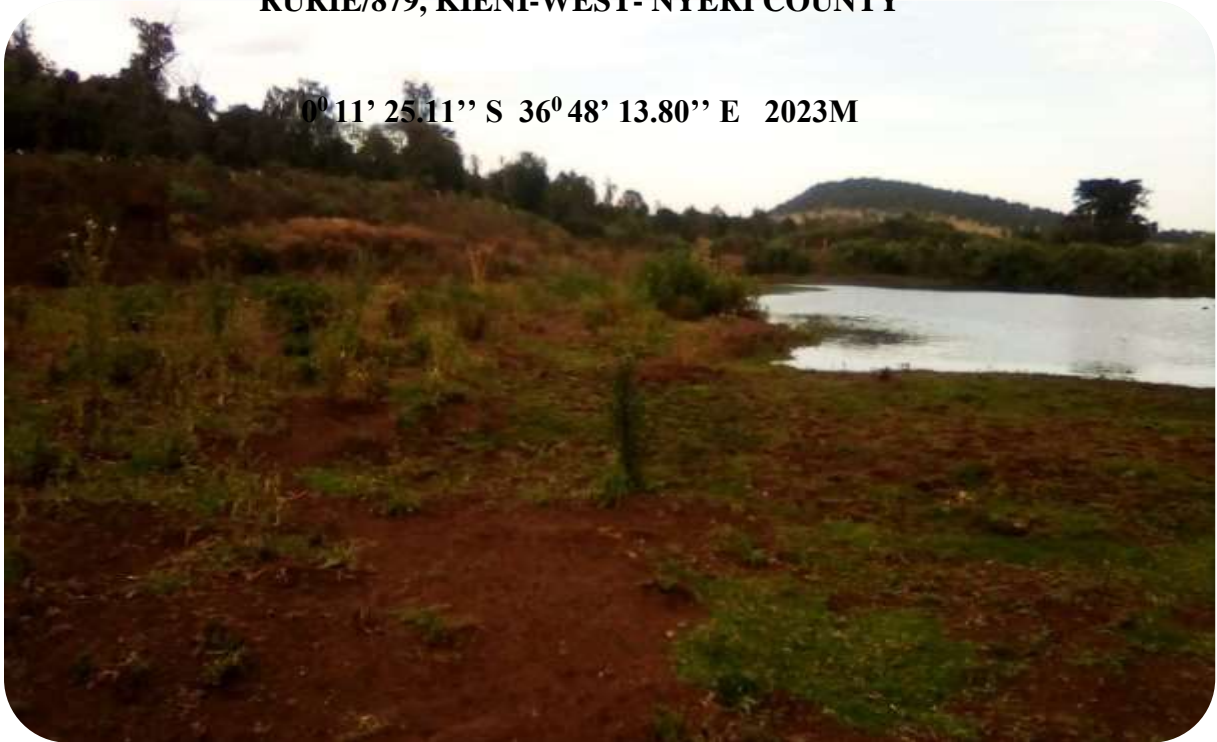



# ENVIRONMENTAL AND SOCIAL IMPACT (ESIA) SUMMARYPROJECT REPORT (SPR)

FOR

THE PROPOSED REHABILITATION OF BIRICHA DAM, ON LR: GATARAKWA/  
RURIE/879, KIENI-WEST- NYERI COUNTY



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<b>Sponsor</b>	<b>GOVERNMENT OF KENYA/COUNTY GOVERNMENT OF KERICHO</b> <b>WITH SUPPORT FROM THE WORLD BANK</b> 

APRIL, 2021

**CERTIFICATION**

This is to certify that this Summary Project Report has been dully compiled; strictly in accordance with the conditions in the Environmental (Impact Assessment and Audit) Regulations, 2015 and 2019 regulations.

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## **ABBREVIATIONS AND ACRONYMS**

DOHSS	Directorate of Occupational Health and Safety Services
EHS	Environment Health and Safety
EIA	Environmental Impact Assessment
EMCA	Environmental Management Coordination Act
EMP	Environmental Management Plan
ERP	Emergency Response Plan
GDP	Gross Domestic Products
GPS	Geographical Positioning System
HA	Hectare
KCSAP	Kenya Climate Smart Project
KM	Kilometer
KPLC	Kenya Power & Lighting Company
LR	Land Reference
NCA	National Construction Authority
NEAPC	National Environment Action Plan Committee
NEC	National Environment Council
NEMA	National Environmental Management Authority
OHS	Occupational Health and Safety
PCC	Public Complaints Committee
PCU	Project Coordination Unit
PPE	Personal Protective Equipment
PV	Permanent Ventilation
RC	Reinforced Concrete
SEM	Sustainable Environmental Management
SERC	Standard and Enforcement Review Committee
SGBV	Sexual and Gender Based Violence
SOPs	Standard Operation procedures
TOR	Terms of Reference
VOC	Volatile organic compounds
WCC	Waste Collection Centre
WRA	Water Resources Authority
WRUA	Water resource Users Association

## EXECUTIVE SUMMARY

This ESIA project report provides an environmental and social impact analysis for the proposed rehabilitation of existing Biricha earth dam. The proposed project will provide water for domestic and irrigation water use. The target community will use water for growing of food crops like onions, maize, among other horticultural food crops. The total acreage of land is 3238 acres; the project intends to spend 30 Million Kenya shillings. The Sub-project is funded by Kenya Climate Smart Agriculture Project (KCSAP). The sub-project is situated in Felicia Valley which is located in Ruirie sub-location, Gatarakwa location, Mugunda ward, Kieni West Sub-county in Nyeri County. The GPS co-ordinates at the site are; **250135.66 m E, 9979573.61 m S**. The site is public land reserved for dam construction, with over 1000 household and equivalent of 2879 persons expected to benefit from the project once complete.

The proposed project when complete will significantly increase agricultural production in the project area and promote community resilience to impacts of climate change. The water will enable the farmers to grow crops and fodder for livestock throughout the year. This will in turn improve the livelihood of the target community.

The major objective of the ESIA study is to evaluate the effects/impacts of proposed development in relation to the general environmental and social aspects i.e. physical, biological, and social-economic environments. It aims at influencing the protection and co-existence of the development with the surroundings as well as the compatibility of the proposed development to the area; to ensure and enhance sustainable environmental management during implementation and operational phases.

The SPR approach and methodology entailed environment screening to identify the required instrument; environmental scoping that provided the key environmental issues. desktop studies to review the existing literature obtain the secondary information on the project area, site assessment to collect relevant primary information, public participation and stakeholder consultation to collect the view/concerns of the beneficiary community and stakeholders, reporting on the findings on the environmental and social impacts ,reviewing the draft SPR by CPCU-POE, submitting the report to NPCU for review and World Bank for clearance before submitting the final project to NEMA for review and decision making.

Main issues/concerns raised during public participation meeting held on 4<sup>th</sup> January 2021.at the proposed project site include issues to do with group governance and fiduciary management, youth disparity in the project involvement and water efficiency during operation, influx of aliens into the project area for search of new jobs and likely with different social behaviours, potential raise of irrigation fee in future, soil erosion, network vandals and conflict due to water accessibility.

The proposed development was noted to have a number of positive impacts to the proponent, the immediate local community, and the general Kenyan society. The benefits include: it will make most economic use of the part of the land. This way, the utility of the land will have been greatly maximized, improving water availability to the community, food availability, job creation, minimize resource-based conflicts (water, livestock, Wildlife and pasture) around the community and initiation of various livelihood diversifications and generation of income, increasing GDP and tax to the government, increased security in the area as more people will be having food sustenance and capacity building of disadvantaged members of the community such as women, youth and VMGs, and opening the area as more business will be spurred up from horticultural



food buyers, creation of market for goods and services and especially construction inputs which include; hardware supplies, raw materials, machinery, tools for construction and labor.

The anticipated negative impacts include: soil erosion especially during excavation/earth works and increased noise and vibration mostly during construction phase, air pollution as a result of dust particles emanating from earthworks and construction activities, exhausts from the involved machinery will lead to increased levels of hazardous gases such as sulphur, carbon and nitrogen oxides, the health and safety of workers and the immediate project and neighbors may be compromised due to accidents, pollution and disturbance, increased waste materials.

The proposed mitigation measures include: careful siting, planning and design of the development; erection of warning / informative signs (ie. bill boards) at the site; soil compaction and watering of loose soils to minimize dust; proper and prompt maintenance of construction machinery and equipment to control emission of hazardous fumes and noise emanating from friction of the rubbing metal parts; undertaking maintenance service at a designated area to reduce chances of contamination of environment by resultant oils and greases. Workers should be provided with full personal protective equipment's (PPE) to beef up their health and safety standards; adaptation of a sound waste management and safety procedures.

The estimated cost of implementing the ESMMP is **Kshs1,300,000**. The ESMMP in this report will be shared with the selected contractor so that he can develop C-ESMMP for implementation.

Considering the proposed mitigation and environmental and social impacts management measures that will be incorporated during construction and operation phases; and the developments' input to the proponent and the general society, the proposed project is considered beneficial and important. Major concerns should nevertheless be focused towards minimizing the occurrence of impacts that would degrade the general environment. This can however be overcome through close follow-up and implementation of the recommended Environmental and Social Management and Monitoring Plan (ESMMP). On the strength of the aforesaid, it is hereby recommended that the project be granted the required approval.

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Background Information**

The farmers within the project area will have sufficient water for domestic and irrigation use. They will use water to irrigate food crops like onions, maize, among other horticultural food crops especially during the dry season. This will increase agricultural production within the project area and in turn improve community livelihood. The total acreage of land is 3238 acres; the project intends to spend 30 Million Kenya shillings. The Sub-project is funded by Kenya Climate Smart Agriculture Project (KCSAP).

### **1.1 Justification of the project**

The proposed projects provide water for domestic and irrigation use and thus improve the livelihood of the community. It will also optimize the use of the land, hence increasing its utility since it is a shallow dam at the moment with 8 acres reserved land for the same by the Biricha Community. The project will open up the area; create more opening for job opportunities. It will create market for goods and services, and especially construction inputs which include hardware materials such as pipes, building stones and blocks, sand, ballast etc and construction machinery. Many secondary businesses are also likely to spring up during the construction phase especially those providing foods and refreshments to the construction workers.

### **1.2 Justification of ESIA SPR**

Pursuant to the prevailing legal requirements as envisaged in the EMCA and to ensure sustainable environmental management, the proponent undertook this ESIA study for the proposed project; and incorporated substantial Social and environmental aspects as advised by PCU, NEMA and the World bank. Moreover, this ESIA SPR was as a result of the recommendation of the County Director of Environment (CDE) based on the screening report and also because NEMA Public Notice on ESIA and Legal Notice No. 31 has identified the proposed project as Low risk, thus requiring SPR.

### **1.3 The SPR Objectives**

The SPR objectives include:

- To analyze the socio-economic and socio-environmental status of the areas during pre and post construction- and thus justify proposed project.
- To conduct a public participation and stakeholders consultation for the proposed project.
- To identify and analyze the potential environmental and social impacts of proposed project during planning, construction, operations and decommissioning phases.
- To propose mitigation measures for the identified environmental and social impacts for the proposed project during planning, construction, operational and maintenance and decommissioning phases.
- To prepare Environmental and Social Management Monitoring Plan (ESMMP) for the planning, construction, operation and maintenance and decommissioning phases.

## **1.4 SPR Approach and Methodology**

### **1.4.1 Environmental and social screening**

This was conducted using Environmental and Social Safeguard (ESS) screening checklist for Sub Projects as provided for in the Environmental and Social Management Framework (ESMF) to determine required ESIA instruments.

### **1.4.2 Environmental and social scoping**

This was conducted to narrow down on the most critical issues during assessment. Environmental issues were categorized into physical, natural/ecological and social, economic and cultural aspects.

### **1.4.3 Desktop study to review the nature of proposed project activities**

This involved documentary review of the nature of the proposed activities as well as the environmental setting of the project among others. Secondary sources of information scanned included project appraisal documents, minutes of participatory identification reports, engineering design report, and policy and legislative framework documents.

### **1.4.4 Public participation/stakeholders consultation**

This was done to gain their input on the proposed project from the beneficiary community and relevant stakeholders as detailed in chapter four.

### **1.4.5 Reporting and review of draft SPR:**

This involved preparation of SPR in compliance to the EIA guidelines, reviewing the first draft by CPCU, KCSAP Kericho County and submitting the first draft report to NPCU, KCSAP for review and onward transmission to the World bank team for review and clearance

### **1.4.5 Submitting the final draft to NEMA for approval**

The final SPR is then submitted to NEMA for review and make an informed decision and issue an approval letter before commencement the project as required by law.

## **1.5 SPR Organization**

This Summary Project Report is organized into nine substantive chapters. Chapter one present the introductory chapter, Chapter 2 gives nature of the project, Chapter 3 gives the location of the project, chapter 4 presents the outcome of the public consultation and participation process, Chapter 5 identifies and discusses the anticipated impacts and mitigation measures of the project , Chapter 6 presents the environmental and social management and monitoring plan (ESMMP), while Chapter 7 wraps with the conclusions and recommendation followed by references and annexes.

## **CHAPTER TWO: NATURE OF THE PROJECT**

### **2.1 Introduction**

This chapter gives details of the project site, proposed works, planned activities and estimated project cost of the proposed of the proposed rehabilitation of Birichi Dam.

### **2.3 Project description**

#### **2.3.1 Population to be served**

The proposed project will serve approximately 1000 households irrigating an average of a  $\frac{1}{4}$  of an acre per household and will benefit both indirectly and directly a population of 5000 people. Further most of the households under the project area are also mixed farmers who keep livestock (cattle, goats and sheep) and therefore domestic animals will also be a major beneficiary to the project.

#### **2.3.2 Present situation**

The area residents are currently served by the Gatarakwa water project a domestic water project which barely meets their domestic demands. The proposed project will therefore complement the project by providing irrigation water that will in turn increase crop yield and possibly additional income for households in the area. The project was initiated by the Biricha Dam Fish and Irrigation project Self Help Group which is a community based organization for the area residents.

#### **2.2.3 Project Objectives**

The major objectives of this irrigation project entail the following: -

- Provision of irrigation water to all project members
- Horticultural production for income generation
- Creation of employment
- Intensification of land use
- Food security

#### **2.2.4 Scope and description**

The Kwa Kungu earth dam was constructed through the initiative of the community in the year 1952 with very few local community house-holds as the host. It had a depth of 4,5M which has gradually reduced to 1M due to siltation. The project will involve rehabilitation of the dam to supply water for domestic and irrigation use with an average of 1.125 acres per family totaling to 3238 acres. In the assumption that the community will irrigate these farms for three months daily ( it ought to be on alternate days), it will translate to 90 days after the end of each rainy season. The water demand will be 546.34M<sup>3</sup>/ day for subsistence irrigation. The supply area is within Ruirie Sub-location.

### **2.2.5 Project description**

- Construction of two masonry concreted water tanks (225m<sup>3</sup> each) downline at approximately 3Km.
- Communal watering point and cattle trough.
- Mini-office for administration and project operations.
- Fencing of site, solar panels and the pump-house

### **2.2.6 Construction Activities and inputs**

#### **2.2.6.1 The project inputs**

##### **(i) Construction raw materials**

These will include sand, cement, building bricks/blocks, hardcore stones, crushed rock (gravel/ballast), steel and wooden fixtures and fittings, steel metals, timber, roofing sheets, painting materials among others. No other synthetic materials such as polythene liners will be used in the project except mesh wire reinforced Gabions and compacted refilling of earth materials. All these will be to the approved standards and shall be obtained locally and from licensed dealers and especially those that have complied with the environmental management guidelines and policies.

##### **(ii) Construction machines including machinery**

Include but not limited to excavators, trucks, concrete mixers, and tools and other relevant construction equipment. These will be used for the transportation of materials, and in the construction of the project. Some of the machinery will use petroleum products to provide propulsion energy. A construction labor force of both skilled and non-skilled workers will require services such as water supply and sanitation facilities. Water for construction purposes will be obtained from the existing earth dam.

#### **2.2.6.2 Construction activities**

Procurement of construction materials will be from approved dealers only. Construction activity will involve activities such as: transportation of construction materials and debris using heavy and light machinery, appropriate storage of the construction materials, Site preparation i.e. site clearing, excavation and filling, laying of foundation, masonry works/building works including roofing, finishes, fixtures and fittings, Appropriate disposal of the resulting debris/ waste materials where all debris and excavated materials shall be dumped on sites approved by NEMA. The electrical, civil, mechanical engineering and sanitary works shall be done by professionals. Upon Completion of the development further certification by the relevant authorities including NCA and Public health for Commissioning and operation/occupation.

### **2.2.7 Project Budget and projected duration**

The proposed development of is estimated to cost **Ksh. 30,989,179.85**. The project will take approximately 12 months to complete; from the day the construction works commences. See attaché summary of Bill of Quantity (Annex 7).

## CHAPTER THREE: THE LOCATION OF THE PROJECT

### 3.1 Introduction

This chapter presents the location of the proposed sub-project area, the physical environment, conformity to land use plan and supportive environmental management infrastructure.

### 3.2 Project Location

The Sub-project is situated in Felicia Valley which is located in Ruirie sub-location, Gatarakwa location, Mugunda ward, Kieni West Sub-county in Nyeri County. The GPS co-ordinates at the site are; **250135.66 m E, 9979573.61 m S**. The dam is approximately 2 Kilometres from the main Nyeri- Nanyuki highway, on the upper side of Ruirii shopping Centre.



**Figure 1:** Earth Google Map showing location of the proposed project

### 3.3 Proof of Land Ownership

The parcel of land where the first tank will be constructed has been given to proponent (Biricha Ruirii Dam Fish Self Help Group) by Samuel Githinji Thiuri;  $\frac{1}{8}$  acre plot L.R No. Gatarakwa/Gatarakwa Block III/453. The second tank will be constructed on a piece of land given by Elua

Maina Kingori; <sup>1</sup> /<sub>8</sub> acre plot L.R. No. Gatarakwa/Gatarakwa Block III/2607. The pipeline will pass through the land owned by the community members who have already signed community land resolution and consent forms. *See attached land ownership documents (Annex 3, 11 and 12).*

### **3.4 Any Environmental Sensitive area to be affected**

The study has extensively looked at the possible environmental sensitive areas that are likely to be affected. Generally, there are no areas that the proposed project is going to affect in the process of its implementation life cycle.

### **3.5 Supportive Environmental Management Infrastructure**

#### **3.5.1 Transportation**

The proposed project is well served with road networks. Nyeri- Nyahururu Highway is nearby. This makes the facility have good accessibility

#### **3.5.2 Communication**

The area is well connected with road networks and is access to Nyeri- Nyahuru Class B5 which is open and tarmacked. Safaricom, and Celtel network and their signals are also available also well received at the proposed site.

#### **3.5.3 Education**

In the area there are several primary and secondary schools including ECD Centers. The Literature level is therefore significantly high where most residents both young and elderly are able to read, write and even speak all the national and official languages. Bellevue, Kimunyu, Mugunda and Gakanga, Mwiyo, Wendani, and Kamariki, are some of the public institutions in vicinity in terms of public schools. School enrolment and literacy level stands at 99.1% and 89.1% respectively, (CIDP 2013-Nyeri).

#### **3.5.4 Energy**

During construction some operations will need power but this will not interfere with the activities of the neighborhood power requirements. The project is scheduled to use solar panels but mobile vehicles will also use fossil fuel in terms of diesel and petrol particularly for transport lorries and trucks.

#### **3.5.6 Healthy Facilities**

The nearest health facilities include; Belleview, Nairutia and Firisha health centres and the Karimeno dispensary in Ruirii township (across the Nyeri-Nyahururu Highway) but still able to serve the project area. However, in case of illness people also mainly seek health services from other neighboring health Centers including; Kamariki, Kiambogo dispensaries and Kiawara Health Centers to the farthest.

### 3.5.7 Water Supply

The project will get water supply from Dam water project. Most physical intervention sub-projects will in one way or another interact with a water resource and hence potential impacts sample of the water resources shows that most surface water sources have high suspended matter content and are expected to also have high levels of organic content and bacterial contamination (the tests were not carried out under this exercise).

### 3.5.8 Biological Resources

#### a) Flora

The assessment of the vegetation on the proposed site entailed the collection of samples, which were identified using general herbarium procedures. The major plant life that was observed to dominate the area are:

- Grasses: (Star grass (*Cynodon sprees*))
- Acacias sp.
- Cactus (*Euphorbia sp*; *Opuntia sp.*),

The presence of acacias and Euphorbia plants therefore indicates that the area is semi-arid.



**Plate 1:** Vegetation cover of the proposed project site

#### b) Fauna

The animals found within the project site include: wild life (Crows, rodents and lizards) and domestic animals (sheep, cattle, and goats)





**Plate 2:** Some of project area domestic animals

### **3.6 Conformity to land use plan or zonation**

There is other water project in the area although it cannot meet water demand for domestic use and irrigation in the sub-project area. Based on that, the proposed project conforms to the land use plan of the area.

## **CHAPTER FOUR: PUBLIC PARTICIPATION AND STAKEHOLDERS' CONSULTATION**

### **4.1 Introduction**

Public participation is an integral part of ESIA in accordance with EMCA, Amendment Act. 2015 It is usually conducted to gauge whether the project in its present design is acceptable by the local community and aid the proponent/contractor to integrate in within the report the concerns and the views of the members of the public who could potentially be affected by the implementation of the project.

### **4.2 Objective of Community Participation and Stakeholders Consultation**

The objectives of public consultations for an SPR exercise in Kenya are to ensure that:

- All stakeholders and interested parties, are fully informed of the proposed project and have the opportunity to raise their concerns;
- Any issues resulting from this process are addressed in the SPR and incorporated into the design and implementation of the project.
- Consultation is done on sensitive issues and that baseline information is established for management of any impacts that may arise during implementation and operation phase of the project.

### **4.3 Stakeholders Identification and Categorization**

Stakeholders' identification and categorization was based on the matters related to the proposed project scope of work, relevance and influence of the stakeholders during the project implementation.

<b>Organization</b>	<b>No. of Representative</b>	<b>Key Concerns Raised</b>
Biricha Cooperative Society Management committee	3	Benefits to the beneficiaries
Biricha Shareholders/ord. Members	4	Boosting of local area economy and food Security
Depart. of Cooperative	1	Group governance and fiduciary management
Depart. of Agriculture	3	Issues of youth disparity in project involvement and water efficiency during operation.
Department of Interior	2	Influx of aliens into the area for search of new jobs, and likely with different (weird) social behaviours. Insecurity, issue of Covid-19 and drug

		abuse among empowered members.
Special (VMGs)	3	Potential to raise irrigation fees in future.
Depart. of Water & Irrigation	2	Soil erosion, network vandals and conflicts due to water in-accessibility.
Depart.of Gender and Social development.	1	Risk of children labor /exploitation during project implementation
<b>Total</b>	<b>18</b>	

#### 4.4 Methodology of Public Participation and Stakeholders Consultation

The data collection involved use of questionnaires and Focused Group Discussion with the target stakeholders. The meeting was held on 4<sup>th</sup> January 2021 where a total of 71 people including all relevant stakeholders (41 women/30men) covering all the project sub-locational areas were consulted during public participation process. Out of these 18 persons (11 men and 7 ladies) were reached through focused group discussions and involved in filling of the questionnaires (annex 4 and 9).

#### 4.5 Summary of Issues Raised During Community and Stakeholders Consultation

##### Key Concerns Raised

- Benefits to the beneficiaries
- Boosting of local area economy and food Security
- Group governance and fiduciary management
- Issues of youth disparity in project involvement and water efficiency during operation.
- Influx of aliens into the area for search of new jobs, and likely with different (weird) social behaviours. Insecurity, issue of Covid-19 and drug abuse among empowered members.
- Potential to raise irrigation fees in future.

The overall conclusion from the interviews and analysis public participation led to determination of the following:

- The proposed project is acceptable to all the respondents.
- The proposed project will benefit the area residents through improving area economy and boosting food security.

All the participants responded positively where everybody approved the implementation but of course with few negative comments such as abolishment of irrigation fees and mitigation of water accessibility to non-members.



**Plate 3:** Public Participation Meeting

## **CHAPTER FIVE: POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES**

### **5.0 Introduction**

This chapter describes and analyzes the most common environmental and social impacts of the dam during construction and operations. It also bears in mind on all other common issues in relation to water projects including irrigated agriculture that have been encountered worldwide but still relevant to the Proposed project and to this section:

The Potential common negative environmental impacts of water dams and irrigation projects include:

- The security of dam and drowning of people, children and animals.
- Water logging and salinization of soils: These problems are associated with surface irrigation and result in soil deterioration. Alkalization (the build-up of sodium in soils) is a detrimental form of salinization that can be reduced or minimized by using sprinkler or drip irrigation which applies water more precisely and can more easily limit quantities to no more than the crop needs; eased incidence of water related diseases associated with proliferation of disease vectors in irrigation waters. Other irrigation-related health risks include those associated with increased use at agrochemicals, deterioration of water quality, and increased population pressure in the area;
- Social disruption is inevitable in irrigation projects covering vast areas. Factors such as changing agricultural practices, increasing population density, resettling of local people and altering the distribution of wealth can have a deep influence on traditional social patterns. Further, diversion and loss of water through irrigation reduces the water supply for downstream users;
- Intensification of agricultural activities due to irrigation results in increased use of biocides (insecticides and pesticides) which end up polluting surface and groundwater;
- Deterioration of water quality below an irrigation project can render the water unfit for other users, harm aquatic species and because of high nutrient content, result in aquatic weed growth that clogs water ways and has health, navigation and ecological consequences.

The individual impacts are presented in a more detailed form in the checklist below and the most relevant of these are discussed in the following section. These impacts could occur during the construction, operation and decommissioning phases of the project.

### **5.1 Construction Phase**

#### **5.1.1 Positive Impacts**

- Creation of employment. This can be enhanced by ensuring the contractor employs locals as the first priority.
- Creation of market for construction materials.
- Generation of government revenue through taxation imposed on construction materials.
- Promote transport sector in the sense that trucks will be hired to transport construction materials to the site.

- Promote petroleum sector because the vehicles and other machinery that will be used during construction will be fueled.

### **5.1.1 Negative Impacts**

#### **a) Impacts on soil resources**

Excavation works can cause soil erosion by increasing runoff and concentrating the surface water. Soil that is washed away in this manner will affect nearby water courses causing an increase in turbidity and siltation. Soil erosion could also lead to an increase in soil nutrient levels in water courses. Vehicles involved in construction work when driven over soil surfaces will compact it, destroying the soil structure and subsequently increase its bulk density. Such soils are hard to till.

#### **Mitigation measures**

- During construction, earthworks should be controlled so that land that is not required for the works is not disturbed;
- Where possible, excavation should be carried out during the dry spell to prevent soil from being washed away by the rain;
- Excavated materials and excess earth should be kept at appropriate sites approved by the construction supervisor,
- Areas that are cleared for excavation should be planted with grass once the pipeline is laid

#### **b) Exhaust and noise emissions**

Reduction in the quality of air during the construction phase is anticipated and could affect public health. In addition, excavation work to lay irrigation pipelines will cause noise, dust and odor nuisance to residents of the area.

#### **Mitigation measures**

- Properly maintain construction equipment's and trucks in order to keep noise and exhaust emissions to a minimum;
- Control dust emissions and odors by sprinkling water and by good housekeeping practice;
- Workers subject to unacceptable noise levels will wear earplugs and their working time within these areas should be limited

#### **c) Construction waste**

Construction equipment generates waste oil and its proper handling is critical since haphazard storage and leakage can result in contamination of soils, surface and ground waters. Although, pollution of water and soils by oil-based pollutants during construction works could cause health problems for the population, this risk is considered insignificant in the proposed works since mainly labour-intensive methods will be used for excavation.

#### **Mitigation measures**

- Waste management should comply with EMCA (Waste Management) regulations;
- The construction supervisor will be required to include environmental considerations in monthly progress reports and indicate progress in the implementation of mitigation measures as outlined in the EMP;

- Designated garbage storage areas should be provided during construction and the contractor should be responsible for handling and disposal of all construction and related waste;
- Waste disposal by burning should not be permitted and signage should be erected to ensure that the workers are sensitized to the waste disposal and handling issues on site;
- Recycling is the most desirable option for ‘disposal’ of any waste materials resulting from the construction. The contractor should, as much as possible put to good and acceptable use any materials damaged or rejected for use on site

#### **d) Biodiversity loss**

Whereas some vegetation will be cleared along the pipeline route, this removal is considered insignificant since the area is already arable. There are no nature conservation interests in the project area therefore no significant impact is expected on flora and fauna.

##### **Mitigation measures**

- Except to the extent necessary for carrying out the construction works, vegetation should not be removed, damaged or disturbed;
- Existing cleared or disturbed areas should be used for construction of temporary structures and stockpiling of materials.
- Construction staff should be encouraged to trim trees rather than remove them;
- Planting of vegetation should be undertaken after the pipes are covered with soil.
- Avoid felling indigenous trees

#### **e) Occupational health and safety**

Anticipated health and safety risks will include; fire, inhalation of fumes, physical injury from workplace accidents.

##### **Mitigation measures**

- In order to prevent work-related accidents, there should be strict compliance with labor laws and health and safety committee rules;
- Hazardous areas should be secured and all workers should be provided with personal protective equipment;
- All workers should be trained in fire response and basic first aid procedures

#### **f) Public Health Issues**

Expected movement of construction workers could cause changes in exposure of the resident population to Covid -19, HIV/AIDS and other STIs. Despite the awareness level of HIV/AIDS in the constituency being high at 95% and intervention by the Government on Covid disease through Vaccination and the restriction Protocols, the consultative process revealed that there would be increased cases of these diseases during the construction and even the operation phases.

##### **Mitigation measures**

- The management committee should support implementation of HIV/AIDS prevention programs within the project area in collaboration with other stakeholders;
  - Include HIV/AIDS awareness and control campaigns in the project for construction workers
- 5.2 Operation and Maintenance Phase

### 5.2.1 Positive Impacts

- Provision of water for domestic and irrigation use
- Creation of job opportunities.
- Increased crop and fodder production.
- Decreased crime rates in the area
- Increased human health due to proper diet.

### 5.2.2 Negative Impacts

#### a) Reduced flow

Abstraction of water from the Biricha dam will increase the risk of reduced water flow for downstream users. Reduced access to water by such users could result in conflicts.

#### Mitigation measures

- Conduct training on water saving technology to ensure efficient water use;
- Install water meters at household level.
- Abstract only authorized quantity of water and abide by any other conditions set by WRA;
- Participate in the activities of Karuthingitu WRUA to ensure successful river water management, apportionment and environmental protection;
- WRUA should solve problems promptly;
- Use irrigation to grow water efficient crops;
- Strictly enforce the Water Act for the benefit of all stakeholders

#### b) Soil erosion

Intensive agriculture as a result of irrigation will cause soil erosion if preventive measures are not put in place. In addition, sprinkler irrigation on steep slopes might generate erosion. It is necessary that slopes be stabilized with Napier grass planted along contours before irrigation is undertaken.

#### Mitigation measures

- Minimize and plainly define land clearing areas;
- Construct gabion and plant vegetation cover to conserve the river banks
- Avoid to clearing vegetation along Karuthingitu River;
- Avoid steep slopes and level the land/terrace the slopes as much as possible;
- Protect the soil against erosion by good farm management practices such as agroforestry and contour farming;
- Public awareness programs should be conducted during project implementation to ensure that members, WRUA and project management understand and take up their role in catchments' management;
- Train farmers in soil and water management to avoid land degradation

#### c) Increased use of agricultural inputs

The key environmental issue during operation will be the increased use of agricultural biocides (insecticides, herbicides, fungicides etc) and fertilizers due to expected intensification of agricultural activities in the project area. Production of horticultural crops will demand increased use of biocides many of which are toxic and can have a long-term effect in soils.



### Mitigation measures

- Integrated Pest Management Practices incorporating crop management control techniques, biological control and restricted use of biocides are recommended in order to lessen the adverse effects of biocide use;
- The project management in collaboration with stakeholders such as Ministry of Agriculture and PCPB should train farmers on adequate amounts of fertilizers and biocides to be used for various crops and on safe use of these chemicals;
- Sprinkler method of irrigation is efficient for application of water and should be used effectively to alleviate the effects of agricultural biocides

#### d) Aquatic weed growth

There is a potential risk regarding the growth of aquatic weeds at the intake site. Such weeds will cause obstruction and increase standing waters and disease vector breeding sites at the intake works.

### Mitigation measures

- Manual removal of weeds at the intake every season.

#### e) Waste generation

Wastes likely to be generated from the activities of the Project are summarized below. Waste production during the operation.

Type of waste	Source
Food waste, Domestic wash Water	Homesteads
Sanitation waste	Homesteads
Crop left-overs	Farms, grading sheds
Empty chemical and fertilizer Containers	Farms

Waste generated during operation can be classified as follows:

- Drainage water from the cultivated areas resulting from water over-application;
- Drainage water from cleaning of sprayers and other chemical application equipment;
- Dry solid waste (e.g. empty packing materials).

Impacts of poor waste management on the site include the following:

- Contamination of air, soils, surface and ground water;
- Vermin infestation and disease risk;

### Mitigation measures

- Waste disposal from the project should comply with existing waste management practice that is acceptable under EMCA;
- Conduct periodic training for members on safe disposal of wastes

## **f) Public Health Issues**

Improved economic conditions as a result of irrigation will cause changes in exposure of the resident population to HIV/AIDS and other STIs. The consultative process revealed that there would be increased cases of these diseases. Another major risk is the increase in waterborne diseases such as diarrhea associated with poor sanitation conditions and quality of water since most of the farmers will use it for domestic purposes.

Other health and safety risks will include Inhalation of fumes and handling of hazardous agricultural chemicals.

### **Mitigation measures**

- Put in place information, education and communication programs about safe uses of and treatment of water at household level through simple methods such as boiling drinking water.
- Support implementation of HIV/AIDS prevention programs within the project area in collaboration with other stakeholders by including HIV/AIDS awareness and control campaigns in the project.
- Health and safety risks should be minimized by conducting farmers training on the safe and effective use and storage of chemicals and basic first aid procedures;
- Farmer training on the safe and effective use of agro-chemicals and basic first aid procedures;
- Maintain Material Safety Data Sheets (MSDS) from manufacturers of agro-chemicals;
- Store chemicals as recommended in the MSDS

## **5.3 Decommissioning Phase**

### **5.3.1 Negative Impacts**

#### **a) Soil erosion**

Excavation works can cause soil erosion by increasing runoff and concentrating the surface water. Vehicles and machinery involved in decommissioning work when driven over soil surfaces will compact it, destroying the soil structure and subsequently increase its bulk density. Such soils are hard to till.

### **Mitigation measures**

- Plant grass and other native vegetation along soil filled trenches;
- Maintain soil conservation works until the site stabilizes.

#### **b) Loss of livelihood due to closure of irrigation activities**

It's expected that there will be loss of livelihood due to decommissioning of the project because the farmers will be depending on water for domestic and irrigation use.

### **Mitigation measures**

- Propose alternative livelihood activities

### **c) Change of Visual**

The decommissioning work will involve clearing of vegetation to excavate pipes and demolition of intakes and tanks and this will have visual impact.

### **Mitigation measures**

- Carry-out landscaping works to rehabilitate the open trenches;

### **d) Generation of waste material**

The decommissioning phase will entail demolition of structure and removal of pipes and other assorted materials which could be waste.

### **Mitigation measures**

- Waste should be carted away and disposed off in a manner that is acceptable under EMCA;
- Donate re-usable materials.

### **e) Risk of accidents**

Excavated areas of the project if left open may be a risk to the public and therefore the decommissioning contractor should be very careful.

### **Mitigation measures**

- Secure all unsafe and potentially dangerous areas.

## CHAPTER SIX: ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESMMP)

**Table 1:** Environmental and Social Management and Monitoring Plan (ESMMP)

Phase	Environmental and Social Impacts	Proposed Mitigation Measures	Monitoring Indicators	Responsibility	Means of Verification	Timeframe	Estimated Cost (Kshs.)
<b>Construction Phase</b>	i) Impacts on soil resources	<ul style="list-style-type: none"> <li>✓ Earthworks should be controlled so that land that is not required for the works is not disturbed.</li> <li>✓ Where possible, excavation should be carried out during the dry spell away by the rain;</li> <li>✓ Excavated materials and excess earth should be kept at appropriate sites approved by the construction supervisor;</li> <li>✓ Areas that are cleared for excavation should be planted with grass</li> </ul>	<p>Presence of controlled earth works</p> <p>Excavation undertaken during dry spell</p> <p>Presence of excavated materials site</p> <p>Presence of planted grass on affected areas</p>	Contractor Proponent	Photos	Construction period	50,000
	ii) Exhaust and noise emissions	<ul style="list-style-type: none"> <li>✓ Properly maintain construction equipment.</li> <li>✓ Control dust emissions and odors by</li> </ul>	<p>Presence of properly maintained equipment</p>	Contractor Proponent	Photos Purchase orders	construction period	100,000

		<p>sprinkling water and by good housekeeping practice;</p> <p>✓ Workers subject to unacceptable noise levels will wear earplugs and their working time within these areas should be limited.</p>	<p>Presence of dust controlled surfaces</p> <p>No. of workers using earplugs</p>				
iii) Construction Waste	<p>✓ Waste management should comply with EMCA (Waste Management) regulations;</p> <p>✓ Include environmental considerations in monthly report.</p> <p>✓ Designated garbage storage areas should be provided</p> <p>✓ Waste disposal by burning should not be permitted and workers sensitized.</p> <p>✓ Recycling is the most desirable option for 'disposal' of any waste materials.</p>	<p>Presence of designated garbage storage area</p>	<p>Proponent Contractor</p>	<p>Photos Reports Purchase orders</p>	<p>Construction period</p>	<p>120,000</p>	
iv) Biodiversity loss	<p>✓ Except to the extent necessary for carrying out the construction works, vegetation</p>	<p>No. of trees planted</p>	<p>Contractor Proponent</p>	<p>Photos Purchase orders</p>	<p>Construction Period</p>	<p>50,000</p>	

		<p>should not be removed, damaged or disturbed;</p> <ul style="list-style-type: none"> <li>✓ Existing cleared or disturbed areas should be used for construction of temporary structures and stockpiling of materials;</li> <li>✓ Construction staff should be encouraged to trim trees rather than remove them;</li> <li>✓ Planting of vegetation should be undertaken after the pipes are covered with soil.</li> <li>✓ Avoid felling indigenous trees.</li> </ul>					
	v) Occupational health and safety	<ul style="list-style-type: none"> <li>✓ strict compliance with labor laws and health and safety committee rules;</li> <li>✓ Hazardous areas should be secured and all workers should be provided with PPEs.</li> <li>✓ All workers should be trained in fire response and basic first aid procedures</li> </ul>	<p>Presence of secured areas</p> <p>No. of staff trained on first area</p>	<p>Contractor</p> <p>Proponent</p>	<p>Photos</p> <p>Purchase orders</p> <p>Training reports</p>	<p>Construction</p>	<p>70,000</p>
	vi) Public health	<ul style="list-style-type: none"> <li>✓ Support implementation of HIV/AIDS prevention programs within the</li> </ul>	<p>No. of awareness and control campaigns</p>	<p>Contractor</p> <p>Proponent</p>	<p>Photos</p> <p>Records</p>	<p>Construction period</p>	<p>90,000</p>

		<p>project area</p> <ul style="list-style-type: none"> <li>✓ Include HIV/AIDS awareness and control campaigns in the project</li> </ul>	conducted				
<b>Operational and Maintenance Phase</b>	i) Reduced flow in Karuthingitu River	<ul style="list-style-type: none"> <li>✓ Conduct training on water saving technology</li> <li>✓ Install water meters.</li> <li>✓ Abstract only authorized quantity of water and abide by any other conditions set by WRA;</li> <li>✓ Participate in the activities of Karuthingitu WRUA to ensure successful river water management, apportionment and environmental protection;</li> <li>✓ WRUA should solve problems promptly;</li> <li>✓ Use irrigation to grow water efficient crops;</li> <li>✓ Strictly enforce the Water Act</li> </ul>	<p>No. of training conducted</p> <p>No. of master meters installed</p>	Management committee	<p>Photos</p> <p>Purchase orders</p>	Operational and maintenance period	150,000
	ii) Soil erosion	<ul style="list-style-type: none"> <li>✓ Minimize and plainly define land clearing areas;</li> <li>✓ Construct gabion and plant vegetation cover to conserve the river banks</li> <li>✓ Avoid clearing vegetation along Karuthingitu River;</li> </ul>	No. of trainings conducted	Management committee	<p>Photos</p> <p>Training reports</p>	Operational and Maintenance period	200,000

		<ul style="list-style-type: none"> <li>✓ Avoid steep slopes and level the land/terrace the slopes as much as possible;</li> <li>✓ Protect the soil against erosion by good farm management practices</li> <li>✓ Public awareness programs should be conducted</li> <li>✓ Train farmers on soil and water management to avoid land</li> <li>✓ Degradation</li> </ul>					
	iii) Public health and safety	<ul style="list-style-type: none"> <li>✓ Put in place information, education and communication programs about safe uses of and treatment of water.</li> <li>✓ Support implementation of HIV/AIDS prevention programs</li> <li>✓ Health and safety risks should be minimized</li> <li>✓ Maintain Material Safety Data Sheets(MSDS)</li> <li>✓ Store chemicals as recommended in the MSDS</li> <li>✓ Adhering to Covid-19</li> </ul>	No. of training conducted	Management committee	Photos Reports	Operational and maintenance phase	100,000



		protocols					
	iv) Gender Issue	<ul style="list-style-type: none"> <li>✓ Awareness creation to improve women access and control of resources</li> <li>✓ Grievance resolution mechanisms (GRM) should be instituted and adhered to including; provision of sanitizers and PPEs</li> </ul>	<p>No. of awareness meetings</p> <p>Presence of GRM</p>	Management committee	Training reports	Operational and maintenance period	100,000
	v) Capacity building for project sustainability	<ul style="list-style-type: none"> <li>✓ Community Empowerment and capacity Building on group dynamics, proper farming mechanism, irrigation water management and environmental conservation for the project.</li> </ul>	No. community empowerment trainings	Management Committee	Training report	Operational and Maintenance period	50,000
<b>Decommissioning Phase</b>	i) Loss of Livelihood.	<ul style="list-style-type: none"> <li>✓ Propose alternative livelihood activities</li> </ul>	No. of livelihood alternative adopted	Management committee	Photos Reports	Decommissioning period	50,000
	ii) Soil erosion	<ul style="list-style-type: none"> <li>✓ Plant grass and other native vegetation along soil filled trenches;</li> <li>✓ Maintain soil conservation works until the site stabilizes.</li> </ul>	No. of trees and other vegetation planted	Management committee	Photos Purchase orders	Decommissioning period	70,000
	iii) Visual Impacts	<ul style="list-style-type: none"> <li>✓ Carry-out landscaping works to rehabilitate the open trenches;</li> </ul>	Presence of landscape area	Management committee	Photos	Decommissioning period	100,000

	iv) Generation of waste materials	<ul style="list-style-type: none"> <li>✓Waste should be carted away and disposed off in a manner that is acceptable under EMCA;</li> <li>✓Donate re-usable materials</li> </ul>	Presence of proper waste management	Management committee	Photos	Decommissioning period	100,000
	v) Risk of accidents	✓Secure all unsafe and potentially dangerous areas	Presence of secured risky places	Management committee	Photos	Decommissioning period	50,000
	<b>TOTAL</b>						<b>1,300,000</b>

## **CHAPTER SEVEN: RECOMMENDATIONS AND CONCLUSION**

### **7.0 Recommendations**

In ensuring proper mitigation measures are instituted the proponent and contractor will need to ensure the following:

- They are involved in every stage of the project implementation and particularly on the management of the anticipated wastes and emissions into the environment as well as other concerns that may touch on the neighboring residents,
- That environmental management issues are considered during annual budgets for sustainability,
- That the entire project implementation will not cause any unnecessary disruption to public utilities, storm water/surface runoff drainage systems, ecological systems and human settlement. Whenever any of these problems or any other impact highlighted in this report are anticipated, then the management should take appropriate mitigation actions.
- Take all necessary technological considerations that will prevent wastes/effluent and emissions into the receiving environment. In this regard, the management should be expected to constantly consult with an environmental expert.
- Ensure that the contractor installs the systems to the specifications developed and agreed upon in the building plan.

### **7.1 Conclusion**

In conclusion the project will enhance agricultural production in the target area. Likewise, employment creation in agriculture and related sectors will be a major benefit to families since this will boost incomes of participating households.

This SPR presents the findings of the assessment which include an Environmental and Social Management Monitoring Plan (ESMP) and fulfills the requirements of EMCA. The policy, legal and institutional framework described in this report relates to the water and irrigation sector in Kenya. Overall, no adverse environmental impacts are foreseen that cannot be mitigated. Provided implementation is done with due attention to the mitigation and management measures outlined, the proposed project will have a positive impact on both the bio-physical and socio-economic environment of the project area. It is, therefore, recommended that the SPR license for the proposed project be issued.

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ANNEXES

Annex 1: Group certificate of registration

**KENYA VISION 2030**  Certificate No. **3859550**   
Republic of Kenya

**MINISTRY OF LABOUR AND SOCIAL PROTECTION**  
**DEPARTMENT OF SOCIAL DEVELOPMENT**  
**Certificate of Registration of Self-help Group/Project**

*This is to Certify that*

BIRICHA RUIRUI DAM FISH SELF HELP GROUP P.O. BOX 251 MUGUNDA  
Group Name \ Project

<u>K.W./S.H.G./5454/2019</u> Registration No.	<u>5th Nov. 2019</u> Date of Registration
<u>KABENLERA</u> Sub-location/Ward	<u>KIENI</u> Constituency
<u>GATARAKWA</u> Location	<u>KIENI WEST</u> Sub County
<u>GATARAKWA</u> Division	<u>MYERI</u> County

is registered with the Department of Social Development Office

Name GAMALIEL G. MUTIRIA Signature  5 NOV 2019  
County Coordinator/ Sub County Social Development Officer

5th Nov. 2019  
Date of Issue

Note: The Contents of this Certificate should not be erased, altered or defaced in any way.



Annex 2: Copy of the letter on land registration by local area chief



**THE PRESIDENCY**

**MINISTRY OF INTERIOR AND CO-ORDINATION OF NATIONAL GOVERNMENT**

Telegrams: "DISTRUTOR", .....  
Telephone: .....  
E-mail: .....  
When replying please quote  
Ref. No. ....  
and date

**OFFICE OF THE CHIEF**  
*ASST*  
*KABENDERA SUB*  
LOCATION  
P.O. Box *182*  
*NINEIGA*  
*12-01-2021*

*TO WAONI ITNAT CONCERN*

RE: BIRICHA DAM - FISH AND IRRIGATION PROJECT

This is to confirm that the above named Dam is situated at Biricha one Village in Kabendera sublocation in Katarakwa Location Kiim West Sub county.

The dam is purely a public project and which is under the management of Biricha Dam and Fish/Irrigation Self help group and who are currently in the process of processing the legal documents to be able to supply their village with piped irrigation water and also start rearing fish in the dam.

This office requests for assistance to them to be able to access the same.

**JOHN W. NDEGWA**  
ASSISTANT CHIEF  
KABENDERA SUB-LOCATION  
Date: *12-01-2021*

**Annex 3:** Land use consent and authorization by the donor community (Gatarakwa Farmers' Society Ltd)

**GATARAKWA FARMERS COMPANY LTD.**  
P.O. BOX 378  
NYERI

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16<sup>th</sup> July 2003

The District Water Officer  
P.O. Box 475  
**NYERI**

Dear Sir,

**GATARAKWA/GATARAKWA BLOCK III/879**

We M/s Gatarakwa Farmers Company Ltd., has offered Birisha/Ruirii Dam Project the reserved 8 acres for the purpose of serving the people of this area which is about 500 families and livestock for domestic use.

Please accept this letter as the authority.

**E.N. GICHERU**   
**CHAIRMAN GATARAKWA FARMERS COMPANY LTD.**

C.C. The District Land Register Nyeri  
The District Officer Kieni West  
Chief Gataragwa  
Chief Mugunda



**Annex 4: Copy of the minutes of AGM meeting supporting project and ESIA activities**

BIRIETA DAM FISH & IRRIGATION PROJECT MEETING  
ON 9/12/2020 AT DAM AREA AT 10.10 AM

- PRESENT:
1. CHAIRPERSON - BENARD MATTHEGE
  2. SECRETARY - JANET KIBUTTU
  3. TREASURER - MIKA WANJIRU
  4. (OTHER MEMBERS AS ATTACHED CLEAR) (leaf)
  5. ASST/CHIEF : JOHN NDERWA
  6. M.C.A MUGUNDA WARD :

AGENDAS:

1. PRAYERS
2. CHAIRMAN opening Remarks
3. KESAP Report
4. Opening Bank Account.
5. A.O.B.

MINUTE I / 9/12/2020 Opening prayers were conducted by  
Mrs Janet Wanjiru at around 10.32 am.

MINUTE II / 9/12/2020 The Chairperson welcomed members  
into the meeting. He introduced the committee  
member to who were co-ordinating the Dam  
Project to Asst Chief, near. And New members.  
He also briefed on the Kesap project and  
the Documents, monies and other requirements.

MINUTE III / 9/12/2020 The committee Sec Read the Kesap  
Report to Member. The Report highlighted on the Kesap  
Requirement which included;

1. Survey Report.
2. WRMA permit.
3. NEMA EIA permit.
4. B\*Q for the project.

The Chair believed members to contribute and  
Register. It was discussed and agreed Members should

MINUTE 14/12/2020 On matters of a bank account;  
The Committee members and Members Agreed  
to open a bank account for the Group  
with Taiffa Sacco at Kiawara as it is the  
Nearest branch to the project. It was agreed  
Chairperson, treasurer and Secretary will be the signatories

MINUTE 19/12/2020: A.O.B.

without no other business the meeting was  
closed by a word of prayer by Mr  
Robert Ndegwa. as at 1.30 pm.

SIGNATURE.

SEC: JONAH KIBUKI Shaitani

CHAIRPERSON: BENARD MATHENGE

**Annex 5: Screening Checklist**

**ANNEX 6: Checklist for Safeguards**

**Screening Checklist**

**KENYA CLIMATE SMART AGRICULTURE SCREENING CHECKLIST FOR ALL SUB-PROJECTS CARRIED OUT IN A SPECIFIC LOCATION** (Filled and prepared by county level staff and community committee member and approved by the County Director of Environment (CDE) and NPCU environmental and social experts)

Project investment name

BIRSHA DAM FISH AND IRRIGATION PROJECT

County and location:

HYERI - GATAPAKWA LOCATION - KIEHI-WEST SUB COUNTY

Estimated cost (USD): Ksh 31,000,000

Objectives of the

subproject: - Increase agricultural production.  
- Mitigate the effects of climate change risks.  
- Reduce emission of greenhouse gases  
- Create employment and improve the livelihood of the community.

Activities to be

undertaken: - Construction of two masonry water tanks each 225m<sup>3</sup>.  
- Installation of solar water pumps.  
- Installation of main line, sub main and infield pipes (distribution).

Will the Project?	Yes	No
1. Adversely affect natural habitats nearby, including forests, rivers or wetlands?		✓
2. Require large volumes of construction materials (e.g. gravel, stone, water, timber, firewood)?		✓
3. Use water during or after construction, which will reduce the local availability of groundwater and surface water?		✓
4. Affect the quantity or quality of surface waters (e.g. rivers, streams, wetlands), or groundwater (e.g. wells, reservoirs)?		✓
5. Be located within or nearby environmentally sensitive areas (e.g. intact natural forests, mangroves, wetlands) or threatened species?		✓
6. Lead to soil degradation, soil erosion in the area?		✓
7. Create waste that could adversely affect local soils, vegetation, rivers and streams or groundwater?		✓
8. Create pools of water that provide breeding grounds for disease vectors (for example malaria or bilharzia)?		✓
9. Involve significant excavations, demolition, and movement of earth, flooding, or other environmental changes?		✓
10. Affect historically-important or culturally-important site nearby?		✓

11. Require land for its development, and therefore displace individuals, families or businesses from land that is currently occupied, or restrict people's access to crops, pasture, fisheries, forests or cultural resources, whether on a permanent or temporary basis?		✓
12. Result in human health or safety risks during construction or later?		✓
13. Involve inward migration of people from outside the area for use of services or other purposes?		✓
14. Result in conflict or disputes among communities?		✓
15. Affect indigenous people, or be located in an area occupied by indigenous people?		✓
16. Be located in or near an area where there is an important historical, archaeological or cultural heritage site?		✓
17. Result in a significant change/loss in livelihood of individuals?		✓
18. Adversely affect the livelihoods and /or the rights of women?		✓
19. May cause increased settlement or degradation of surrounding areas?		✓
20. Disposal of bush clearance residue may cause spreading of invasive species?		✓
21. Introduce a non-native animal or plant species?		✓
22. Involve handling of vet drugs and vaccines?		✓
23. Maintenance and management responsibilities have not been defined and accepted by concerned parties?		✓
24. Has not extensively consulted and included VMGs/IPs in the selection, planning and project benefits?		✓
25. Has not received wide community agreement on project including by VMGs/IPs?		✓

If you have answered Yes to any of the above, please describe the measures that the project will take to avoid or mitigate environmental and social impacts

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What measures will the project take to ensure that it is technically and financially sustainable and well co-ordinated with other interventions in the area?

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*If the answer to any of the questions is "Yes", please use the indicated Annexes or sections(s) of the ESMF, RPF and VMGF for guidance on how to avoid or minimize typical impacts and risks.*

*Expert Advice*

*Completed by County Project Implementation officer*

Name: \_\_\_\_\_ Position /  
Community: \_\_\_\_\_ Signature: \_\_\_\_\_  
Date: \_\_\_\_\_ Tel \_\_\_\_\_  
contact: \_\_\_\_\_

Approved by Community committee chair

Name: BEHARD MATHENGU Position CHAIRPERSON  
Signature: \_\_\_\_\_ Date 18/06/2020

CHAIRPERSON  
BIRISHA DAM FISH  
& IRRIGATION  
TEL: 0700 - 704 832

contact: 0734 395 682 / 0700 704 832

Checked and approved by:

Field Appraisal Officer (CDE)(NEMA)

Name: Yvonne M Signature: \_\_\_\_\_

CHIEF OFFICER  
DEPARTMENT OF COUNTY  
PUBLIC SERVICE  
MANAGEMENT, ENVIRONMENT  
& SANITATION  
Tel \_\_\_\_\_

Stamp

Date: 23/7/2020

contact: 0780633286

**Action plan (completed by Field Appraisal Officer) NEMA**

Which course of action do you recommend?

ESIA  EIA  ESMP  RAP (RPF is the reference document with reference to resettlement issues)  VMGP  Other environmental/social plans

There are no/negligible environmental or social risks

If a RAP is required, will the project displace or restrict access for less than 200 individuals, or if over 200, are losses for all individuals less than 10% of their assets?

If yes, prepare an abbreviated RAP

If no, prepare a full RAP

Full details of resettlement requirements are provided in the accompanying Resettlement Policy Framework.

Checked and approved by:

NPCU Environmental Officer Name: \_\_\_\_\_ Signature:/Stamp  
Date \_\_\_\_\_

NPCU Social Officer: \_\_\_\_\_ Signature/stamp:  
Date \_\_\_\_\_

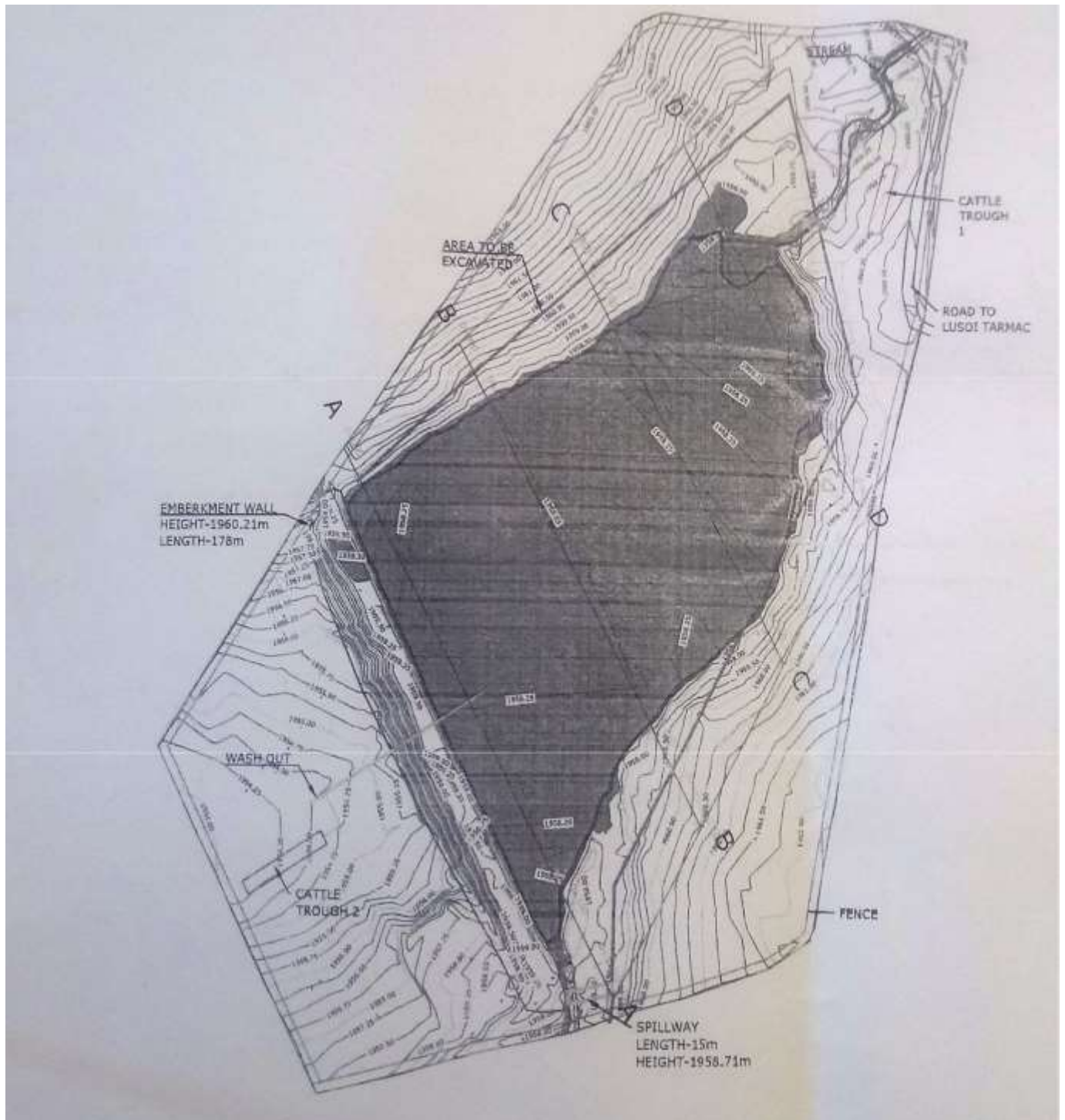
Annex 6: CPP Meeting attendance list

	NAME	ID NO.	MOBILE	SIGN
1	BENJAMIN MATEMBA	21733476	0700704532	<i>[Signature]</i>
2	JOSEPH NDIANGUI	21772663	0741364755	<i>[Signature]</i>
3	JOHN WANJAU	4348254	0711002174	<i>[Signature]</i>
4	ELIAS MAINA	0582406	07045270138	<i>[Signature]</i>
5	FRANCIS GITONGA	2518008	0700789242	<i>[Signature]</i>
6	PETER GITANI	1219601	0726089627	<i>[Signature]</i>
7	ZACHARY GITONGA		0720696773	<i>[Signature]</i>
8	MILWA WANJAU	24698526	071938404	<i>[Signature]</i>
9	SAMUEL KINWANGI G.	7037561	0712535410	<i>[Signature]</i>
10	PETER KARUKI GATHONGO	10708328	0716512958	<i>[Signature]</i>
11	JULIUS MURIEL WARI	9143625	0714919409	<i>[Signature]</i>
12	JONAH KIBUTHI	13452627	0770914291	<i>[Signature]</i>
13	JAMES GITONGA NANGA	2334312	0706529716	<i>[Signature]</i>
14	ANTONY MAINA MUCHOI	1102211	071652974	<i>[Signature]</i>
15	JAAKI WAIRIMA	11516442	0713144864	<i>[Signature]</i>
16	SIMON RUKUMI	9455241		<i>[Signature]</i>
17	SAMUEL MUCHOI	13452729	0717520546	<i>[Signature]</i>
18	MOSES GITANI TITU	11074907	0723615145	<i>[Signature]</i>
19	WALTER GITONGA	9312163	0721953919	<i>[Signature]</i>
20	SAMUEL KINWANGI NDIRITU	1121970	0734844933	<i>[Signature]</i>
21	JAMES KARUKI KAREMA	13884302	0711631393	<i>[Signature]</i>
22	HERBION KUMU	23301108	0700673448	<i>[Signature]</i>
23	JOHN NJUGUNA	11318900	0712855285	<i>[Signature]</i>
24	JAMES NDIRITU MURITHI	29245899	0737975806	<i>[Signature]</i>
25	PAUL THUITA	13527510	0720411839	<i>[Signature]</i>
26	PETER MURORO	10502451	0720241454	<i>[Signature]</i>
27	JOSEPH NDINGU WANJAU	26282997	0790825136	<i>[Signature]</i>
28	PAUL WAGWAGU KIRAGU		0721211784	<i>[Signature]</i>
29	FLORA KEMBY	32197271	0795231842	<i>[Signature]</i>
30	GRACE WAMUCHI WAIRITU	9323105	0716153357	<i>[Signature]</i>
31	PRISCILLA NYAGUTHI	20580072	0723582507	<i>[Signature]</i>
32	JANE NYAWIRA	1132451	0710507999	<i>[Signature]</i>
33	GEORGE WACHIRA MBAI	10545562	0703901805	<i>[Signature]</i>
34	CHARLES WAMONGI GITIRO	5100596	0701251967	<i>[Signature]</i>
35	SUSAN WANJAU BOITHI	4427829	+3365042874	<i>[Signature]</i>
36	SAMUEL MAINA WANJAU	13540143	0722276774	<i>[Signature]</i>
37	JAMES NDIRITU TITU	6821336	0793762629	<i>[Signature]</i>
38	MICHAEL WAGWAGU MAINA	12474761	0715220642	<i>[Signature]</i>
39	PHILIP KARUKI	13452396	0716640563	<i>[Signature]</i>
40	DAVID NYAGA NDIRITU	24248925	0704291466	<i>[Signature]</i>

**Annex 7: BoQ Summary**

<b>GRAND SUMMARY</b>		
<b>Bill No.</b>	<b>Description</b>	<b>Amount (KSh)</b>
<b>1</b>	Preliminaries and General	815,000.00
<b>2</b>	Sub Total Of Dam Intake And Pipework	11,468,479.75
<b>3</b>	Masonry Tanks	7,015,931.94
<b>4</b>	Surface pump and solar structure	6,265,000.00
	<b>SUB TOTAL 1</b>	<b>25,564,411.69</b>
	Add 4.5% contingency	1,150,398.53
	<b>SUB TOTAL 2</b>	<b>26,714,810.22</b>
	Add 16% V.A.T.	4,274,369.63
	<b>GRAND TOTAL</b>	<b>30,989,179.85</b>

**Annex 8:** Topographical map of the proposed dam





**Annex 9: Filled questionnaires**

**ANNEXES**

**Annex I. Community Participation Blank Questionnaires**

**PROPOSED DEVELOPMENT OF BIRISHA COMMUNITY DAM, DESILTATION AND CONSTRUCTION OF WATER STORAGE FACILITIES, AT BIRISHA VILLAGE, GATARAKWA WARD, KIENI-WEST SUB-COUNTY**

Pursuant to the provisions of the Environmental Management and Coordination Act Cap 387, Environmental Impacts Assessment (EIA) and Audit (EA) Regulations 2003, Public Health Act and Legal Supplement 2003, a social site assessment for ESIA is being conducted on the Proposed Site.

**RESPONDENT**

Name Milka Nangira  
County Nyeri  
Sub-County Kieni-west  
Ward Gatarakwa  
Mobile Number 0719354619

**(Please note that these details are required for the purposes of authenticity in relation to the proposed project)**

1. Are you a resident of this area?  Yes Or  NO
2. Are you aware of the proposed Community dam project by Birisha cooperative in Birisha village, in Gatarakwa Ward.  Yes  NO
3. Do you support the proposed project in the area? — yes
4. Do you think this project is suitable and compatible with the surrounding developments  Yes  NO
5. Within this area, are there similar projects  Yes  NO

6. What are some of the positive impacts you can attach to this project

.....  
- Avail water for domestic  
- water for our animals  
- water for irrigation  
.....

7. **What are some of the negative impacts you can attach to this project**

.....  
- Drawings of our children  
- Manpower  
.....

8. Are there any sensitive ecosystems within the area (e.g. swamps, water body, forest, etc.)?  Yes  NO

If yes please specify .....

9. Do you think the proposed project will have any impacts on the following if implemented?

- Water/Energy Supply

.....  
..... yes .....

- Roads/Traffic/Transport

.....  
..... No .....

- Security/conflicts/grievances

.....  
..... yes .....

- Vegetation/crops

.....  
..... yes .....

- People/animals/livestock

.....  
..... yes .....

- Market/Housing/Physical infrastructures

.....  
..... yes .....

- Others (please Specify)

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

10. What are some of the challenges that you experience in this area (please tick)

- Garbage collection  No
- Insecurity  No
- Noise  No

• Traffic  No

• Any other

Water Scarcity.

11. Which are some of the infrastructural facilities that you would like to see developed in the area

- Avail. water sources eg dams  
- Improvement of road network.

12. Any other comments/Suggestions you would like to make in relation to this proposed project

This is a good project for our area.

Signature *[Signature]* Date 9/12/2020

THANKYOU FOR YOUR RESPONSE

**ANNEXES**

**Annex I. Community Participation Blank Questionnaires**

**PROPOSED DEVELOPMENT OF BIRISHA COMMUNITY DAM, DESILTATION AND CONSTRUCTION OF WATER STORAGE FACILITIES, AT BIRISHA VILLAGE, GATARAKWA WARD, KIENI-WEST SUB-COUNTY**

Pursuant to the provisions of the Environmental Management and Coordination Act Cap 387, Environmental Impacts Assessment (EIA) and Audit (EA) Regulations 2003, Public Health Act and Legal Supplement 2003, a social site assessment for ESIA is being conducted on the Proposed Site.

**RESPONDENT**

Name Peter G. Gumbi  
County Uasin  
Sub-County Birisha, Kieni West  
Ward Ukanda  
Mobile Number 0726089627

**(Please note that these details are required for the purposes of authenticity in relation to the proposed project)**

1. Are you a resident of this area?  Yes Or  NO
2. Are you aware of the proposed Community dam project by Birisha cooperative in Birisha village, in Gatarakwa Ward.  Yes  NO
3. Do you support the proposed project in the area?
4. Do you think this project is suitable and compatible with the surrounding developments  Yes  NO
5. Within this area, are there similar projects  Yes  NO
6. What are some of the positive impacts you can attach to this project

Provision of domestic and irrigation water for Ukanda people

**7. What are some of the negative impacts you can attach to this project**

Water scarcity

8. Are there any sensitive ecosystems within the area (e.g. swamps, water body, forest, etc.)?  Yes  NO

If yes please specify Nil

9. Do you think the proposed project will have any impacts on the following if implemented?

- Water/Energy Supply

None

- Roads/Traffic/Transport

None

- Security/conflicts/grievances

Nil

- Vegetation/crops

Growth of trees e.g. Gravelia and Avocado.

- People/animals/livestock

No

- Market/Housing/Physical infrastructures

Pipes and distribution network

- Others (please Specify)

None

10. What are some of the challenges that you experience in this area (please tick)

- Garbage collection
- Insecurity
- Noise

• Traffic

• Any other

..... Employment .....

11. Which are some of the infrastructural facilities that you would like to see developed in the area

..... Water Pans and Pans .....

12. Any other comments/Suggestions you would like to make in relation to this proposed project

..... Project should be supported by government for development of the area .....

Signature..... *[Signature]* ..... Date..... 9/12/20 .....

THANKYOU FOR YOUR RESPONSE

**ANNEXES**

**Annex I. Community Participation Blank Questionnaires**

**PROPOSED DEVELOPMENT OF BIRISHA COMMUNITY DAM, DESILTATION AND CONSTRUCTION OF WATER STORAGE FACILITIES, AT BIRISHA VILLAGE, GATARAKWA WARD, KIENI-WEST SUB-COUNTY**

Pursuant to the provisions of the Environmental Management and Coordination Act Cap 387, Environmental Impacts Assessment (EIA) and Audit (EA) Regulations 2003, Public Health Act and Legal Supplement 2003, a social site assessment for ESIA is being conducted on the Proposed Site.

**RESPONDENT**

Name Stephen M. Gikonyo  
County Nyeri  
Sub-County Kieni West  
Ward Mugunda  
Mobile Number 0739252990

**(Please note that these details are required for the purposes of authenticity in relation to the proposed project)**

1. Are you a resident of this area?  Yes Or  NO
2. Are you aware of the proposed Community dam project by Birisha cooperative in Birisha village, in Gatarakwa Ward.  Yes  NO
3. Do you support the proposed project in the area? YES
4. Do you think this project is suitable and compatible with the surrounding developments  Yes  NO
5. Within this area, are there similar projects  Yes  NO

6. What are some of the positive impacts you can attach to this project

.....  
..... Supply of water for irrigation .....  
..... Boosting of area economy .....  
..... Support of growing of horticultural crops .....

7. **What are some of the negative impacts you can attach to this project**

.....  
..... Demand for irrigation fees among members .....  
..... Loss of water .....  
..... Complaints during dry seasons .....

8. Are there any sensitive ecosystems within the area (e.g. swamps, water body, forest, etc.)?  Yes  NO

• Traffic

• Any other

Water shortage

11. Which are some of the infrastructural facilities that you would like to see developed in the area

Water projects

12. Any other comments/Suggestions you would like to make in relation to this proposed project

Project should be approved by NEMA and other offices to provide water for the community

Signature: *Steele* Date: 9/12/2020

THANKYOU FOR YOUR RESPONSE



**ANNEXES**

**Annex 1. Community Participation Blank Questionnaires**

**PROPOSED DEVELOPMENT OF BIRISHA COMMUNITY DAM, DESILTATION AND CONSTRUCTION OF WATER STORAGE FACILITIES, AT BIRISHA VILLAGE, GATARAKWA WARD, KIENI-WEST SUB-COUNTY**

Pursuant to the provisions of the Environmental Management and Coordination Act Cap 387, Environmental Impacts Assessment (EIA) and Audit (EA) Regulations 2003, Public Health Act and Legal Supplement 2003, a social site assessment for ESIA is being conducted on the Proposed Site.

**RESPONDENT**

Name Paul Thuita  
County HERI  
Sub-County KIENI WEST  
Ward MUGUMDA  
Mobile Number 0722041839

(Please note that these details are required for the purposes of authenticity in relation to the proposed project)

1. Are you a resident of this area?  Yes Or  NO
2. Are you aware of the proposed Community dam project by Birisha cooperative in Birisha village, in Gatarakwa Ward.  Yes  NO
3. Do you support the proposed project in the area?
4. Do you think this project is suitable and compatible with the surrounding developments  Yes  NO
5. Within this area, are there similar projects  Yes  NO

6. What are some of the positive impacts you can attach to this project

Water for irrigation  
Rearing of animals  
Growing of onions  
Raising of tree nurseries

7. What are some of the negative impacts you can attach to this project

Risk of dam collapsing if construction work is not properly done for the project  
Soil and land degradation

8. Are there any sensitive ecosystems within the area (e.g. swamps, water body, forest, etc.)?  Yes  NO

If yes please specify .....

9. Do you think the proposed project will have any impacts on the following if implemented?

- Water/Energy Supply

N/A

- Roads/Traffic/Transport

N/A

- Security/conflicts/grievances

N/A

- Vegetation/crops

Will support production of tree nurseries

- People/animals/livestock

Supply water for domestic use

- Market/Housing/Physical infrastructures

N/A

- Others (please Specify)

Improve crop production

10. What are some of the challenges that you experience in this area (please tick)

- Garbage collection
- Insecurity
- Noise

- Traffic



- Any other

Water scarcity

11. Which are some of the infrastructural facilities that you would like to see developed in the area

Construction of drains and tanks

12. Any other comments/Suggestions you would like to make in relation to this proposed project

Digging of water pipe and boreholes

Signature



Date

9/12/2020

THANKYOU FOR YOUR RESPONSE

**ANNEXES**

**Annex 1. Community Participation Blank Questionnaires**

**PROPOSED DEVELOPMENT OF BIRISHA COMMUNITY DAM, DESILTATION AND CONSTRUCTION OF WATER STORAGE FACILITIES, AT BIRISHA VILLAGE, GATARAKWA WARD, KIENI-WEST SUB-COUNTY**

Pursuant to the provisions of the Environmental Management and Coordination Act Cap 387, Environmental Impacts Assessment (EIA) and Audit (EA) Regulations 2003, Public Health Act and Legal Supplement 2003, a social site assessment for ESIA is being conducted on the Proposed Site.

**RESPONDENT**

Name Flora KENGI  
County NYERI  
Sub-County GATARAKWA  
Ward DUGURUDA  
Mobile Number 07992318136

(Please note that these details are required for the purposes of authenticity in relation to the proposed project)

1. Are you a resident of this area?  Yes  Or  NO
2. Are you aware of the proposed Community dam project by Birisha cooperative in Birisha village, in Gatarakwa Ward.  Yes  NO
3. Do you support the proposed project in the area?
4. Do you think this project is suitable and compatible with the surrounding developments  Yes  NO
5. Within this area, are there similar projects  Yes  NO

6. What are some of the positive impacts you can attach to this project

- Employment of Marginalized women in the community  
- Providing of water for irrigation and households use  
- Boosting of livelihood through growing of Cabbages  
eg Onions and Potatoes

7. What are some of the negative impacts you can attach to this project

School children can be used to dig the trenches and to provide labour during project implementation

8. Are there any sensitive ecosystems within the area (e.g. swamps, water body, forest, etc.)?  Yes  NO

If yes please specify .....

9. Do you think the proposed project will have any impacts on the following if implemented?

- Water/Energy Supply

Increasing water volumes during rainy seasons  
soiler

- Roads/Traffic/Transport

N/A

- Security/conflicts/grievances

N/A

- Vegetation/crops

Growing of bee nurseries

- People/animals/livestock

water for animals and people in the area.

- Market/Housing/Physical infrastructures

N/A

- Others (please Specify)

Soil erosion

10. What are some of the challenges that you experience in this area (please tick)

- Garbage collection
- Insecurity
- Noise

• Traffic

• Any other  
Allergies from ducts and soils during construction

11. Which are some of the infrastructural facilities that you would like to see developed in the area

Water projects

12. Any other comments/Suggestions you would like to make in relation to this proposed project

None

Signature  Date 9-12-2020

THANK YOU FOR YOUR RESPONSE

## **Annex 10: Chance Find Procedures**

### **1. Purpose of chance find procedure**

The chance find procedure is a project-specific procedure that outlines actions required if previously unknown heritage resources, particularly archaeological resources, are encountered during project construction or operation.


### **2. Chance find procedures will be used as follows:**

If the contractor for the proposed Birisha Community dam project discovers a physical cultural resource, such as (but not limited to) archaeological sites, historical sites, remains and objects, or a cemetery, tomb and/or individual graves during laying of pipework, excavation or construction, the contractor shall:


- Stop the excavation and construction activities in the area or route of the chance find.  
Delineate the discovered site or area.
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be present until the responsible local authorities and the ministry of sports, culture and the arts take over.
- Notify the supervisory engineer who in turn will notify the responsible local authorities and the ministry of sports, culture and the arts immediately (less than 24 hours).
- Contact the responsible local authorities and the ministry of sports, culture and the arts who would be in charge of protecting and preserving the site before deciding on the proper procedures to be carried out. This would require a preliminary evaluation of the findings to be performed by the archaeologists of the relevant ministry of sports, culture and the arts (within 72 hours). The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage, including the aesthetic, historic, scientific or research, social and economic values.
- Ensure that decisions on how to handle the finding be taken by the responsible authorities and the ministry of sports, culture and the arts. This could include changes in the layout (such as when the finding is an irremovable remain of cultural or archaeological importance) conservation, preservation, restoration and salvage.
- Implementation for the authority decision concerning the management of the finding shall be communicated in writing by the ministry of sports, culture and the arts concerning the safeguard of the heritage and authorization for construction work to resume.

**Annex 11: Community land resolution and consent forms**


**KENYA CLIMATE SMART AGRICULTURE PROJECT  
(KCSAP) NYERI COUNTY**



REPUBLIC OF KENYA  
Email Address: [kcsapnyeri@gmail.com](mailto:kcsapnyeri@gmail.com)



Kenya Climate Smart  
Agriculture Project



County Project Coordination Unit  
Nyeri County  
P.O. Box 1930-10100  
**NYERI**

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**COMMUNITY LAND RESOLUTION AND CONSENT FORMS – KENYA  
CLIMATE SMART AGRICULTURE PROJECT (KCSAP)**

ITEM	DESCRIPTION
Project Name	BIRISHA DAM FISH AND IRRIGATION SHG
Component 1:	
Output :	
Name of Investment	
Project Location	MUGUNDA WARD, NYERI COUNTY
GPS Coordinates	00-18583 <sup>s</sup> - 036-75359 <sup>e</sup>
Estimated Cost of the Investment	
Source of Funding	K.C.SAP NYERI COUNTY
Financial Year	2021

Community Resolution on .....

We, the Community of the affected farms by the mainline have discussed and agreed to allow the mainline of Birisha Dam Fish and Irrigation Water Project to pass through our farms in ... KIENI WEST .....Sub county,  
MUGUNDA ..... Ward, GATARA KWA ..... Location,  
KABONDERA - RUIRI ..... 1.



We, on behalf of the beneficiaries (beneficiaries' representatives) confirm the above information to be true.

(Names of three (NO) Beneficiaries' representatives)

S/NO.	NAME	ID/NO.	SIGNATURE
1.	BENARD MATHENGE	21933476	
2.	JONAH KIRUTHI	13452627	<i>[Signature]</i>
3.	MILVA WANJIRU	27698526	

Witnessed on this day.....Day of..... in the year.....by:

1. Area Chief's office (Stamped)

NAME	P/NO.	DESIGNATION	SIGNATURE

2. Ward Administrator (Stamped)

NAME	ID/NO.	SIGNATURE

3. Chief Officer Water and Irrigation (Stamped)

NAME	ID/NO.	SIGNATURE

4. Chief Officer Agriculture and Industry (Stamped)

NAME	P/NO.	DESIGNATION	SIGNATURE

5. County Project Coordinator KCSAP

NAME	P/NO.	SIGNATURE

We confirm the above information to be true and what we have resolved to abide by ALL terms of this agreement

S/ No	NAME	ID/NO	LR No.	VILLAGE	SIGNA
1.	Cleopus Mubia	20848621	1451	Ruirii	
2.	James Gichuki	9263330	111/2704	Ruirii	
3.	<del>Jane Wambui</del>	<del>13133564</del>	469	Ruirii	<del></del>
4.	Dadson Muthui <del>James Wari</del>	13452615	0468	Ruirii	
5.	Grace Wambui	0768746	467	Ruirii	
6.	Peter Nduru	6530446	470	Ruirii	
7.	MERETH WANGI	32536142	0464	Ruirii	
8.	Richard Muthiri	26591407	0468	Ruirii	
9.	<del>JOSEPH MUTHIRI</del>	<del>076612</del>		Ruirii	<del></del>
10.	JOSEPH MUTHIRI	1429550	475	Ruirii	
11.	Joyce Wambui	26213647		Ruirii	
12.	Charles Mwangi	9455697		Ruirii	
13.	Victor Thauri	34313550	467	Ruirii	
14.	Peter Nderitu	24335689	0468	Ruirii	
15.	Thomas Kiriaku	11318869	487	Ruirii	
16.	Simon Rugumu	9455241	421	Ruirii	
17.	Alex M. Nduku	28107566	470	Ruirii	
18.	Peter Kaburuga	10708328	463	Ruirii	
19.	Don Stavo Giduma		876	Ruirii	

to abide by ALL terms of this agreement

S/ No	NAME	ID/NO	LR No.	VILLAGE	SIGNATU
1.	SAMUEL G. THURI	0234467	GATAPAKO/KATAPAKU (BIRICHA) 453	BIRICHA	
2.	JOHN KAMANJA	28694936	GATAPAKU/KATAPAKU (BIRICHA) 454	BIRICHA	
3.	JAMES WAKUI	3220089	<del>455</del> 452	BIRICHA	
4.	SAMUEL M. KININI		451	BIRICHA	
5.	SAMUEL KINKORI			BIRICHA	
6.	ANU W. NDIRITU	8717741	449	BIRICHA	
7.	JAMES KARIUKI	1388432	446	BIRICHA	
8.	STEPHEN M. GILONZI	26332871	448	BIRICHA	
9.	SAMUEL G. WACHIRA		447	BIRICHA	
10.	JOHNSON N. MURUGU	10379955	443	BIRICHA	
11.	SAMUEL M. GALINDA		441	BIRICHA	
12.	JAMES GITONGA W.	2334314	439	BIRICHA	
13.	FRANCIS GITONGA	2516008	1012	BIRICHA	
14.	JAMES M. WANGUGU	28346257	438	BIRICHA	
15.	FRANCIS MURUGU Buthe	4346659	437	BIRICHA	
16.	JOSEPH WATTHAKA	3223468	434	BIRICHA	
17.	SIMON K. MWANIKI	22326598 3	436	BIRICHA	
18.	GRACE W. NGARI	3280045	435	BIRICHA	
19.	JARITHA WAIRIMU	20217209	190	BIRICHA	

We confirm the above information to be true and what we have resolved to abide by ALL terms of this agreement

S/ No	NAME	ID/NO	L.R No.	VILLAGE	SIGNATU
1.	SUSAN NJAGI	5499951	474	RURII	<i>[Signature]</i>
2.	Philip Gichuki	0617691	474	RURII	<i>[Signature]</i>
3.	James Gichuki	2563330	2407	RURII	<i>[Signature]</i>
4.	Eva Ndettoni	21574499	468	RURII	<i>[Signature]</i>
5.					
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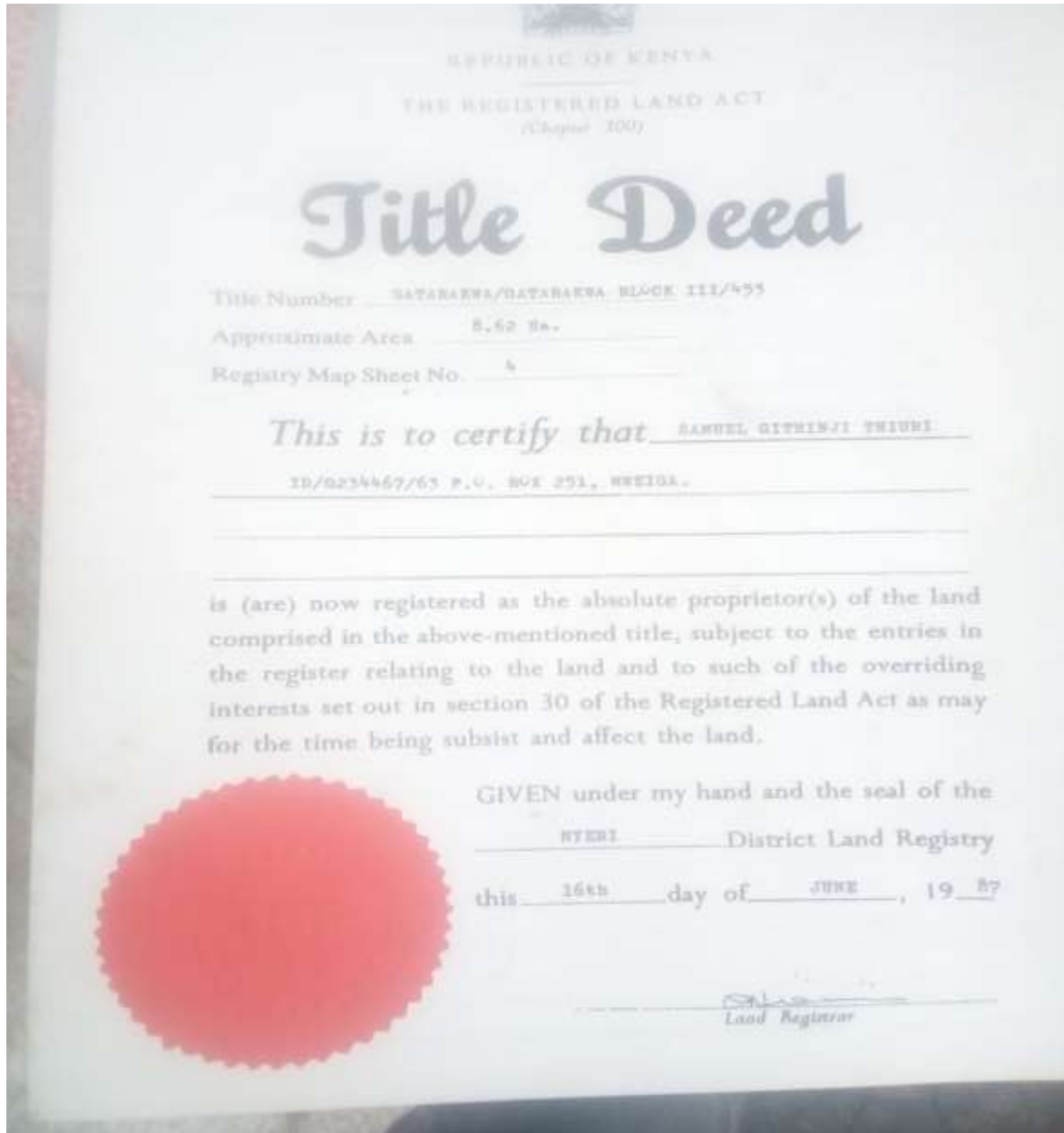
We confirm the above information to be true and what we have resolved to abide by ALL terms of this agreement

S/ No	NAME	ID/NO	L.R No.	VILLAGE	SIGNATUR
1.	DANIEL NDIRIYI	20658155	GA7/GAT/419	Rurii	
2.	GEORGE KINTUA	22728887	419	Rurii	
3.	MARICA WANGARI	3236450	419	Rurii	
4.	PETER GITONGA	22725709	419	Rurii	
5.	BONIFACE WAMBUNYI	24393643	419	Rurii	
6.	GRACE NTAGITHI	20627132	419	Rurii	
7.	ELIJAH ERUGERE	22184020	1065		
8.	GEORGE WACHIRA	0703901805	421	Rurii	
9.	ANTHONY MAINA	11032719	877	Rurii	
10.	CHARLES NDEGWA	24460132	420	Rurii	
11.	Mary Mumbi	3415139	1026	Rurii	
12.	Peter Gutonga	11253455	411	Rurii	
13.	Mary mumbi	3415739	1046	Rurii	
14.	CHARLES Mwaniki	1881779	416	Rurii	
15.	Joseph Mureithi	3221230	415	Rurii	
16.	Samuel Mbutia	3222072	538	Rurii	
17.	Banice Mbutia		183	Rurii	
18.	Ann Wanjika	2122072	412	Rurii	
19.	Cecilia Wangi	20009048	1072	Rurii	

We confirm the above information to be true and what we have resolved to abide by ALL terms of this agreement

GATRAKWA / GATRAKWA BLOCK III (LAMUEIA)					
S/ No	NAME	ID/NO	L.R No.	VILLAGE	SIGNATUR
1.	GEORGE MURGITH	3182103	191	BIRICHA	<i>[Signature]</i>
2.	JOSEPH NDIANGU	21972863	189	BIRICHA	<i>[Signature]</i>
3.	JACKSON M. Kamotto		187	BIRICHA	<i>[Signature]</i>
4.	CHARLES MURGITH	10682951	185	BIRICHA	<i>[Signature]</i>
5.	STEPHEN KAMARU	350882	184	BIRICHA	<i>[Signature]</i>
6.	Paul Wambugu	10118888	181	BIRICHA	<i>[Signature]</i>
7.	ALFRED WANGONGU	9236132	179	BIRICHA	<i>[Signature]</i>
8.	Michael Wanjoki	12474761	176	BIRICHA	<i>[Signature]</i>
9.	Pauline Kairima	9454794	177	BIRICHA	<i>[Signature]</i>
10.	Samuel Muelin	13452729	882	BIRICHA	<i>[Signature]</i>
11.	Daniel N Gakinya	13724021	441	BIRICHA	<i>[Signature]</i>
12.	Johnson NJogu	10379953	443	BIRICHA	<i>[Signature]</i>
13.	Edwal KINATHA	23870942	445	BIRICHA	<i>[Signature]</i>
14.	Karanga Mwema		1004	BIRICHA	<i>[Signature]</i>
15.					
16.					

**Annex 12: Land ownership documents (title deeds and agreements)**



**BIRICHA DAM FISH AND IRRIGATION SELF HELP GROUP**

**C/O BIRICHA PRIMARY SCHOOL**

**BOX 251-10104**

5/4/2021

**REF: BIRICHA DAM FISH AND IRRIGATION PROJECT VERSUS MR SAMUEL GITHINJI THIURI**

The management of biricha dam fish and irrigation project through the executive has come to an agreement with Mr. SAMUEL GITHINJI THIURI holder of title deed number GATARAKWA/GATARAKWA/BLOCK III 453 to have a portion of land measuring 1/8 acre annexed to biricha dam fish and irrigation self-help group project.

The management of the project will cater for the funds for subdivision of land any other process. Mr. Samuel githinji thiuri agreed to surrender the portion of land for free and the project will provide will provide him with water for free

The agreement will stand as it is and may change when the water will stand as it is and may change when the water will be metered by that time he will be provided with 10 cm<sup>3</sup> for free and pay any amount that will exceed 10 cm<sup>3</sup>

The management committee is sourcing funds for land subdivision and the process will start immediately

WITNESSED BY:	PHONE:	IDNO	SIGN
1. CHAIRPERSON: BENARD MATHENGE	0700704832	21553476	<i>[Signature]</i>
2. SECRETARY : JONAH KIBUTHU	0790714291	13452627	<i>[Signature]</i>
3. MEMBER : JOSEPH NDIANGUI	0711364755	21872863	<i>[Signature]</i>
4. OWNER : SAMUEL G. THIURI	0739978156	0234467	<i>[Signature]</i>
5. OWNER : MAGDALENE WANJIRU	0724 083759	3224961	<i>[Signature]</i>
6. MEMBER : FRANCIS GITONGA	0720788542	2516117	<i>[Signature]</i>

*[Handwritten signatures]*

ROSEN M. MUKIA  
ASST. CHIEF  
CAMPUS EXTENSION  
Date: *[Signature]*





REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

(No. 3 of 2012, section 108)

THE REGISTERED LAND ACT

(Chapter 300) (REPEALED)

# Title Deed

Title Number QATARAKWA/QATARAKWA/BLOCK III/ 2601

Approximate Area 2.80 HA

Registry Map Sheet No. 4

*This is to certify that* ELIJAH MAIWA KINGORI

ID/0582406

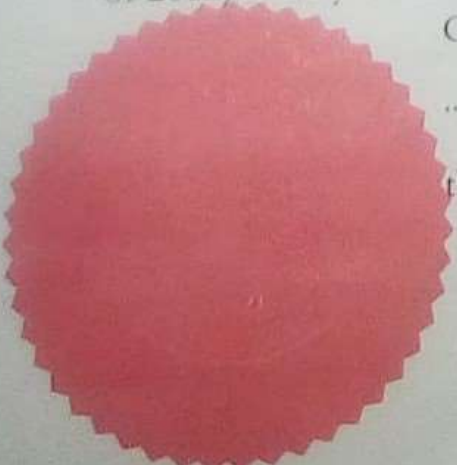
is (are) now registered as the absolute proprietor(s) of the land comprised in the above-mentioned title, subject to the entries in the register relating to the land and to such of the overriding interests set out in section 28 of the Land Registration Act (No. 3 of 2012) as may for the time being subsist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

GIVEN under my hand and the seal of the

NYERI

.....District Land Registry

this 16th day of APRIL, 20 21





Land Registrar  
N.G. Gathuya \*285

**BIRICHA DAM FISH AND IRRIGATION SELF HELP GROUP**

**C/O BIRICHA PRIMARY SCHOOL**

**BOX 251-10104**

5/4/2021

**REF: BIRICHA DAM FISH AND IRRIGATION PROJECT VERSUS MR ELIJAH MAINA KINGORI**

The management of biricha dam fish and irrigation project through the executive has come to an agreement with Mr. Elijah maina kingori holder of title deed number GATARAKWA/GATARAKWA/BLOCK III 2607 to have to have a portion of land measuring 1/8 acre annexed to biricha dam fish and irrigation self-help group project.

The management of the project will cater for the funds for subdivision of land any other process. Mr. Elijah maina agreed to surrender the portion of land for free and the project will provide will provide him with water for free

The agreement will stand as it is and may change when the water will stand as it is and may change when the water will be metered by that time he will be provided with 10 cm<sup>3</sup> for free and pay any amount that will exceed 10 cm<sup>3</sup>

The management committee is sourcing funds for land subdivision and the process will start immediately

**WITNESSED BY:**

**NAME**

1. Chairperson- Bernad mathenge
2. Secretary- Jonah kibuthu
3. Owner(member)- Elijah Maina
4. Peter Gitonga
5. Eunice Njeri
6. Janet Wairima

**PHONE**

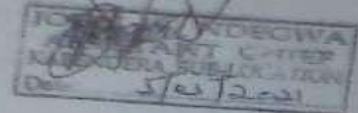
**ID NO**

**SIGN.**

0700704822	21938476	
0790714291	13452677	
0704270138	0582606	
0712204723	11253455	
0725767968	11514847	
0713144864	11514447	

7. John Wambugu Ndegwa

0728702070



**Annex 13: Expert practicing licence**

FORM 7

(r.15(2))



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

License No : NEMA/EIA/ERPL/12999

Application Reference No: NEMA/EIA/EL/17181

**M/S CHARLES KIRIMI MUTHINJA**  
(individual or firm) of address

P.O. Box 1552-10100, NYERI

is licensed to practice in the

capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert**  
registration number **1622**

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

Issued Date: 7/16/2020

Expiry Date: 12/31/2020

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



ATTENDANCE LIST

DATE: 07/01/2021

FOCUS GROUP DISCUSSION FOR  
BIDICHA IRRIGATION WATER PROJECT AT  
ASST. CHIEF'S OFFICE AT KAWARA CENTRE

	Name	Contact	Signature
1	Bernard Muthyege	0700704832	<i>[Signature]</i>
2	Johnah Mubutha	0790714293	<i>[Signature]</i>
3	Mulka Wanyiri	0719384619	<i>[Signature]</i>
4	Francis Gutunga	0720788342	<i>[Signature]</i>
5	Joseph Nduangui	0728707040	<i>[Signature]</i>
6	Evora Kundi	0799238136	<i>[Signature]</i>
7	Paul Thuta	0720411839	<i>[Signature]</i>
8	Stephen Gutunga	0739252990	<i>[Signature]</i>
9	Mary Ngũgũ	0722176182	<i>[Signature]</i>
10	Patrick Mwangi	0734452102	<i>[Signature]</i>
11	Nancy Kahave	0711657710	<i>[Signature]</i>
12	Peter Themi	0736126447	<i>[Signature]</i>
13	John Nduyge	0722271034	<i>[Signature]</i>
14	Peter Gutunga	0726089627	<i>[Signature]</i>
15	Peter Gutunga	0712204723	<i>[Signature]</i>
16	Anna Muthomba	0722424237	<i>[Signature]</i>
17	Robert Nyakira	071861798	<i>[Signature]</i>
18	Phillip Mwangi	0727385042	<i>[Signature]</i>



