 strain on various resources, grievances from local community over job opportunities, sexual exploitation and abuse and unwanted Pregnancies.

Mitigation measures:

- Develop and implement a labour Management Plan (LMP) in consultation with PMC
- Ensure effective community engagement and strong grievance redress mechanisms
- Adhere to effective contractual obligations and mitigate labour related risks
- Keep and monitor records of labour force on site
- Comply with provisions of Workplace Injuries and Benefits Act (WIBA) 2007
- Develop and implement Children Protection Strategy.

5.5.12 Gender Based violence and Sexual Harassment

Violence/ conflicts and harassments may occur amongst workers

Mitigations measures:

- Develop and enforce human resources policy on sexual harassment
- Integrate provisions on sexual harassment in the employees' COC
- Avail equal opportunities for both gender
- Operationalize a referral mechanism for GBV at the community level is reported

5.6 Anticipated Positive Environmental and Social Impacts during operation

5.6.1 Easy accessibility of water

The dam will provide a reliable and sufficient source of water to the community members. Households will have water for domestic use, livestock watering and small-scale irrigation. This will ease the current challenge of acquiring water within the project area.

5.6.2 Improved food security

The dam is mainly to provide water for small-scale irrigation. Beneficiaries will grow irrigated crops throughout the year. This will enhance access to food for households and reduce food insecurity in the area.

5.6.3 Increased income

Irrigated agriculture will result to surplus produce and boost agribusiness in the area. Households will have sufficient food and surplus to sell hence increasing income.

5.6.4 Employment opportunities

Employment opportunities will be available directly and indirectly throughout the project cycle. Opportunities include among others; skilled masons, casuals, plumbers, artisans, caretakers of the dam, on-farm workers, transporters and traders.

5.6.5 Improved livelihoods

Irrigated agriculture will diversify on-farm produce to include horticultural products. Sale of these produce will increase income and savings for the beneficiaries. Excess income will be channeled to other beneficial activities in households. Reticulation of water to households will save time that will be invested in constructive activities.

5.6.6 Improved health

Access to clean and potable water will support improved health, reduced water borne ailments and hygiene in households and community. Production and access to adequate food will have health benefits.

5.6.7 Increased security within the project area

Idleness and unemployment is a potential source of crime especially among young people. The project will provide opportunities for local young people in the process meet some of their needs and reduce involvement in negative vices.

5.6.8 Improved sanitation

Access and use of adequate water for cleaning and washing will improve sanitation in the area.

5.6.9 Improved tree cover

Planting of tree and fruit seedlings on farms is part of the project. This will diversify vegetation and tree cover in the project area.

5.6.10 Area growth and development

Implementation of the project will contribute to growth of the area as more economic activities will be undertaken.

5.6.11 Increased government revenue

The County Government will benefit from taxes, rates and fees from traders, hence increasing revenue.

5.7 Anticipated Negative Impacts and Mitigation Measures during Operation phase

5.7.1 Risk of drowning

Drowning in dam is a major risk to people and livestock if left unfenced.

Mitigation measures

- Monitor fencing of the reservoir area
- Erect warning signs
- Monitor construction of water troughs and water kiosks
- Sensitize community members on risks & interventions of drowning

5.7.2 Health and safety concerns

The proposed dam might have some negative implications on health and safety of the local community. These will include: -

- 1) The dam will serve as a breeding ground for disease vectors such as mosquitoes and bilharzia snails. If measures are not taken, there could be an increase in incidence of malaria and bilharzia in the area.
- 2) Consumption of untreated water from the dam could result in increased incidence of water-borne diseases such as typhoid, cholera and diarrhoea.
- 3) The dam will also be a safety risk to children and animals that could drown in it.

Mitigation measures

- Sensitize the community on the potential health and safety risks
- Sensitize residents on the need to treat drinking water
- Sensitize household members neighbouring the dam on use of mosquito nets
- Monitor fencing of the reservoir area
- Monitor state of sanitary facilities at the dam
- Sensitize community on hygiene and sanitation around the dam and the area in general.

5.7.3 Water Use Conflict

The area is water scarce and conflicts may arise over access and use of the resource especially during dry periods.

Mitigation measures

- Water users' association to guide on water usage and conflicts resolution.
- Formulate and implement bylaws on water distribution and conflict resolution;
- Establish and operationalize grievance redress mechanism.

5.7.4 Flooding

The dam can overflow and flood downstream areas if proper measures are not in place.

Mitigation

- Monitor maintenance of the embankment and spillway.
- Monitor, maintain and address any defects

5.7.5 Soil erosion

Soil erosion may result from poorly designed inflow channels and embankment failure.

Mitigation

- Sensitize beneficiaries on water and soil conservation measures.
- Plant and nature site friendly species around the reservoir.
- Proper lining of the outflow channel with gabions or pitched stones

5.8 Anticipated Impacts during Decommissioning Phase

A project may be decommissioned because of change of policy, technology, and viability. The proponent may require demolishing structure and removing all materials from the site. Impacts during this phase include includes:

- Site degradation
- Solid wastes
- Soil erosion and
- Public safety

Mitigation measures

- Engage a licensed waste handler to dispose the waste.
- Salvage and reuse recyclable materials.
- Develop a rehabilitation plan and submit to NEMA for approval.
- Fence and erect warning signs until site stabilize naturally

CHAPTER SIX
ENVIRONMENTAL AND SOCIAL MANAGEMENT & MONITORING PLAN
(ESMMP)

6.1 INTRODUCTION

The ESMMP allows measures to be implemented that will prevent/ minimise the anticipated negative environmental and social impacts. The contractor, proponent, PMC and farmers must ensure that all proposed mitigation measures are implemented in time. Monitoring tools like a simple checklist may be used to record information relating to any mentioned environmental/ social aspects. The ESMMP below is categorised into the **four phases: planning, construction, operation and decommissioning**. It outlines the impact, proposed mitigation measure, monitoring indicator, party- responsible, means of verification, the implementation timeframe and the estimated cost.

6.2 ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN

Impact	Proposed Mitigation Measures	Indicator	Responsibility	Means Of Verification	Frequency	Costs (KES)
Planning Phase						
- Community/ Stakeholders engagement	<ul style="list-style-type: none"> • Strict time management during all meetings/ forums • Rotate membership of various forums. • Strictly adhere to the ministry of health guidelines on COVID-19 containment measures 	<ul style="list-style-type: none"> -Time taken per meeting -Number of Members invited -Handwashing points available -Use of mouth/nose masks -distance maintained between members 	Proponent	<ul style="list-style-type: none"> -Meeting minutes -Meeting attendance register -photos 	-Weekly during planning phase	5,000
Environmental Impacts during Construction Phase						
Air pollution	<ul style="list-style-type: none"> • Construction vehicles to maintain low speed at construction sites • Service and maintain vehicles and machinery regularly • Provide and strictly enforce the use of PPEs • Trenches in the early mornings or later in the evenings to minimize dust spread. 	<ul style="list-style-type: none"> No of vehicles available No. of PPEs bought No of PPES in use Time of trenching 	Contractor	<ul style="list-style-type: none"> Service report/ budget Physical observation/ Financial records Physical observation Inventory of PPEs 	<ul style="list-style-type: none"> -Daily - Monthly -Once before the project commences -Daily during excavation/earth works 	40,000
Noise Pollution & Vibrations	<ul style="list-style-type: none"> • Provide and enforce use of appropriate PPEs • Limit construction to daytime 	<ul style="list-style-type: none"> Noise levels Construction to take place 	Contractor	<ul style="list-style-type: none"> Noise level records Work schedule 	Weekly (at the peak of activities)	60,000

Impact	Proposed Mitigation Measures	Indicator	Responsibility	Means Of Verification	Frequency	Costs (KES)
	<p>only (0800- 1700 hours)</p> <ul style="list-style-type: none"> Locate noisy equipment and fit with silencers Service and maintain machinery regularly Where possible machinery should be interchangeably used with human labour Switch off engines when idle 	<p>during the day</p> <p>No of machines emitting noise & vibrations</p> <p>Work schedule</p>		<p>Work schedule for noise machines</p> <p>Inventory of noisy machines</p>		
Waste generation	<ul style="list-style-type: none"> Provide waste bins and a temporary disposal area. Segregate waste into decomposable or non-decomposable. Use construction materials that have minimal packaging Recycle/ reuse construction materials Use durable, long lasting construction materials that do not need frequent replacement Sensitize workers and members on proper waste management strategies Proper disposal of waste grease and 	<p>-No. of waste bins</p> <p>- No of times materials are replaced</p> <p>No. of recycle bins</p> <p>Type of materials used</p> <p>No. of persons sensitized</p> <p>No of sensitization done</p> <p>No. of oil/grease disposal</p>	Contractor	<p>Inventory of bins</p> <p>Amount of replaced materials</p> <p>Amount of waste recycled</p> <p>Waste collection tracking documents/ Disposal licence</p> <p>Attendance list</p> <p>Receipts of waste</p>	Weekly	100,000

Impact	Proposed Mitigation Measures	Indicator	Responsibility	Means Of Verification	Frequency	Costs (KES)
	<ul style="list-style-type: none"> oils from vehicle/ machinery Engage a NEMA licensed waste handler 	bins No of waste handlers engaged		disposal Contract document		
Water quality	<ul style="list-style-type: none"> Ensure that excavation works are done in a systematic manner Notify the community on construction works so as to get alternative sources of water for the period Ensure waste does not get into the reservoir 	Work schedule at site No. of Notices of construction works No of waste management strategies in place	Contractor	Work timetable Notices available Waste management	Weekly	20,000
Removal of vegetation & loss of habitat	<ul style="list-style-type: none"> Limit excavation activities to specific development areas only. Compensate for lost vegetation through landscaping with site friendly species 	Excavation work schedule No. of tree/plants on site	Contractor	Work schedule and project design Inventory of planted vegetation	Monthly	25,000
Impacts on soils	<ul style="list-style-type: none"> Only remove vegetation from areas meant for dam rehabilitation; Install appropriate drainage systems to direct water away from slopes; Avoid as far as possible the 	Area vegetation have been cleared Amount in tons of carried soil at site No of Drainage system	Contractor	Inspection reports on vegetation cleared and soil eroded Record of soil deposited at site	Monthly	100,000

Impact	Proposed Mitigation Measures	Indicator	Responsibility	Means Of Verification	Frequency	Costs (KES)
	traversing of bare soil by vehicles to reduce soil compaction; <ul style="list-style-type: none"> • Designate a main access route for heavy machinery; • Avoid site preparation in period when wind velocities are highest. • Train beneficiaries on soil and water conservation • Restore cleared areas through tree planting and grassing of embankments 	installed Site work schedule Site layout Work schedule No of trees planted		Design of drainage system Movement tracks designated Records of work schedule Vegetation records		
Social Impacts during Construction Phase						
COVID-19 Pandemic	<ul style="list-style-type: none"> • Regulating the number of people allowed into the site at a time • Provision of running water and soap at site/ area for regular hand washing or provision of alcohol based hand sanitizers • Wearing of masks by all people • Maintaining at least 1.5 m social distance while at the work stations • Sensitization on COVID-19 and regular temperature monitoring by 	No of people at site No of hand washing stations Use of masks No of times temperature is monitored No of people sensitized	Contractor	Daily register Inventory of hand wash stations Records on masks issued Records on temperature recorded Attendance list	Daily	50,000

Impact	Proposed Mitigation Measures	Indicator	Responsibility	Means Of Verification	Frequency	Costs (KES)
	use of a thermo-gun					
Occupational Health and Safety	<ul style="list-style-type: none"> • Provide, enforce and supervise use of PPEs. • Provide a well-stocked first aid kits • Prevent spillage of petroleum products on site • Provide serviced firefighting equipment and train workers on firefighting skills • Constitute and operationalize Environment, Health and Safety committee at site • Provide clean and potable water for workers • Ensure proper site planning and management to prevent accident • Train workers on proper use of tool and machinery • Report any accidents and injuries and ensure medical attention is sort 	<p>Use of PPEs at site/ No provided</p> <p>Availability/ No of first aid kits at site</p> <p>No. of warning signage</p> <p>No. of fire extinguishers</p> <p>No. of workers trained</p> <p>No of clean water points</p> <p>Presence of well-arranged and piled up materials</p> <p>No. of injuries reported</p>	Contractor	<p>Inventory of PPEs</p> <p>Inventory of site signages</p> <p>Inventory of fire extinguishers</p> <p>Records on injuries & accidents and referrals letters</p>	Monthly	110,000
Sexual Exploitation and Abuse	<ul style="list-style-type: none"> • Develop and implement a SEA action plan with an Accountability and Response Framework as part of 	No. cases of SEA reported	Contractor	Records of SEA reported and filed.	Monthly	50,000

Impact	Proposed Mitigation Measures	Indicator	Responsibility	Means Of Verification	Frequency	Costs (KES)
(SEA)	<p>the C-ESMP.</p> <ul style="list-style-type: none"> • Create a Grievance Redress mechanism desk for community engagement. • Regular community sensitization on social risks • Train and institutionalize disciplinary procedures and actions. 	<p>GRM desk</p> <p>No. of sensitizations of SEA done</p> <p>No. of persons sensitized on SEA</p>		<p>GRM for the project</p> <p>Sensitization reports of SEA.</p>		
Children Protection	<ul style="list-style-type: none"> • Ensure workers have valid identification documents to ascertain age • Contractor to develop and implement a Children Protection Strategy • All personnel must sign & adhere to Child Protection Policy. 	<p>No of workers on site</p> <p>No. of personnel's who have signed COC</p>	Contractor	<p>Records of human resource</p> <p>Children protection strategy</p>	Monthly	30,000
Labour Influx effects	<ul style="list-style-type: none"> • Develop and implement a labour Management Plan (LMP) in consultation with PMC • Ensure effective community engagement and strong grievance redress mechanisms 	<p>No. of labour related cases reported</p> <p>No. of sensitization on labour matter</p>	Contractor	<p>Records of labour related cases reported and filed.</p> <p>Sensitization reports of labour matters</p>	Monthly	30,000

Impact	Proposed Mitigation Measures	Indicator	Responsibility	Means Of Verification	Frequency	Costs (KES)
	<ul style="list-style-type: none"> Adhere to effective contractual obligations and mitigate labour related risks Keep and monitor records of labour force on site Comply with provisions of Workplace Injuries and Benefits Act (WIBA) 2007 Develop and implement Children Protection Strategy. 					
Gender Based Violence & Sexual Harassment	<ul style="list-style-type: none"> Develop and enforce human resources policy on sexual harassment Integrate provisions on sexual harassment in the employees' COC Avail equal opportunities for both gender Operationalize a referral mechanism for GBV at the community level is reported 	-No of male/ female employees -Presence of a sexual harassment protection policy No. of cases on GBV reported	Contractor	Employees register Policy copies available Complain register	Monthly	25,000
Environmental Impacts during Operation Phase						
Flooding	<ul style="list-style-type: none"> Monitor maintenance of the embankment and spillway. 	-Engineer's inspection Schedule	PMC, CESSCO	Embankment designs	After commissioning	30,000

Impact	Proposed Mitigation Measures	Indicator	Responsibility	Means Of Verification	Frequency	Costs (KES)
	<ul style="list-style-type: none"> Monitor, maintain and address any defects 	-Defects signs		construction inspection reports		
Soil Erosion	<ul style="list-style-type: none"> Sensitize beneficiaries on water and soil conservation measures. Plant and nature site friendly species around the reservoir. Proper lining of the outflow channel with gabions or pitched stones 	-Soil & water conservation plan -Vegetation planted	PMC, CESSCO	Site inspection reports	During operation	75,000
Social Impacts during Operation Phase						
Risk of drowning	<ul style="list-style-type: none"> Monitor fencing of the reservoir area Erect warning signs Monitor construction of water troughs and water kiosk Sensitize community members on risks & interventions of drowning 	No. of warnings displayed water troughs Fence in place	PMC/CPCU	Inventory of warning signage Photos Attendance list	Once after construction	50,000
Health & safety concerns	<ul style="list-style-type: none"> Sensitize the community on the potential health and safety risks Sensitize residents on the need to treat drinking water Sensitize household members neighbouring the dam on use of mosquito nets Monitor fencing of the reservoir 	No. of persons in the community trained on health and safety No. of incidents reported No. of persons treated for named diseases No. of mosquito nets provided	PMC/CPCU	List of training attendants Training material and trainer Inspection report of the toilet facilities	Quarterly	80,000

Impact	Proposed Mitigation Measures	Indicator	Responsibility	Means Of Verification	Frequency	Costs (KES)
	<p>area</p> <ul style="list-style-type: none"> Monitor state of sanitary facilities at the dam Sensitize community on hygiene and sanitation around the dam and the area in general. 	<p>Length of fence at the water pan</p> <p>No. of toilet facilities at site</p>				
Water use conflict	<ul style="list-style-type: none"> Water users' association to guide on water usage and conflicts resolution. Formulate and implement by-laws on water distribution and conflict resolution; Establish and operationalize grievance redress mechanism. 	<p>-No of conflict/incidents reported from families</p> <p>-No. of training conducted</p> <p>-By laws</p>	Gender & Social Officer, PMC, CESSCO	Complaints reports -GRM records Communication	Quarterly	20,000
Decommissioning						
Site degradation	<ul style="list-style-type: none"> Engage a licensed waste handler to dispose the waste. 	Amount of waste generated	Contractor	Waste collection track documents	Decommissioning Period	Decommissioning Budget
Solid wastes	<ul style="list-style-type: none"> Salvage and reuse recyclable materials. 	No. of segregation bins		Inventory of waste bins		
Soil erosion and	<ul style="list-style-type: none"> Develop a rehabilitation plan and submit to NEMA for approval. 	Availability of a Waste management plan		NEMA approval licences		
Public safety	<ul style="list-style-type: none"> Fence and erect warning signs until site stabilize naturally. 	Site hoarding		Financial records of fencing & signages		

CHAPTER SEVEN

CONCLUSIONS AND RECOMMENDATIONS

7.1 Overview

This chapter outlines the findings of the report. It also states the experts' recommendation concerning the proposed project.

7.2 Conclusions

The primary objective of the proposed project is to rehabilitate the dam to provide sufficient water for domestic, livestock and small-scale irrigation to the beneficiary community. The SPR findings outline both positive and negative environmental and social impacts. The positive impacts will include among others; availability of reliable water supply for small-scale irrigation, income for beneficiaries, employment opportunities, area growth and development and increased food security. The project will have negative but mitigatable impacts among others air pollution, noise pollution, risk of drowning, sexual exploitation and abuse, labour influx effects and health and safety issues.

Mitigation measures for the negative environmental and social impacts have been proposed. The proponent is advised to ensure implementation of the mitigation measures in all the phases of the development. To address the impacts, an ESMMP has been formulated stipulating the measures, responsibility, monitoring indicators, means of verification, frequency of monitoring and cost. The estimated cost of implementing the ESMMP is **KES 890,000**.

7.3 Recommendations

The recommendation of this assessment is that the proposed project be allowed to proceed on strict condition that the environmental and social management & monitoring plan is implemented and follow-up made to ensure compliance as may be further directed by NEMA.

Further, the ESMMP should be part of the contract documents to be shared with the contractor.

PHOTO GALLERY



Dam from different angles



Public consultation meeting



stakeholders during site visit



Existing spill-way area



Existing outlet/ watering point

REFERENCES

1. Government of Kenya, 2000; Building Code, Laws of Kenya
2. Government of Kenya, 2015; Environmental Management and Co-ordination Act (CAP 387), Laws of Kenya
3. Government of Kenya, 1999; Environmental Management and Coordination Act No 8, Laws of Kenya.
4. Government of Kenya, 2019; The Environmental (Impact Assessment and Audit) (Amendment) Regulations, Laws of Kenya.
5. Government of Kenya, 2003; The Environmental (Impact Assessment and Audit) Regulations, Laws of Kenya.
6. Government of Kenya, 2007; The Occupation Health and Safety Act, Laws of Kenya.
7. Government of Kenya, 2006; The Waste Management guidelines, Kenya Gazette supplement 69
8. Government of Kenya, 2007; The Work Injury Benefits Act, Laws of Kenya.
9. Government of Kenya, 2008; Vision 2030, PDF version, Government printer, Nairobi
10. Kenya Gazette Supplement Number 68, 2006; Environmental Management and Coordination (Water Quality) Regulations, Government Printer, Nairobi
11. Nyandarua County, 2017; Integrated Development Plan 2018-2022, Nyandarua County documents

APPENDICES

Appendix 1: Land ownership documents

Public utility confirmation letter

	REPUBLIC OF KENYA COUNTY GOVERNMENT OF NYANDARUA DEPARTMENT OF LANDS, HOUSING AND PHYSICAL PLANNING	
PO BOX 701-20303 OL KALOU Telephone: 0202660859 Email: info@nyandarua.go.ke		
Ref: NYA.CNT.GOV/ADM/12		DATE: 4 th May, 2021
 THE DIRECTOR KENYA – CLIMATE SMART AGRICULTURE PROJECT		
 RE: <u>KINGI DAM – NYANDARUA/KIRIITA SHAURI BLOCK I 481 (LESHAU PONDO)</u>		
This is to confirm that the above mentioned dam is a public utility.		
The Department is in the process of procuring the title deed for the above parcel of land.		
		
FLORENCE ANNAN CHIEF OFFICER – LANDS, HOUSING & PHYSICAL PLANNING		
Cc: CECM - LANDS, HOUSING, PHYSICAL PLANNING		

Land search document

Form LRA-85 (r. 84(3))

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT
THE LAND REGISTRATION (GENERAL) REGULATIONS, 2017

CERTIFICATE OF OFFICIAL SEARCH

TITLE NO. NYM KIAUCHA (SHARU BK 2 (ENCUM) PART 2/451

SEARCH NO. 451/6/2021/P

On the 4 day of 6 2021 the following were the subsisting entries on the register of the above-mentioned title:
RESERVED FOR DAM

Part A — Property Section (easements, etc.)

Nature of title ABSOLUTE

Approximate area 5.764 HA C FEVE DEC 5 FIVE SIX FOUR

Part B — Proprietorship Section

Name and address of proprietor 1. P.O. BOX 92 - GOVERNMENT OF KENYA

Inhibitions, cautions and restrictions na

Part C — Encumbrances Section (leases, charges, etc.)

na

The following applications are pending:

(a) _____

(b) _____ 2

(c) _____ na

(d) _____

The following certified copies are attached as requested:

(a) _____

(b) _____ 2

(c) _____ na

(d) _____

Date 4 day 6 2021

Signed by the Registrar

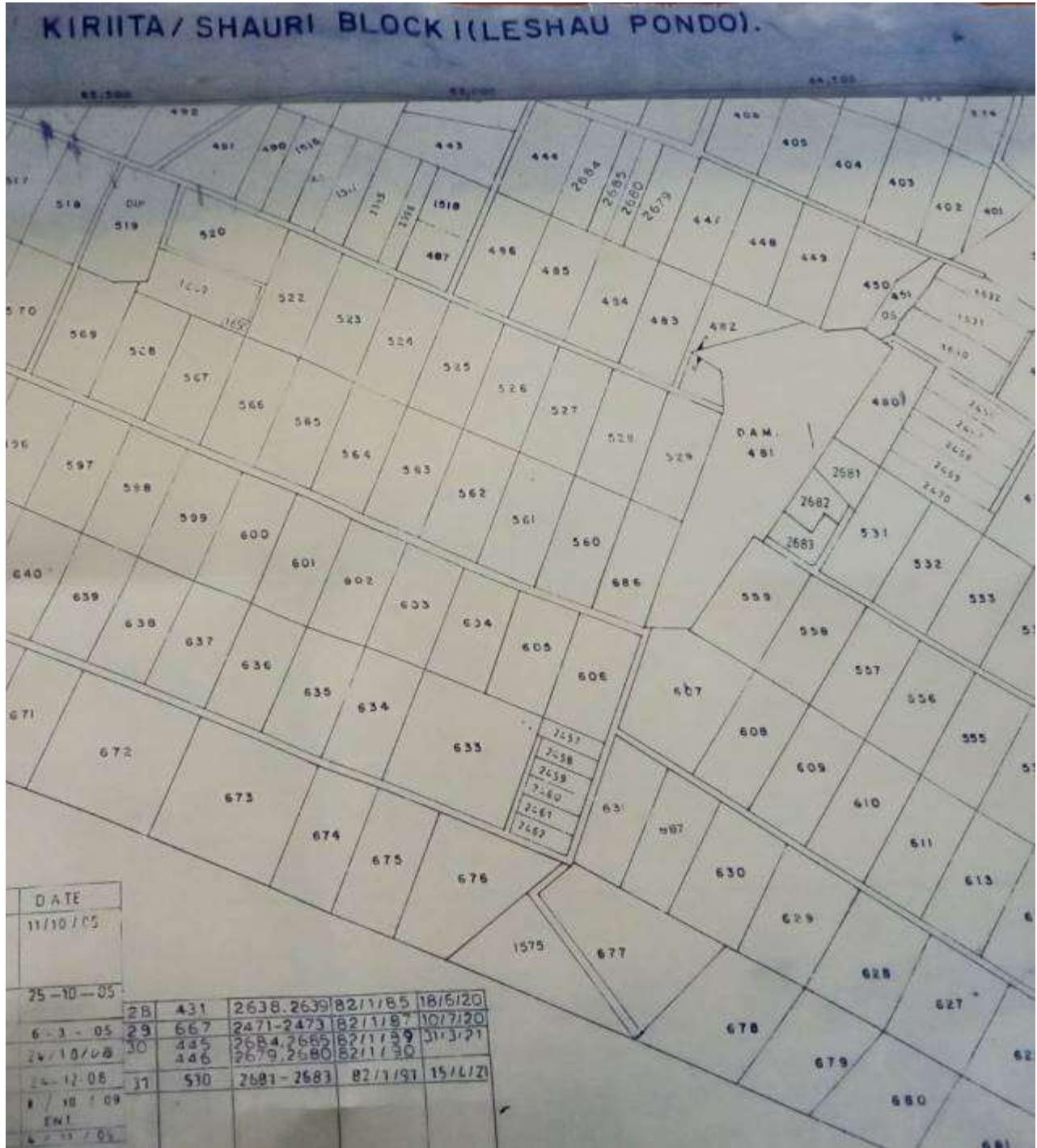
Name: W. H. MUGORO

Signature: [Signature]

Seal _____

GPB (L) 682 - 400m - 7/18

Proposed project area land map



Appendix 2: Screening checklist

ENVIRONMENTAL AND SOCIAL SCREENING CHECK LIST

Section A: Background information

1. Name of County: Nyandarua County
2. Name of CPCU: KCSAP Nyandarua.
3. Details of the Sub-Project:
 - a) Name of Sub-Project Kingi Dam Rehabilitation Project
 - b) Postal Address: _____
 - c) Name of Contact Person: Bernard Karuki Wambugi Cell phone: 0717954722
4. Location of the Sub-Project:
 - a) Sub-County Ndaragwa Ward Lesheu Pondo
 - b) GPS Coordinates 0.05346°N 36.42064°E
5. Funds Allocated to the Sub-Project: KES 36,525,000
6. Number of Direct Beneficiaries.....331..... Males.....210..... Females.....121.....
7. Number of Indirect Beneficiaries.....1000..... Males.....340..... Females.....660.....
8. Approximate size of land area available for the Sub-project:
9. Objectives of the sub project:
To distribute water from Kingi dam to beneficiary farms for domestic and Small Scale irrigation.
10. Activities to be undertaken:
 - Remove pyrus plants and silt along the edges of the dam.
 - Rehabilitate the spillway
 - Rehabilitate ~~the~~ a section of the embankment
 - Fence off the dam and reservoir area
 - Install solar-powered submersible pump
 - Construct water tower and auxiliary structures
 - Distribute water to beneficiary farmers
11. How was the Sub-project chosen?
Through public participation
12. Expected Sub-project duration: One year

Kingi Dam

- 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 CPCU for clearance for implementation by group members of the proposed Sub-projects.

Completed by: ESS Team Members and a member of the Sub-project:-

1. Name: Kariuki Njunge Department ALF - KCSAP
Designation CESSCO Signature [Signature] Date 21/04/2021
2. Name: Simon M. Memia Department Water
Designation Senior Superintendent Irrigation Signature [Signature] Date 21/04/2021
3. Name: Miriam Muthoni Ngathia Department Environment
Designation DDE Signature [Signature] Date 21-04-21
4. Name of Sub-Project Contact Person Bernard Kariuki Wambugi
Designation Chairman Signature [Signature] Date 21-04-2021

Field Appraisal Officer (CDE): Name Ezekiel Njiru

Signature: [Signature]

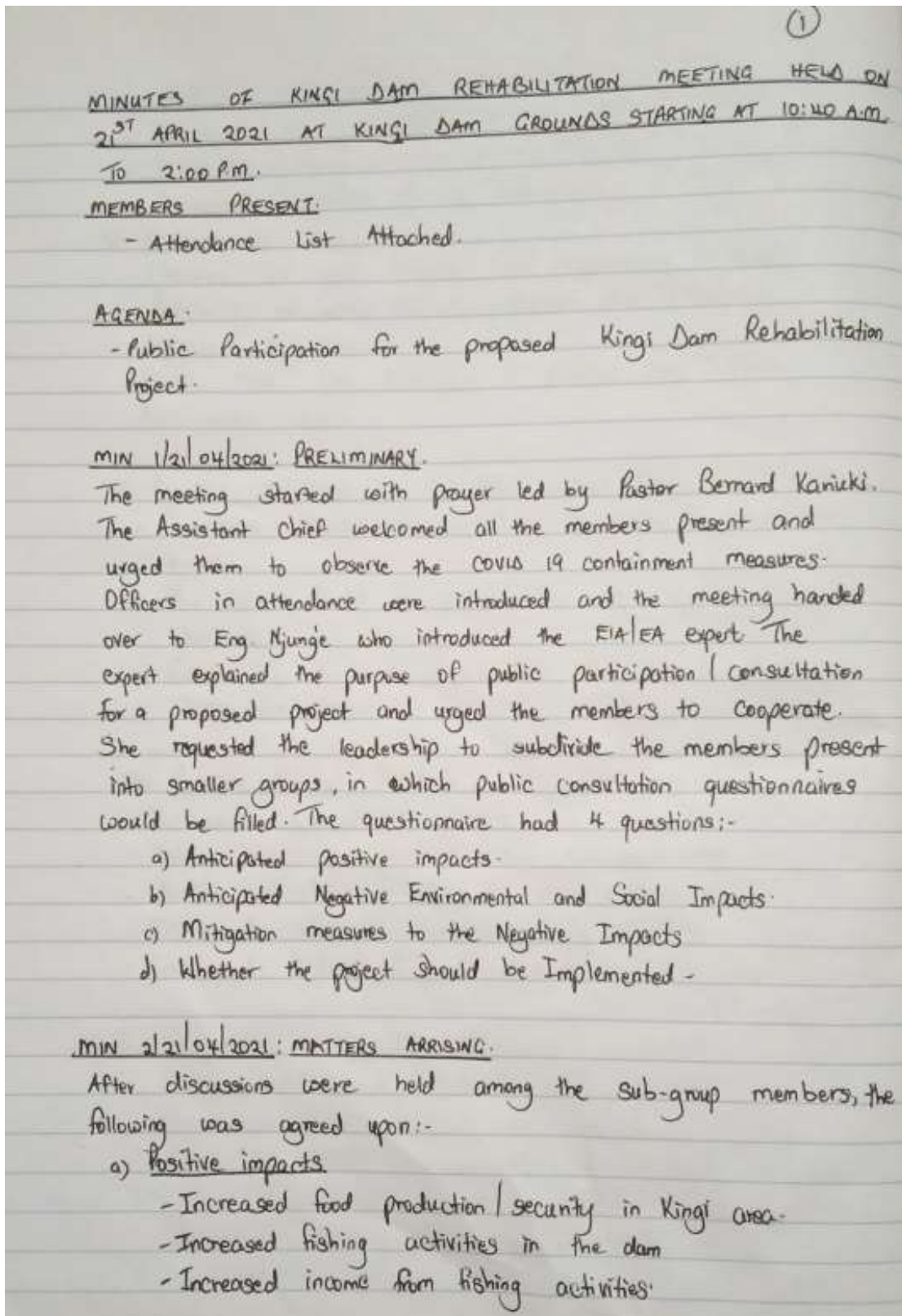
Date:

21-04-2021



NB Submit Summary Project Report
in accordance with legal notice
No. 31 and 32 of 2017 on
EIA

Appendix 3: Meeting minutes



- Increased environmental conservation.
- Increased job opportunities in the area.
- Livestock watering would be more easier.
- Increased irrigation in the farm lands.

b) Environmental issues

- Chances of soil erosion from neighbouring farmlands
- Possibility of water depletion/reduction due to continuous irrigation activities
- Some trees like Eucalyptus if planted may affect the water levels.

(i) Possible Solutions to the Environmental Problems:

- Covercrops should be planted in farmlands to prevent soil erosion.
- The dam should be silted at the edges to increase water volumes.
- Community members should be mobilised to plant indigenous trees.

(ii) Possible Social Problems

- Increased spread of Malaria
- Idling may be promoted within the dam area.
- Chances of drowning both by man and animal.
- Increased disease transmission eg Covid 19.
- Increased school dropouts due to increased jobs.

(iii) Solutions to Social Problems.

- People should acquire mosquito nets.
- The dam area should be fenced.
- People to ensure strict adherence to Covid 19 rules.
- School going kids and those under 18 years should not be employed in the farms.

(3)

- d Project implementation:

The members present accepted the proposed project and were willing and ready to support its implementation.

Each group filled their questionnaire independently and later submitted them back to the expert who thank the members for cooperation.



MIN 3/21/04/2021: AOB:

Government officers present were given an opportunity to address the members. They urged them to support the proposed project since it would be beneficial to the entire region.

MIN 4/21/04/2021: ADJOURNMENT:






There being no other business, the meeting was adjourned at 2:00 PM with prayer by Pastor Kamuki. Members were appreciated for their presence and dismissed.

Appendix 4: Meeting attendance lists


Activity: Public Participation - Rehabilitation of Kingi Dam Date: 21st April 2021
 Venue: Kingi Dam

List of Attendance

No	Name	ID No/PNO	Organisation	Designation	Mobile Number	Email	Signature
1	Harosh wa ng'ani	0617987	Kingi Dam	Member	0723020112		
2	AJAY RA Ndegwaa	0617703	Kingi Dam	COMMITTEE MEMBER	0723019661		
3	BENJAMIN MACHUA	0804753	Kingi Dam	COMMITTEE MEMBER	0720630263		
4	Simon Memea	55114194	Kingi Dam	SI	0720977979		
5	George wa twika	5709389	Kingi Dam	Member	0721954998		
6	Bernard Karuki	20869583	Kingi Dam	Chairman	0819954722		
7	Amos M. Kibuki	13210255	NGAO	ADMINISTRATOR	0720265337		
8	JKUNIA Smboray	23250611	Mbaraa	A.C.E	0720699053	jacokunias@gmail.com	
9	STANLEY K. KIIRU	9199522	County Government of Nairobi	W/A	0726519566	Stanley.kiruu@yahoo.com	
10	ANTHONY M. KIMANI	12486740	INTERIOR	DEPUTY CHIEF	0726570180	anthonykimani@gmail.com	
11	Patricia N. Ndlovu	10707543	INTERIOR	ASST CHIEF	0706449455	PatriciaNdlovu@gmail.com	
12	Margaret wa mbari	0818121			0710123978		
13	MERRY KARUKI	2495956	Kingi Dam	COMMITTEE	0722169354	merrykaruka@gmail.com	
14	OSINUS MUKISA	01619166		COMMITTEE	0711395399		
15	MARTIN K. NDEBI	22539200		COMMITTEE	0722169477	martinmkn@gmail.com	



Activity: Public Participation - Kingi Dam Rehabilitation Project Date: 21/04/2021
 Venue: Kingi Dam

List of Attendance

No	Name	ID No/PNO	Organisation	Designation	Mobile Number	Email	Signature
1	CECILIA MUKOMI	11286237	Kingi dam		0716805030		
2	JANE NDUAGU	11614014	Kingi dam	Treasurer	0120382337		
3	MOROSA MONG'ARA	29706370	Kingi dam		071307813		
4	GENERINE KIGELANGI	24149904	Kingi dam		0703840945		
5	WALTER MUAHWA	21758558	Kingi dam		0728140736		
6	MURATO GATHI GITH	0829084	Kingi dam		0714426977		
7	NICHOLAS KUYA	25922316	Kingi dam		022582518		
8	ELIUD MUEANGI	23495252	Kingi dam		072099442		
9	JANE WANG'ARA	061938050	Kingi dam		0725391146		
10	JESSEH BIRIASI	2334874	Kingi dam		0717205785		
11	DEENA NYERUBUI	5709074	Kingi dam		0728072605		
12	GRACE MUKOMI	24232893	Kingi dam		0710996781		
13	BARB WANG'ARA	13645440	Kingi dam		0728709840		
14	CELIA MONGI		Kingi dam		01131153877		



Activity: Public Participation - Kingi Nam Revitalization Project Date: 21/04/2021
 Venue: Kingi Nam

List of Attendance

No	Name	ID No/PNO	Organisation	Designation	Mobile Number	Email	Signature
1	David Muthi	5777262	Kingidam		0799835463		<i>[Signature]</i>
2	Milika Wambui	2028844	Kingi dam		0716584097		<i>[Signature]</i>
3	Maraah Muthoni	24586402	Kingidam		0724586084		<i>[Signature]</i>
4	Hannah Njeri	0614341	Kingi dam		0714370653		<i>[Signature]</i>
5	Mary Wambui	D800233	Kingidam		072550498		<i>[Signature]</i>
6	Mama Mutoni	243324404	Kingi dam		072859181		<i>[Signature]</i>
7	Lucy Wambui	8978390	Kingidam		0728224409		<i>[Signature]</i>
8	Sireen Ayambura		Kingi dam				<i>[Signature]</i>
9	Joseph Wambui	9283004	Kingi dam		0712192850		<i>[Signature]</i>
10	Janet Kariuki	0229415	Kingi dam		0724315544		<i>[Signature]</i>
11	Priscilla Wambui	9811375	Kingi dam		0720516251		<i>[Signature]</i>
12	John Kariuki	D341331	Kingi dam		072920040		<i>[Signature]</i>
13	Samuel Kamau	9920569	Kingi dam		072508902		<i>[Signature]</i>
14	Joseph Okumu	3733131	Kingi dam		0726762574		<i>[Signature]</i>



Activity: Public Participation — Kingi Dam Rehabilitation Project Date: 31/04/21
 Venue: Kingi Dam

List of Attendance

No	Name	ID No/PNO	Organisation	Designation	Mobile Number	Email	Signature
1	Simon Wakenae	4455529	Kingi dam		07104232492		<i>[Signature]</i>
2	Jusys Mungu	1823977	Kingi dam		0713111007		<i>[Signature]</i>
3	John Mwangi	1828440	Kingi dam		0729358432		<i>[Signature]</i>
4	frédéric Kwasu		Kingi dam		0720328478		<i>[Signature]</i>
5	Polycarp Mwa	10620063	Kingi dam		0724349618		<i>[Signature]</i>
6	Kemau Mwangi	9911386	Kingi dam		0711856559		<i>[Signature]</i>
7	Bard Wicking	5726857	Kingi dam		0731767588		<i>[Signature]</i>
8	Sarah Wangira	202194513	Kingi dam				<i>[Signature]</i>
9	Miriam Kibui		Kingi dam		0721962085		<i>[Signature]</i>
10	Elena Wanjani	0614229	Kingi dam		07228503423		<i>[Signature]</i>
11	Winyand Ngeni	25602918	Kingi dam	Secretary	0716911344		<i>[Signature]</i>
12	Pamela Karuu	12477282	Kingi dam	Secretary	0751724202		<i>[Signature]</i>
13	Mary W. Kimani	4356557	Kingi dam	Secretary	0724629261		<i>[Signature]</i>
14	Peter Mungu	0800025	Kingi dam				<i>[Signature]</i>



Activity: Public Participation - Kingi dam Date: 21/4/21

Venue: Kingi Dam site

List of Attendance

No	Name	ID No/PNO	Organisation	Designation	Mobile Number	Email	Signature
1	<u>Esthera M. Nwangi</u>	<u>1986052744</u>	<u>KCSAP</u>	<u>NfE</u>	<u>0724405190</u>	<u>esthera@kcsap.co.ke</u>	<u>[Signature]</u>
2	<u>Geoffrey N. Ndumangi</u>	<u>1989000253</u>	<u>ACT</u>	<u>C.A.A.O</u>	<u>0202495258</u>	<u>geoffrey@act.co.ke</u>	<u>[Signature]</u>
3	<u>Karimuki Nyungu</u>	<u>2008083450</u>	<u>KCSAP</u>	<u>CESS CO</u>	<u>0722402026</u>		<u>[Signature]</u>
4	<u>MILLICENT KOSKORU</u>	<u>299448602</u>	<u>ASSOCIATE PROJECT</u>	<u>EVALUATION</u>	<u>0730865611</u>	<u>millicent@kcsap.co.ke</u>	<u>[Signature]</u>
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							

Appendix 5: Public participation questionnaires

Group 1

PUBLIC VIEWS QUESTIONNAIRE

The Department of Agriculture, Livestock and Fisheries Nyandarua County, through the Kenya Climate Smart Agriculture Project (KCSAP) has contracted an Environmental Impact Assessment (EIA) expert to carry out a Summary Project Report for the **PROPOSED KINGI DAM REHABILITATION PROJECT FOR SMALL SCALE IRRIGATION IN NYANDARUA NORTH, NYANDARUA COUNTY**. Public participation is a requirement according to Regulation 17 (1) of the EIA/ Audit Regulations of 2003.

The objective of public participation is to ensure that all people who are likely to be affected by a proposed project, either positively or negatively are fully informed, and given an opportunity to raise their concerns.

The contracted expert kindly seeks the views and opinions of the community likely to be affected by the proposed project. You are requested to fill in this form, thus providing information helpful in decision making, in regard to the proposed project. Your views will be handled with confidentiality. **Your cooperation is highly appreciated.**

1. Are there **BENEFITS** (positive impacts) you think will arise from the establishment of the proposed development?

(a) Yes (b) No

If YES, please name them:

1. increase of products

2. source of income

3. source of employment

4. reduce of disease due to improved diet

2. Are there **ENVIRONMENTAL PROBLEMS** (negative impacts) you think will arise from the establishment of the proposed development?

(a) Yes (b) No

1

If YES, please name them:

1. Soil erosion
2. Birds, animals and mosquitoes increase.

3. Suggest ways in which the negative environmental problems identified in 2 above can be addressed

1. planting trees
2. planting grass

4. Are there SOCIAL RELATED PROBLEMS you think will arise from the establishment of the proposed development?

(a) Yes

(b) No

If YES, please name them:

1. Diseases like Covid 19
2. School dropouts
3. Insecurity

5 Suggest ways in which the negative social problems identified in 4 above can be addressed

1. Being car even security
2. Observing MoH regulations
3. Fencing around the dam

6 In your opinion, should the proposed project be implemented?

(a) Yes

(b) No

If NO, please explain:

CONTACT DETAILS

No	NAME	GENDER		PHONE NO.	DATE
		Male	Female		
1.	Patricia Oakeo		✓	0716911344	21/4/2021
2.	Beth Kiratho		✓	071096781	21/4/2021
3.	Lucy Njoki		✓	0722079601	"
4.	Miriam Kabiya		✓	0710584097	"
5.	Ester Kamucii		✓	0727758084	"
6.	Elijah Kaini	✓		0700376998	"
7.	Stephen Wachira	✓		0720556251	"
8.	John Gichohi	✓		0724315344	"
9.	Beatrice Wambugi	✓		0722169354	"
10.	Regina Nyambura	✓		0729027605	"

THANK YOU FOR YOUR COOPERATION.

PUBLIC VIEWS QUESTIONNAIRE

The Department of Agriculture, Livestock and Fisheries Nyandarua County, through the Kenya Climate Smart Agriculture Project (KCSAP) has contracted an Environmental Impact Assessment (EIA) expert to carry out a Summary Project Report for the **PROPOSED KINGI DAM REHABILITATION PROJECT FOR SMALL SCALE IRRIGATION IN NYANDARUA NORTH, NYANDARUA COUNTY**. Public participation is a requirement according to Regulation 17 (1) of the EIA/ Audit Regulations of 2003.

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The contracted expert kindly seeks the views and opinions of the community likely to be affected by the proposed project. You are requested to fill in this form, thus providing information helpful in decision making, in regard to the proposed project. Your views will be handled with confidentiality. Your cooperation is highly appreciated.

1. Are there **BENEFITS** (positive impacts) you think will arise from the establishment of the proposed development?

(a) Yes

(b) No

If YES, please name them:

- 1. Irrigation
- 2. Livestock will be benefic
- 3. Have money through selling the products

2. Are there **ENVIRONMENTAL PROBLEMS** (negative impacts) you think will arise from the establishment of the proposed development?

(a) Yes

(b) No

If YES, please name them:

1. Poor Preservation
2. Mosquitoes
3. Lack of knowledge and cluttering the environment by washing clothes near the dam

3. Suggest ways in which the negative environmental problems identified in 2 above can be addressed

- > keeping good security
- > community should keep the area well

4. Are there SOCIAL RELATED PROBLEMS you think will arise from the establishment of the proposed development?

- (a) Yes (b) No

If YES, please name them:

.....

.....

.....

.....

.....

5. Suggest ways in which the negative social problems identified in 4 above can be addressed

.....

.....

.....

.....

6. In your opinion, should the proposed project be implemented?

(a) Yes (b) No

If NO, please explain:

.....

.....

CONTACT DETAILS

No	NAME	GENDER		PHONE NO.	DATE
		Male	Female		
1.	Jano Ndung'u		✓	0720382337	21/04/2021
2.	Mary Kimondo		✓	0727724202	21/04/2021
3.	Rahab +handburu		✓	0728707810	21/04/2021
4.	Mary Wamatha		✓	0725850999	21/04/2021
5.	monica wa Chuka		✓	0728224249	21/04/2021
6.	Eunice Kiplangat		✓	0721962445	21/04/2021
7.	Kargya Gichugu	✓	✓	0725029504	21/04/2021
8.	Jane Wanjiku		✓	072391146	21/04/2021
9.	Jane W. Kamau		✓	0721767582	21/04/2021
10.	Benjamin Machua		✓	0700630263	21/04/2021

THANK YOU FOR YOUR COOPERATION.

PUBLIC VIEWS QUESTIONNAIRE

The Department of Agriculture, Livestock and Fisheries Nyandarua County, through the Kenya Climate Smart Agriculture Project (KCSAP) has contracted an Environmental Impact Assessment (EIA) expert to carry out a Summary Project Report for the **PROPOSED KINGI DAM REHABILITATION PROJECT FOR SMALL SCALE IRRIGATION IN NYANDARUA NORTH, NYANDARUA COUNTY**. Public participation is a requirement according to Regulation 17 (1) of the EIA/ Audit Regulations of 2003.

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The contracted expert kindly seeks the views and opinions of the community likely to be affected by the proposed project. You are requested to fill in this form, thus providing information helpful in decision making, in regard to the proposed project. Your views will be handled with confidentiality. **Your cooperation is highly appreciated.**

1. Are there **BENEFITS** (positive impacts) you think will arise from the establishment of the proposed development?

(a) Yes (b) No

If YES, please name them:

- i) Water for irrigation
- ii) Rearing fish for food and sale
- iii) Creating jobs such as youth nurseries for tree seedlings for sale/recreation
- iv) Environmental conservation
- v) Time saving - no fetching water from the dam
- vi) Job opportunities

2. Are there **ENVIRONMENTAL PROBLEMS** (negative impacts) you think will arise from the establishment of the proposed development?

(a) Yes (b) No

If YES, please name them:

Group 3

3. Suggest ways in which the negative environmental problems identified in 2 above can be addressed

4. Are there SOCIAL RELATED PROBLEMS you think will arise from the establishment of the proposed development?

(a) Yes

(b) No

If YES, please name them:

- i) Diseases like malaria by mosquitoes and bilharzia by water snails
- ii) Conflicts
- iii) Theft
- iv) Resting place for idlers

5. Suggest ways in which the negative social problems identified in 4 above can be addressed

- i. Provision of mosquito nets by government and people
- ii. Dialogue to solve the conflicts and ensure equity during work
- iii. Spraying to kill mosquito larvae
- iv. Tight security

6. In your opinion, should the proposed project be implemented?

(a) Yes

(b) No

If NO, please explain:

.....

.....

CONTACT DETAILS

No	NAME	GENDER		PHONE NO.	DATE
		Male	Female		
1.	James Hathi	✓		0729398422	21-04-2022
2.	George Maina Wathika	✓		0721954988	"
3.	Martin Ngugi	✓		2911856589	"
4.	Joseph Ngirani	✓		0712192230	"
5.	John Kimani	✓		0721925040	"
6.	Jane Kimire		✓	0711307013	"
7.	Stephen Wainaina	✓		0720977228	"
8.	Penina Wangan		✓	0729027601	"
9.	Jane Gathoni		✓	07209165428	"
10.	Susan Mwanjiku		✓	0714370653	"

THANK YOU FOR YOUR COOPERATION.

11. Joseph Mbanuku

3 ✓

0717951139

PUBLIC VIEWS QUESTIONNAIRE

The Department of Agriculture, Livestock and Fisheries Nyandarua County, through the Kenya Climate Smart Agriculture Project (KCSAP) has contracted an Environmental Impact Assessment (EIA) expert to carry out a Summary Project Report for the **PROPOSED KINGI DAM REHABILITATION PROJECT FOR SMALL SCALE IRRIGATION IN NYANDARUA NORTH, NYANDARUA COUNTY**. Public participation is a requirement according to Regulation 17 (1) of the EIA/ Audit Regulations of 2003.

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The contracted expert kindly seeks the views and opinions of the community likely to be affected by the proposed project. You are requested to fill in this form, thus providing information helpful in decision making, in regard to the proposed project. Your views will be handled with confidentiality. **Your cooperation is highly appreciated.**

1. Are there **BENEFITS** (positive impacts) you think will arise from the establishment of the proposed development?

(a) Yes (b) No

If YES, please name them:

1. Clean water for domestic use and farming

2. Are there **ENVIRONMENTAL PROBLEMS** (negative impacts) you think will arise from the establishment of the proposed development?

(a) Yes (b) No

If YES, please name them:

- Land grabbing
- Mosquitoes

3. Suggest ways in which the negative environmental problems identified in 2 above can be addressed

1. Using Mosquito nets
2. Spraying of water

4. Are there SOCIAL RELATED PROBLEMS you think will arise from the establishment of the proposed development?

- (a) Yes (b) No

If YES, please name them:

5 Suggest ways in which the negative social problems identified in 4 above can be addressed

.....

.....

.....

.....

6 In your opinion, should the proposed project be implemented?

(a) Yes (b) No

If NO, please explain:

.....

.....

CONTACT DETAILS

No	NAME	GENDER		PHONE NO.	DATE
		Male	Female		
1.	Joyce W. Wanjira		✓	0728571431	21-24-21
2.	Rachael Wangari		✓	0717143877	"
3.	Ruth Wanjiru		✓	0714370653	"
4.	Wahron Muriuki		✓	0729140736	"
5.	Joseph Charu	✓		0726762574	"
6.	Patrice Kariuki	✓		0720536254	"
7.	Mirika Wambui		✓	0710524077	"
8.	Rahab Wambui		✓	0728707942	"
9.	Lucy Muboro		✓	0728224249	"
10.	George Muriuki	✓		0713111007	"

THANK YOU FOR YOUR COOPERATION.

Appendix 6: Expert practising licenses

FORM 1

UNSTG



NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT
ENVIRONMENTAL IMPACT ASSESSMENT/AUDIT (EIA/EA) PRACTICING LICENSE

License No: NEMA/EA/IRPL/14823
Accreditation Reference No: NEMA/EA/1/14385

M/S. Dr. Peter Kingiri Gakal
(individual or firm) of address
P.O. Box 6871-00200, Nairobi

THIS LICENSE WAS USED TO SUBMIT SPR FOR KINGI DAM REHABILITATION FOR SMALL SCALE IRRIGATION IN NYANDARUA NORTH, NYANDARUA COUNTY

is licensed to practice in the
capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert**
registration number **2147**
in accordance with the provision of the Environmental Management and Coordination Act Cap 387

Issued Date: **6/22/2021** Expiry Date: **12/31/2021**

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





**NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT
ENVIRONMENTAL IMPACT ASSESSMENT/AUDIT (EIA/EA) PRACTICING LICENSE**

License No : NEMA/EIA/EP/15190
Application Reference No: NEMA/EIA/EL/1955

M/S MILLICENT WANJIKU NDIRANGU
(individual or firm) of address
P.O. Box 2189 - 20300 NYAHURURU

**THIS LICENSE WAS USED TO SUBMIT SPR
FOR KINGI DAM REHABILITATION FOR
SMALL SCALE IRRIGATION IN NYANDARUA
NORTH, NYANDARUA COUNTY**

is licensed to practice in the

capacity of a (Lead Expert/Associate Expert/Firm of Experts) Associate Expert
registration number 8955

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

Issued Date: 07/26/2021

Expiry Date: 12/31/2021

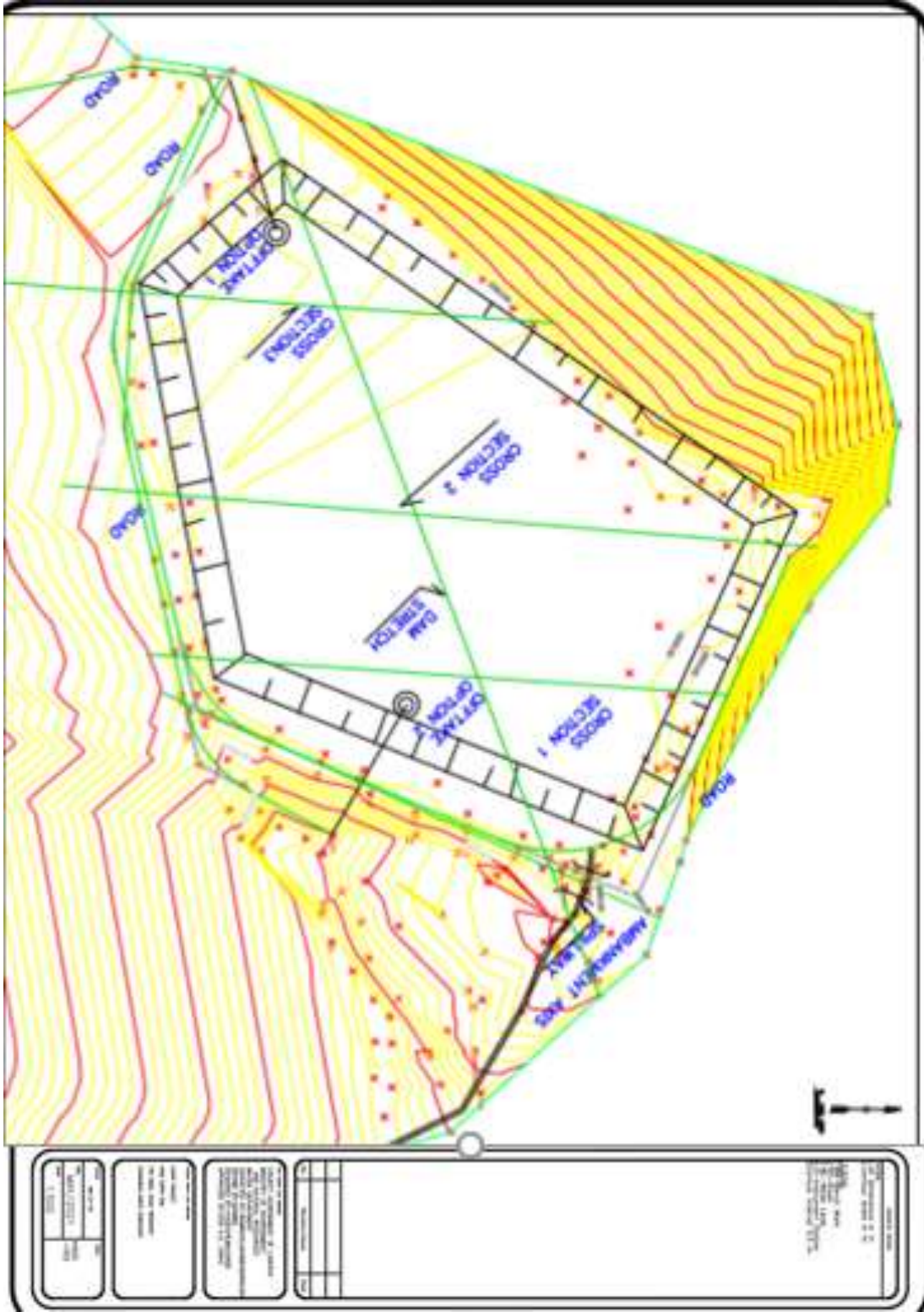
[Handwritten Signature]
Signature.....
(Seal)
Director General
The National Environment Management
Authority



Appendix 7: Kingi Dam SHG Registration Certificate

		THIS CERTIFICATE IS VALID UP TO: 5TH OCT 2021	
Republic of Kenya 			
MINISTRY OF LABOUR AND SOCIAL PROTECTION STATE DEPARTMENT FOR SOCIAL PROTECTION DEPARTMENT OF SOCIAL DEVELOPMENT			
SELF HELP GROUP(SHG) <i>This is to Certify that</i>			
KINGI DAM FOR SMALL SCALE IRRIGATION			
Sub-Location / Ward SHARPE		Group Name / Project KIRITTA	
Sub-County NYANDAKU A NORTH		Location KIRITTA	
Registration No. NTA/MON/SHG/616		Constituency NDARAGWA	
Name GILBERT KIBET		Division NDARAGWA	
County / Sub County Social Development Officer		Date of Registration 5TH OCT 2020	
Date of Issue 5TH OCT 2020		Signature 	
Is registered with the Department of Social Development by:			
			
Note: The Contents of this Certificate should not be erased, altered or defaced in any way.			
			

Appendix 8: Dam Design



Appendix 9: Site Layout Plan

