

**ENVIRONMENTAL AND SOCIAL AUDIT REPORT
FOR
KITAMBAASYE EARTH DAM**



GPS Co-ordinates: S-1.126940 E37.290902

© April 2022

DOCUMENT RELEASE INFORMATION

This Environmental and Social Audit Report has been prepared by NEMA registered Lead Expert. It has been prepared in accordance with the Environmental Management and Coordination Act no. 8 of 1999 and the Relative Amendments No 5 of 2015, the Environmental (Impact Assessment and Audit) Regulations, 2003 and the Relative Amendment 2019 for submission to the National Environmental Management Authority (NEMA).

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Signature and stamp:.....

Date:.....

Designation:.....

PROPONENT:

I.....on behalf of **Muka Mukaa Farmers Co-operative Society Ltd** of **P.O Box** confirm that this Annual Environmental Audit study has been conducted and the report prepared and submitted to National Environmental Management Authority (NEMA) with our authority as proponent.

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ACKNOWLEDGEMENT

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ACRONYMS & ABBREVIATIONS

BOD	-Biological Oxygen Demand
COD	-Chemical Oxygen Demand
EA	-Environmental Audit
ESMMP	-Environmental & Social Management and Monitoring Plan Plan
GOK	-Government of Kenya
KALRO	-Kenya Agriculture and Livestock Research Organization
KFS	-Kenya Forest Institute
KMD	-Kenya Meteorological Department
NEMA	-National Environmental management Authority
PLUM	-Participatory Land Use plan
PRA	-Participatory Rural Appraisal
PSRP	-Poverty Reduction Strategy paper
WRA	-Water Resource Authority

EXECUTIVE SUMMARY

The Government of Kenya (GoK) through the Kenya Climate Smart Agriculture Project (KCSAP) with the support of World Bank has taken various initiatives to improve agricultural sector in the country. One of these initiatives is undertaking the rehabilitation of in Machakos County with main objective enhancing the availability of water for domestic use, livestock watering and for small scale irrigation. The area is mainly an arid/semi-arid area where the normal rainfall is unreliable to sustain crop growth and the residents had to travel long distance to fetch water for domestic use and watering their animals. Its for this reason that the sub-project was identified for support by KCSAP.

The objective of Environmental Audit study was to identify changes that have taken place during the implementation of the project, assessing and quantifying the environmental and social impacts, also duly preparing an Environmental and Social Management and Monitoring Plan (ESM&MP) that identifies the anticipated negative environmental and social impacts and their mitigation measures. Furthermore, the report integrates an assessment of compliance of the earth dam improvement to the relevant environmental policies, legislations, statutes, strategies and regulatory frameworks, as well as the international policies and World Bank's relevant Environmental and Social Safeguards.

The methodologies and approach used to undertake the study include: Desk review of the relevant documents in regards to the project; Questionnaire administration to key stakeholders and Focused Group Discussion. At different stages of the study the following approaches and analytical tools were applied: Participatory data collection and Key informant interview.

Kitambaasye micro-catchment area is in Matungulu Sub-County of Machakos County covering an area of 58.87KM² and is home to the Kamba and other communities who derive their livelihoods from small scale mixed farming. The earth dam lies within GPS coordinates; S-1.126940 E37.290902.

Public participation was conducted on 7th April 2022 through a meeting with the members of the earth dam management committee and the immediate neighbours. Vulnerable and Marginalized Groups (VMGs) especially women, youths and people living with disabilities attended and key informants were also administered to key stakeholders. The meeting was held at the site. The

issues/ concerns raised during the meeting include: Lack of use of water for irrigation because of fear of contamination in the process of pumping them using generator, the reduction of capacity of the dam due to siltation, use of the bushy part of the dam for drug abuse and vandalism of the pipes and fence.

To address the issues raised, it was agreed that the community should be sensitized on safe use of water and that the dam users should be charged for water use so that the money generated can be used to main the earth dam such as repairing the pipes and fence.

Consultations were done with representatives from various departments at the Ministry of Agriculture, livestock and fisheries development, including the Machakos County's Kenya Climate Smart Agriculture Project (KCSAP) and representatives from Machakos County National Environment Management Authority (NEMA) office.

The audit focused on key areas of interest during that include: spillway, silt trap, embankments, means of water abstraction from the earth dam, water troughs, conservation measure within the embankment and around the earth dam, domestic, livestock and small-scale irrigation water use, social issues like conflicts over water use, diseases and contaminants, presence of clean pit latrines and bathrooms among others.

The audit findings through observation were that vegetation mainly grass planted on around the embankment had overgrown and need to be trimmed, trees have also grown within the embankment. Also, there is a part of the embankment that has started cracking and need to be repaired. Parts of the fence have been removed by youth who sneak into the earth dam at night to steal fish and this also endangers their live. The gabions at the intake part of it are letting in excess water and this could lead to increased siltation in the dam that way reducing dam capacity. The community have not desilted the dam since its commissioning. However, they have attempted to reduce the rate of siltation using bags filled with sand. The other finding is that the pipes at the water trough were stolen and thus its not being used by livestock. Finally, it was reported that the Project Management Committee (PMC) do not meet regularly and only meet when there is an issue.

The participants were happy with benefits that the dam has brought by ensuring water availability for domestic use, provision for livestock and small- scale irrigation. The management is committed to observe the recommendations of the audit and to implement the Environmental and Social Management Plan (ESMP).

The management of the dam has complied with the relevant statutory requirements and has implemented the Environmental and Social Management Plan that was recommended in the Environmental and Social Impact Assessment Report.

Based on the audit, it was noted that the proponent has implemented most of the proposed mitigation measures in ESMP. The experts recommend that the proponent should continue to adhere to the proposed ESMP and ensure that annual environmental audit is conducted by competent EIA/EA expert.

CHAPTER ONE: INTRODUCTION

1.1 Background

The environmental consultant was commissioned by Kenya Climate Smart Agriculture Project (KCSAP) – Machakos County to undertake an environmental audit study of Project. Kitambaasye micro-catchment area is in Matungulu Sub-County of Machakos County covering an area of 58.87KM² and is home to the Kamba and other communities who derive their livelihoods from small scale mixed farming. The dam has a capacity of 3,000M² and serves a population of 3,900 beneficiaries.

The audit was undertaken in accordance with the EIA/EA Regulations 2003 (Amendment 2019). The purpose of the audit was to assess the environmental performance of the earth dam as well as to fulfil the regulatory requirements. The auditors reviewed the processes and practices at the earth dam with a view of advising the proponent on areas of improvement going forward.

1.2 Audit objectives, scope and criteria

1.2.1 Audit Objectives

The objective of the study is to get a better understanding of the present environmental conditions and relevant impact areas. Increased awareness and knowledge will allow for improved monitoring of both positive and negative changes over time and will assist in the formulation of more effective means of enhancing the positive impacts and mitigation measures of the negative impacts. The environmental audit will also be the basis for the preparation of an environmental and social management plan and monitoring system.

Specifically, the objectives of this audit are:

- To conduct an environmental audit in order to comply with the legal requirements as outlined in Section 68 of EMCA and Regulation 31 of the EIA/EA Regulations ,2003 (Amendment 2019) and World Bank environmental and social safeguards.
- To establish and report on the status of environment at project in line with the requirements of the EMCA, 1999 (Amendment 2015) and EIA/EA Regulations, 2003 (Amendment 2019).
- To prepare an Environmental and Social Management Plan (ESMP).
- To develop an environmental and social management and monitoring system

- To conduct public consultations and stakeholder's engagement meetings.
- To advise and give recommendations to the proponent on matters relating to environment, safety and health management at the water Dam.

1.2.2 Audit Scope

The key elements of audit scope for the environmental audit in accordance with EIA/EA Regulations, 2003 (Amendment 2015) are appraisal of all the project activities; and adequate consideration of environmental regulatory frameworks, environmental health and safety measures and sustainable use of natural resources.

1.2.3 Audit Criteria

This report is prepared on the basis of field and literature surveys. The Environmental and Social Impact Assessment Report of the project has been consulted. Field visit was conducted on 7th April 2022 to gather information, and interview the beneficiaries and the neighboring community.

1.3 Strategic approach

The Expert's environmental audit of the was characterized by two approaches: Ecosystem and Participatory.

1.3.1 Ecosystem Approach

In applying the ecosystem approach, the expert not only focused on the earth dam but also on all the ecosystems that impact the environmental and social characteristics of the area. To accomplish this, the study sought an understanding of all activities taking place within the earth dam catchment area. Notably water pollution, sedimentation, destabilization of embankment, soil erosion, land degradation and deforestation among others are all contributing to degradation of the catchment area. In suggesting mitigation measures, sustainable practices for the use of water and land resources must be adopted to prevent and control environmental and social problems.

1.3.2 Participatory Approach

A participatory approach was adopted in preparation for the environmental audit. This entailed seeking information/experience from stakeholders i.e. beneficiaries, agricultural officers, KCSAP officials and other key stakeholders who have been involved in the project. In order to

ensure effective participation and cooperation it was necessary to inform stakeholders prior to the audit of the environmental and socio-economic problems to be addressed. Their inputs have contributed to the development of more realistic and appropriate mitigation measures.

1.4 Audit methodology

The audit methodology employed at the site comprised an open meeting with the earth dam project management. This was followed by document review and detailed site inspection. Both beneficiaries and neighbours were later interviewed before documentation of findings and development of the report.

1.4.1 Open meeting and literature review

The auditors held an opening meeting with the management and outlined the audit methodology, scope and objectives. The meeting discussed the environmental performance of the earth dam vis-a-vis the previous Environmental and Social Impact Assessment including the key environmental, health and safety concerns of the earth dam. Other activities undertaken included:

- Review of existing legislation, regulations and policies relevant to the water project, any legal /regulatory change impacting on operations, including environmental, health and safety policies;
- Review of relevant environmental records, permits and licences;
- Review of technical operations and processes.

1.4.2 Site Inspection:

On-site inspection activities included interviews with the benefits, walk-about surveys and document reviews. All the areas of the earth dam were inspected. The auditor systematically verified compliance with applicable requirements using audit protocols; professional judgment and evaluations of site-specific conditions.

1.4.3 Data Collection and Evaluation of the Findings:

Onsite audit involved;

- Gathering information from the earth dam project through focused group discussion;
- Interviews with beneficiaries at the earth dam;
- A limited survey of the surroundings of the site of the earth dam to include establishing the presence and significance of any sensitive receptors;

- Analysis of the data collected, assess environmental performance of the earth dam;
- Public/neighbourhood consultation and collection of comments;
- Taking photographs of significant aspects to assist in describing the environmental and social conditions of the project;

The findings were evaluated against the audit objectives to ensure that all EHS aspects were adequately covered.

CHAPTER TWO: PROJECT DISCRIPTION

2.1 Project Location

Kitambaasye micro-catchment area is in Matungulu Sub-County of Machakos County covering an area of 58.87KM² and is home to the Kamba and other communities who derive their livelihoods from small scale mixed farming. The earth dam lies within GPS coordinates; S-1.126940 E37.290902.

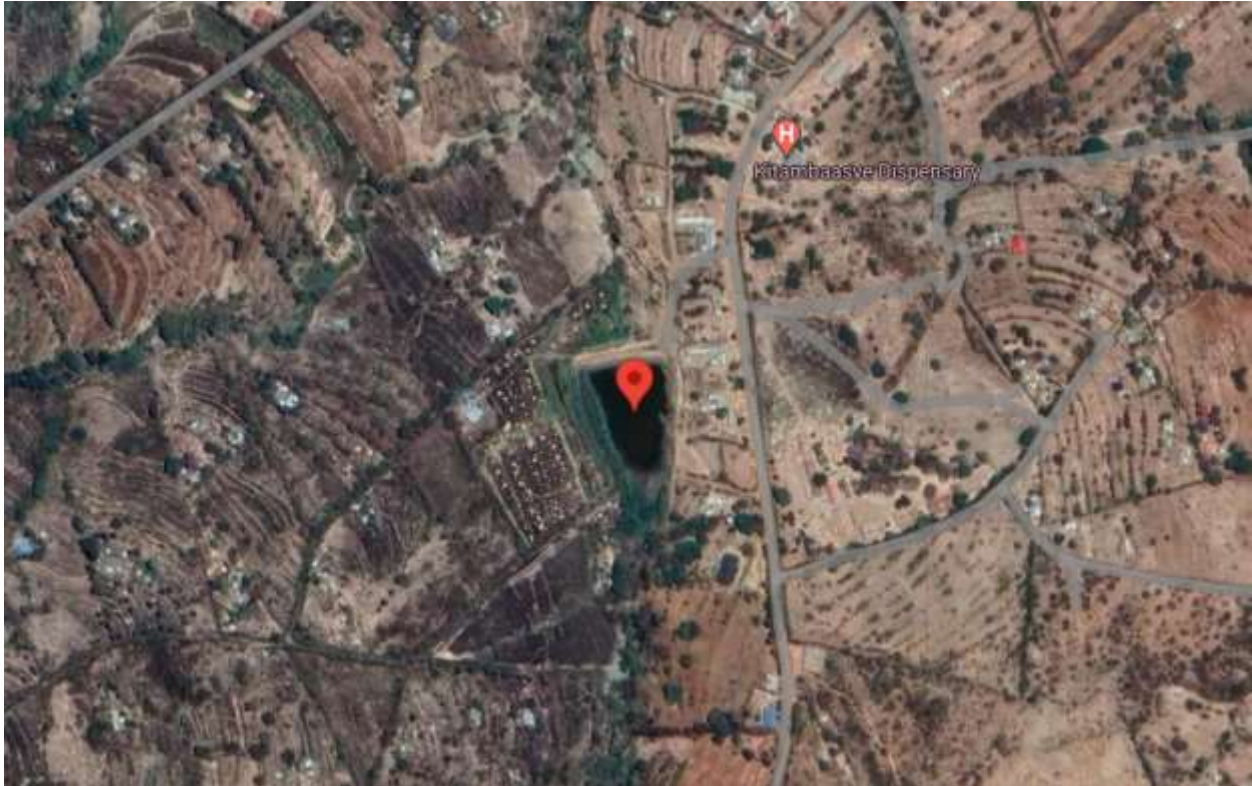


Figure 1: Google Earth Map showing the location of

2.2 Ownership

Kitambaasye earth Dam is located on a land set aside by Muka Mukaa Farmers' Co-operative Society Limited and was first constructed in 1984 by NGO. It was then rehabilitated by Kenya Climate Smart Agriculture Project (KSCAP) IN 2019.

2.3 Altitude and Rainfall

The project area experiences two rain seasons in March – May (long rains) and October – November (short rains). The average annual rainfall of the micro catchment is 600mm-720mm but

of high intensity over a very short period (FMHB, South 2011). The altitude ranges between 1850-2000m a.s.l.

2.3 Temperatures

The micro catchment lies in the semi-arid part of the Machakos County and experiences temperatures ranging from 21oC – 32oC with moderately fertile soils.

2.4 Topography

The project area is located at the foot of Kilimambogo hill and the Kijabe Escarpment and has a gentle slope of 2% - 5% with moderately fertile soils.

2.5 Soils

The soils in the project area are well drained and fertile suitable for both subsistence and commercial farming. They range from deep to extremely deep clay – loam and to clay textures. The soils have low water holding capacities and can keep water for short periods. The soils have moderate natural fertility for optimum crop production, but they require application of manure (Kenya Agricultural Research Institute, 2007).

2.5 Agro – ecological Zones

The project area is within the Agricultural Ecological Zone LH5 (Low Highland Ranching Zone), which is not suitable for agricultural production unless irrigated and controlled livestock farming is practiced in the area.

2.5 Land/water resources

The micro catchment area is located at the foot of Kilimambogo and has a gentle slope of 2% - 5% with moderately fertile soils. It is moderately covered by vegetation, farmers practice mixed farming. Inadequate soil conservation structures in the farms and poor crop husbandry has led to soil erosion and consequently silting the dam. The area has seasonal river, the Kitambaasye.

2.5 Socio-Economic Activities

The community in the project area practice mixed farming and therefore their livelihood is supported mainly by keeping of cattle, goat and growing crops such as maize, beans and pigeon peas. The other farming activities practiced in the area include apiculture and small-scale horticulture.

CHAPTER THREE: COMPLIANCES WITH POLICIES AND REGULATORY FRAMEWORKS

3.1 Introduction

There are several legal, policy and administrative frame works that exist both in the country and internationally which a developer, operator and project proponent must be aware of. These frameworks must be considered in respect to environmental protection, conservation of resources and ensured health and safety of Kenyans and other beneficiaries of this project. Whenever a contradiction between the frameworks becomes apparent, the EMCA 1999 (Amendment 2015) prevails.

3.2 International Policies

3.3.1 Kyoto Protocol

This is an international policy with aims of ensuring sustainable development. It was brought into action after experiencing warm climate due to carbon concentration in the atmosphere. They advocated on precautionary approach, continuous environmental improvement and promoting alternatives. This agreement was signed to ensure food production was not threatened.

3.3.2 The Basel Convention

The Basel Convention on the control of trans-boundary movement of hazardous wastes and their disposal is an international treaty that was designed to reduce the movement of hazardous wastes between nations and specifically prevent transfer of hazardous waste from developed to less developed countries. The convention is also intended to minimize the amount of toxicity of wastes generated to ensure their environmentally sound management as closely as possible to the source of generation and to assist the less developed countries in environmentally sound management of hazardous and other waste they generate.

3.3 National Policies

3.3.1 Environment and Development Policy (Sessional Paper No. 6 of 1999)

The goal of this policy paper is to harmonize environmental and development goals so as to ensure sustainability. The paper provides comprehensive guidelines and strategies for government action regarding the environment and development.

Comments/Suggestion

Implementation of which is under operation phase is consistent with the overall objectives of the Environment and Development Policy. The design, construction and operation of the earth dam have considered the above considerations. Moreover, there should be planned and regular training of beneficiaries in effective and efficient management of water resources in order to enhance contribution towards achievement of the objectives of the environment and development policy.

3.3.2 Kenya Vision 2030

The Economic Recovery Strategy for Wealth and Employment Creation (ERSWEC 2003-2007) ended in 2007 and its achievements are being taken further by the Kenya Vision 2030 that aims at transforming Kenya into a globally competitive and prosperous nation offering quality life for all citizens by 2030 in a clean and healthy environment.

Comments/Suggestions

Earth Dam management and water users' associations are potential bases for promoting good governance and democratic practices in rural villages. By adhering to common practices, beneficiaries will realize more or less equal and higher incomes.

3.3.3 The National Poverty Eradication Plan (NAPEP) and the Poverty Reduction Strategies Paper (PRSP).

The NAPEP had an objective of reducing the incidences of poverty in both rural and urban areas by 50% by the year 2015 as well as strengthening the capabilities of the poor and vulnerable group to earn an income. It also aimed at narrowing the gender and geographical disparities and creating a healthy, educated population, it was prepared in line with the goals and commitments of the World Summit for Sustainable Development (WSSD) of 1995.

Comments/Suggestion

The outputs of this project is in line with the four goals of the WSSD themes of poverty eradication, reduction of unemployment, social integration of the disadvantaged people and creation of an enabling economic/ political and cultural environment.

Improvement of food supply and security to infant and maternity health is key as well as to income generation. A number of activities, including construction and consultancy services have been performed by the private sector. This has contributed to local capacity building. Therefore, the design and operational strategy of the Earth Dam have taken these strategies into account.

3.3.4 National Policy on Water Resources Management

This policy requires that development projects be subjected to comprehensive EIAs that will provide suitable measures to be taken to ensure environmental resources and people's health in the immediate neighbourhood and further downstream are not negatively impacted.

This policy will ensure the water being utilized is discharged into the receiving water body or system in accordance with the regulation without adverse effects to the surrounding environment. Care should be taken during refilling, collecting and disposing liquid wastes. In relation to this, the National Policy on Water Resources Management and Development (Sessional Paper No. 1 of 1999) was established with an objective to preserve, conserve and protect available water resources and allocate them in a sustainable, rational and economic way. It also desires to supply water of good quality and in sufficient quantities to meet the various water needs while ensuring safe disposal of wastewater and environmental protection.

The policy focuses on streamlining provision of water for domestic use, agriculture, livestock development and industrial utilization with a view to realizing the goals of the Sustainable Development Goals (SDGs) as well as Vision 2030.

Comments/Suggestion

An ESIA of the Earth Dam had already being undertaken and review was done by the concerned bodies which gave a go ahead to the project proceeding. Additionally, the proponent has commissioned NEMA registered EIA/EA expert to conduct an Environmental Audit (EA) of the project to assess the level of compliance of the project in regards to the policy.

3.4 Legal Frameworks

3.4.1 Environment Management Co-ordination Act, 1999 (Amendment 2015)

EMCA 1999 (Amendment 2015) is the legal and institutional framework for the management of the environment in Kenya. It establishes a specific link between environmental protection and the rights of all individual citizens to a clean and healthy environment. Section 58 of EMCA states that a project report shall be submitted for any undertaking specified under second schedule of the

Act’’. It is against this background that this report has been prepared to comply with section 58 of the EMCA 1999 (Amendment 2015). This report is also made as per the requirements of Part II of Section 7 of the Environmental (Impact Assessment and Audit) Regulations 2003 (Amendment 2019) legal notice number 101. Section 87 deals with prohibition against dangerous handling and disposal of waste; including institutional waste sub-section (1) state that “no person shall discharge or dispose any waste whether generated within or outside Kenya in such a manner as to cause pollution to the environment including pollution of rivers and pipe water or ill health to any person’’.

Comments/Suggestion

The proponent, by engaging registered NEMA licensed experts to undertake the Environmental Audit for Kitambaasye Earth Dam has conformed to the requirements of EMCA Act, 1999 (Amendment 2015). In addition, the proponent shall continuously undertake regular annual environmental audits and submit reports to NEMA (in compliance with sections 68 and 69 of the Act).

This Environmental Audit has examined and assessed the environmental performance based on key parameters with direct and indirect impacts to the environment considering the nature of the project operations. NEMA may require relevant bodies/agencies such as the ministry of health, lands and planning, county governments and other key stakeholders to comment on such reports. Hence, this report has been generated after the EA study was carried out in order to comply with this act.

3.4.2 Public Health Act (Cap 242)

Part IX, section 115, of the Act states that “no person /institution shall cause nuisance or condition liable to be injurious or dangerous to human health, injury to workers who are exposed to potentially harmful substances and conditions’’. Section 129 states that “it shall be the duty of every local authority to take all necessary and reasonably practicable measures for preventing any pollution dangerous to health of any water supply in which the public within the district has a right to use and does use for drinking or domestic purposes’’. Section 136 states that “all collections of water, sewage, rubbish, refuse and other fluids, which permit or facilitate breeding or

multiplication of pests, shall be deemed to be nuisances and are liable to be dealt with as provided in the Act”.

Comments/Suggestion

The project operations has complied with the stipulations of this act.

3.4.3 Water Act 2016

The purpose of the Water Act is to provide for the management, conservation, use and control of water resources and for the acquisition and regulation of rights to use water, to provide for the regulation and management of water supply and sewerage services. Section 94 of the Act makes it an offence to throw or convey or cause or permit to be thrown or conveyed, any rubbish, dirt, refuse, effluent, trade waste or other offensive or unwholesome matter or thing to water resources in such a manner as to cause, or be likely to cause, pollution of the water resource.

Part II, section 18, of the Water Act, 2016 provides for national monitoring and information systems on water resources. Following this, sub-section 3 allows the Water Resources Authority to demand from any person or institution, specified information, documents, samples or materials on water resources. Under these rules, specific records may require to be kept by a facility operator and the information thereof furnished to the authority.

Section 73 of the Act allows a person with license (licensee) to supply water to make regulations for purposes of protecting against degradation of water sources. Section 75 and sub-section 1 allows the licensee (AWSB in this case) to construct and maintain drains, sewers and other works for intercepting, treating or disposing of any foul water arising or flowing upon land for preventing pollution of water sources within his/her jurisdiction.

Comment/recommendations

The project objectives are supportive of the objectives of the water policy through education, awareness and training on better effective and efficient utilization of water and water conservation.

The proponent shall undertake regular monitoring of water quality and undertake regular recording of water use to help understand the variations that may be caused by misuse to prompt action – a measure that ensures efficient use of water.

3.4.4 Employment Act, Chapter 226 of Kenya and the Regulation of Wages and Condition of Employment Act Chapter 229 of Kenya

These Act deal with employee rights. The Employment Act fixes minimum standards of employment, while regulation of wages and conditions of employment Act creates wages fixing institutions like the wages board and councils to continuously review the human standards of employment on a sector basis. These Act effectively deal with issues such as prohibition of forced labour, child labour, and discrimination in employment as provided for in the respective International Labour Organizations' conventions which Kenya has since ratified.

Comment/Suggestion

The proponent has complied with this Act by ensuring that no forced labour, child labour and discrimination in employment.

3.4.5 The Registered Land Act (Cap 300)

Under the Registered Land Act, any person may acquire absolute ownership to any land, once he has been registered as the absolute owner. On registration, such person acquires freehold interest on the land. A subsequent buyer of the same land acquires the same rights as enjoyed by previous owner.

Comment/Suggestion

The proponent has not in any way violated this act.

3.4.6 Penal Code Act (Cap 63)

Section 191 of the penal code states; “any person or institution that voluntarily corrupts or foils water for public springs or reservoir, rendering it less fit for its ordinary use is guilty of an offence”. Section 192 of the same Act says that “a person who makes or vitiates the atmosphere in any place to make it noxious to health of persons / institutions in dwellings or business site in the neighbourhood or those passing along public way commits an offence”.

Comment/Suggestion

The proponent has not violated this Act.

3.4.7 The Occupational Safety and Health Act (OSHA) 2007

The OSHA 2007 is more inclusive and is an act of parliament to provide for the safety, health and welfare of workers and all persons present at workplaces, to provide for the establishments of the National Council for Occupational Safety and Health and for all connected purpose. Part I, section 3 (1) on the Application of the Act, states that ‘the Act shall apply to all workplaces where any person is at work, whether temporarily or permanently. Part II states that “the purpose of the Act is to secure safety, health and welfare of persons at work and protect persons other than persons at work against risks to safety and health arising out of work, or in connection with the activities of persons at work”. Section 6 (1-6) provides for what occupiers of premises ought to do to ensure the safety, health and welfare at work of all persons working there. Sections 21-22 also provide for what the occupier ought to do to notify the Occupational Safety and Health Officer (OSHO) of cases of accidents and dangerous occurrences and occupational diseases.

Comment/recommendations:

The proponent shall ensure strict adherence to the provisions of the Act and all the accompanying regulatory requirements.

3.4.8 The county government act, 2012 cap 111

The County Government Act, 2012 Cap 111 (1) states that for each city and municipality there shall be the following plans:-

- a) City or municipal land use plans;
- b) City or municipal building and zoning plan;
- c) City or urban area building and zoning plans;
- d) Location of recreational areas and public facilities

(2) A city or municipal plans shall be the instrumental for development facilitation and development control within the respective city or municipality.

(3) A city or municipal plan shall, within a particular city or municipality, provide for:-

- a) Functions and principles of land use and building plans;
- b) Location of various types of infrastructure within the city or municipality;
- c) Development control in the city or municipality within the national housing and building code framework

(4) City or municipal land use and building plans shall be binding on all public entities and private citizens operating within the particular city or municipality.

(5) City or municipal land use and building plan shall be the regulatory instruments for guiding and facilitating development within the particular city or municipality.

(6) Each city or municipal land use and building plan shall be reviewed every five years and the revisions approved by the respective county assembly.

Comment/recommendations:

The proponent should ensure strict adherence and compliance status with conditions for approval issued by various departments in the County government of Machakos including ensuring that all the necessary licenses and permits to operate are up to date.

3.4.9 The Physical Planning Act, Cap 286

Section 30 of this Act states that “no person shall carry out development within an area of a local authority without a development permission granted by the local authority under section 33”. Section 31 of the same Act states “that any person requiring a development permission shall make an application in the form prescribed in the fourth schedule, to the clerk of the local authority responsible for the area in which the land concerned is situated”. Section 33 gives the Director of Planning authority to grant the applicant development permission or decline to grant the applicant such development permission by stating the ground of refusal.

Comments/Suggestion

The proponent has complied with this act.

3.4.10 Animal Diseases Act, Cap 364

This Act stipulates that food animals be raised in a well-ventilated, well lit and appropriately spaced housing or environments, animals be relieved of pain from diseases and pests through appropriate treatment and husbandry practices, animals must be fed on innocuous materials or feeds that are free of poisonous substances, substances having hormonal effects should not be used in food animals and animals be given enough potable drinking water.

Comment/recommendations:

The proponent shall engage livestock producers and other key actors to ensure adherence to this Act. For instance, working with the livestock marketing associations, the proponent shall ensure

that only disease-free animals are reared within the project area and the right control measures be taken for the infected ones.

3.4.11 Pest Control and Products Act, Cap 346

This Act stipulates that appropriate pesticides must be used to control pests in food crops and food animals as well as appropriate withdrawal periods allowed to prevent accumulation of pesticide residues. The use of pest control products has a bearing on the food crops, animal products and consequently on human health, and there is need to ensure proper and controlled use of pesticides.

Comment/recommendations:

The proponent shall regularly undertake all measures required under this Act to ensure compliance with all its provisions.

3.4.12 Food, drugs and chemical substances Act Cap 254)

The Act stipulates that appropriate drugs and antibiotics must be used to treat crops and animal diseases and withdrawal periods allowed to prevent accumulation of drug residues in crops and animals.

Comment/recommendations:

The proponent has ensured that the operation of the Kitambaasye Earth Dam does not contravene the stipulations of the Act.

3.4.13 Forest and Conservation Act, 2016

The Act provides for the establishment, development and sustainable management, including conservation and rational utilization of forest resources so as to enhance their role in the stabilization of soils, ground water, protecting water catchments, moderating climate by absorbing greenhouse gases, provide the main locus of Kenya's biological diversity and a major habitat for wildlife. Its provisions apply to all forests and woodlands on state, local authority and private land of the country declared as provisional forest by the Minister. The administration of forests is headed by the established Kenya Forest Service managed by a board, regional forest conservation committees work under and community participation is integrated through community forest associations (CFAs) and forest user associations. The Act also establishes the forest management and conservation fund headed by a finance committee. The Act requires formulation of forest management plans for use in management of state, local and provisional forests, joint management of forests is allowed but governed by management agreement with the forest service. Indigenous

forests and woodlands shall be managed on a sustainable basis and presidential decree for protection of trees can be issued. Variation of forest boundaries or revocation of state or local authority forests and state forest concession are subject to an independent EIA and public consultation. Director of Kenya Forest Service (KFS) is required to maintain register of all licenses issued under the Act. Provisions of part VI and part XII of EMCA'99 shall apply mutatis mutandis to and in respect of a license under this Act and any EIA as well as reference to the National Environment Tribunal required under this Act. The provisions of EMCA'99 regarding reference to the Tribunal established under that Act shall apply to the settlement of disputes arising under Forest and conservation Act, 2016. Offences under the Act are punishable under the law and citizens can petition High court for a declaration of contravention of the Act provisions. Thus the Act directs, regulates and harmonizes development and use of forests in the country. In addition, the Act provides a vital link with the Environment Management and Coordination Act. Land Control Act, Cap. 302

Comment/Suggestion

The main objective of the National Forestry Policy is to enhance contribution of the forestry sector in sustainable socio-economic development of the country, as well as conservation and management of the natural resource-base for the benefit of both the present and future generations.

Conservation of the forestry resources in the upper catchment is crucial for ensuring sustainable flows of water to the water Dam. The establishment of the water Dam is thus an extra incentive for undertaking conservation measures in the catchment area.

3.4.14 Wildlife Conservation and Management Act (amendment) Act, 2016

The Policy seeks involvement of a broader section of the society in wildlife conservation, and in particular the rural local communities, as well as the private sector with only a role of stimulating and duly guiding both the rural local communities and the private sector by administering, regulating and promoting management of wildlife resources.

Comments/Suggestion

Within the area there are no wildlife management areas.

3.4.15 Energy Policy of 2002

Sufficient and efficient supply of energy is crucial for national development. The objective of the energy policy is therefore to contribute to the national socio-economic development process by providing an efficient energy production, procurement, transportation, distribution and end-use system in an environmentally sound manner and with due regard to gender issues.

Comments/Suggestion

The proponent shall comply with this act by encouraging to use of Energy serving Jikos (ESJs) that are fuel-efficient. This promote environmental conservation.

3.4.16 Environment and Land Court Act No.19 of 2011

This law was assented to on 27th August, 2011 and commenced on 30th August 2011 to give effect to Article 162(2) (b) of the Constitution; to establish a superior court to hear and determine disputes relating to the environment and the use and occupation of, and title to, land, and to make provision for its jurisdiction functions and powers, and for connected purposes. Section 13 (1) of the Act gives the Court original and appellate jurisdiction to hear and determine all disputes in accordance with Article 162(2) (b) of the Constitution and with the provisions of this Act or any other written law relating to environment and land. In exercise of its jurisdiction under Article 162 (2) (b) of the Constitution, the Court shall have power to hear and determine disputes relating to environment and land, including disputes:-

relating to environmental planning and protection, trade, climate issues, land use planning, title, tenure, boundaries, rates, rents, valuations, mining, minerals and other natural resources;

- Relating to environmental planning and protection, trade, climate issues, land use planning, title, tenure, boundaries, rates, rents, valuations, mining, minerals and other natural resources;
- Relating to compulsory acquisition of land;
- Relating to land administration and management;
- relating to public, private and community land and contracts, choses in action or other instruments granting any enforceable interests in land; and
- Any other dispute relating to environment and land

Comment/Suggestion

This statute is deemed relevant to all development proposed for implementation in Kenya as it provides for legal recourse for disputes relating to environment and land.

3.4.17 Public Procurement and Disposal Act 2005

The purpose of this Act is to establish procedures for procurement and the disposal of unserviceable, obsolete or surplus stores and equipment by public entities to achieve the following objectives -

- To maximize economy and efficiency;
- To promote competition and ensure that competitors are treated fairly;
- To promote the integrity and fairness of those procedures;
- To increase transparency and accountability in those procedures; and
- To increase public confidence in those procedures;
- To facilitate the promotion of local industry and economic development,
- All procurement of services related to water Dam and operation/maintenance is subject to this statute.

Comments/Suggestion

This statute is deemed relevant to all development proposed for implementation in Kenya. The proponent has adhered to the stipulations of this act.

3.4.18 Land Act 2012

In managing public land, the Commission is further required in section 10(1) to prescribe guidelines for the management of public land by all public agencies, statutory bodies and state corporations in actual occupation or use. In these guidelines management priorities and operational principles for management of public land resources for identified uses shall be stated.

This in essence means that the Commission shall take appropriate action to maintain public land that has endangered or endemic species of flora and fauna, critical habitats or protected areas. As well the commission shall identify ecologically sensitive areas that are within public land and demarcate or take any other justified action on those areas and act to prevent environmental degradation and climate change.

Comment/Suggestion

The land Act policy provides incentives for efficient use of public land and its resources. It seeks to promote and ensure a secure land tenure system, encourage optimal use of land resources and facilitate broad-based social and economic development without upsetting or endangering the ecological balance of the environment.

3.5 Regulatory Framework

3.5.1 The Water Sector Regulations

The National Policy on Water Resources Management and Development and the Water Act 2016, presently guides water resources management. The overall goal of the National Water Development Policy is to facilitate the provision of water in sufficient quantity and quality and within a reasonable distance to meet all competing uses in a sustainable, rational and economical way. This policy separates policy formulation, regulation and services provision and defines clear roles for sector actors within a decentralized institutional framework and includes private sector participation and increased community development.

Under the policy, the Ministry of Agriculture, Livestock and Fisheries is responsible for policy development, sector co-ordination, monitoring and supervision to ensure effective water and sewerage services in the country, sustainability of water resources and development of water resources for irrigation, commercial, industrial, power generation and other uses. The Ministry executes its mandate through the following sector institutions:

3.5.1.1 Water Services Regulatory Board (WASREB)

The Regulatory Board is responsible for the regulation of the water and sewerage services in partnership with the people of Kenya. The mandate of the regulator covers the following key areas; regulating the provision of water and sewerage services including licensing, quality assurance, and issuance of guidelines for tariffs, prices and disputes resolution.

Overseeing the implementation of policies and strategies relating to provision of water services licensing of Water Services Boards and approving their appointed Water Services Providers,

monitoring the performance of the Water Services Boards and Water Services Providers, establish the procedure of customer complaints, Inform the public on the sector performance, Gives advice to the Minister in charge of Water Affairs.

3.5.1.2 Water Resources Authority (WRA)

The authority is responsible for sustainable management of the Nations Water Resources; Implementation of policies and strategies relating to management of water resources, develop principles, guidelines and procedures for the allocation of water, development of catchments level management strategies including appointment of catchments area advisory committees, regulate and protect water resources quality from adverse impacts, classify, monitor and allocate water resources.

3.5.1.3 Water Services Trust Fund (WSTF)

This body assists in the financing of the provision of Water Services to areas of Kenya that are without adequate water services. This shall include providing financing support to improved water services towards; Capital investment to community water Dam in underserved areas, capacity building activities and initiative among communities, water services activities outlined in the Water Services Strategic Plan as prioritized by the Government, awareness creation and information dissemination regarding community management of water services and active community participation in the management of water services.

3.5.1.4 Water Services Boards (WSBs)

The WSBs are responsible for the efficient and economical provision of water and sewerage services in their areas of jurisdiction. There are seven catchment boards established under the Act mandated to; develop the facilities; prepare business plans and performance targets planning for efficient and economical provision of water and sewerage services within their areas of jurisdiction; Appointing and contracting Water Service Provider Asset holding of central government facilities.

3.5.1.5 Water Services Providers

Water Service Providers are the utilities or water companies. They are commercial entities therefore are required to improve their performance and run like business within a context of efficiency, operational and financial autonomy, accountability and strategic, but minor investment.

3.5.2 National Environment Management Authority (NEMA)

NEMA is the regulatory body charged with management and co-ordination of environmental issues. The object and purpose for which the Authority was established is to exercise general supervision and co-ordination over all matters relating to the environment and to be the principal instrument of Government in the implementation of all policies relating to the environment.

Regulatory function:

- i. co-ordinate the various environmental management activities being undertaken by the lead agencies and promote the integration of environmental considerations into development policies, plans, programmes and projects;
- ii. identify projects and programmes or types of projects and programmes, plans and policies for which environmental audit or environmental monitoring must be conducted under this Act;
- iii. Monitor and assess activities, including activities being carried out by relevant lead agencies, in order to ensure that the environment is not degraded by such activities.

3.6 Compliance with World Bank Safeguard Policies

This part of the report contains an analysis of the compliance of the Kitambaasye Earth Dam project with the Bank Safeguard policies. It is based on intensive field observation by the study team, coupled with discussions held with the farmers and other local people, including village and KCSAP officials as well as project staff. The report is also based on the review of various existing documents.

3.6.1 Environmental Assessment (OP/BP 4.01)

In order to ascertain that project proposals submitted for funding are environmentally sound and sustainable, the World Bank requires that Environmental Assessment (EA) of the proposals be carried out. An Environmental Assessment (EA) of Kitambaasye Earth Dam project was carried out as part of the overall base line study of the Dam. In view of the present-day nature of activities

at the Dam, it was found that the Dam cannot bring about adverse environmental impacts and that depending on proper handling of several factors; e.g. Land tenure issues, its sustainability may also be ensured. The findings of the study were discussed with beneficiaries as well as local community leaders at meetings held at the project site and also with the proponent. Their opinions and ideas were considered in finalizing the Environmental and Social Management and Monitoring Plan.

From the above-mentioned observation, the Kitambaasye Earth Dam project is considered to be in compliance with the Bank Environmental Assessment.

3.6.2 Natural Habitat (OP/BP 4.04)

Kitambaasye Earth Dam is relatively a newly constructed water Dam. There are no neighbouring natural habitats, which require protection and conservation. The Dam does not therefore trigger the Natural Habitat Safeguard Policy of the World Bank.

3.6.3 Pest Management (OP 4.09)

Use of pesticides within the water Dam surrounding is currently at low level. The farmers, through the extension service, are encouraged to apply IPM approaches. Farmers are also trained on safe use, storage and disposal of chemicals. These efforts will lead to greater compliance with the Integrated Pest Management policy of the World Bank, than present day situation.

2.6.4 Involuntary Resettlement (OP/BP 4.12)

As mentioned above, Kitambaasye Earth Dam project is a relatively Dam which has only recently been constructed. At the Dam area, however, no resettlements have had to be carried out. The Dam does not, therefore, trigger the Involuntary Resettlement safeguard policy of the World Bank.

3.6.5 Indigenous Peoples (OD 4.20)

The residents are presently permanently settled in the area, and in response to the interviews with the beneficiaries, nobody indicated plans to move away. In view of the above, it is evident that project activities within the water Dam and the surrounding area would not trigger the indigenous policy of the World Bank.

3.6.6 Forests (OP/BP 4.36)

The project area has no forested areas which may be adversely impacted by project activities of the Dam for this reason; project activities at the Dam and the surrounding areas may not trigger the World Bank's safe guard policy on Forests.

3.6.7 Safety of Dams (OP/B1P 4.37)

There are presently no dams, and moreover none are under consideration at the project area. The project does not therefore trigger this safe guard policy of the World Bank.

3.6.8 Cultural Property (OPN 11.03 -draft OP 4.11)

The Dam does not have movable or immovable objects, sites, natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or cultural significance. Therefore, the Dam does not trigger this safeguard policy.

3.6.9 Projects on International Waterways (OP/BP 7.50)

The water Dam receives water from the surrounding area, which does not flow, to any other states. The Dam does not therefore trigger this safeguard policy.

3.6.10 Project in Disputed Areas (OP/BP 7.60)

The plan does not operate in disputed areas and it does not therefore trigger this safeguard policy.

3.6.11 Consultation and Disclosure Requirements (BP 17.50)

The findings of the study and recommendations have been discussed with beneficiaries of the water Dam. They endorsed the findings and recommendations. The Environmental Audit report will be submitted to NEMA for review and acknowledgement of the same.

3.7 Proponent's Knowledge and Awareness on Relevant Legislation

The proponent is aware of the various Acts in environmental management among others and their requirements in addressing negative environmental impacts related to the project. Thus, he is committed to complying with all legal requirements to ensure that the undertakings of the water Dam are environmentally sustainable.

CHAPTER FOUR: PUBLIC PARTICIPATION AND STAKEHOLDERS CONSULTATION

4.1 Introduction

This chapter describes the objectives of the public participation and stakeholders' consultation, methodology and approach used, main environmental and social issues identified/raised and the suggested mitigation measures.

4.2 Objectives of public participation

This public participation and stakeholders' consultation were undertaken to ensure that the audit is comprehensive by ensuring that all the issues/ concerns both environmental and social are captured and also the ways of mitigating them are well articulated.

4.3 Methodology and approach

This public participation was done through a meeting with the community and members of Kitambaasye Earth Dam at the site on 7th April 2022 where 31 people (13men and 18 women) including the ESIA/EA experts, KCSAP Machakos officers and officers from Ministry of Agriculture and NEMA officer Machakos County attended. *See annexed attendance list and minute of public participation meeting (Annex 2 and 3 respectively).*

Key informants were also administered to key stakeholders to give them opportunity to give in-depth understanding and views regarding operations of Kitambaasye Earth Dam. *See annexed samples of filled key informants (Annex No. 4).*



Plate 1: A photo of public participation meeting



Plate 2: A photo of the area chief addressing the public participation meeting

4.4 Positive impacts of the water Dam

- Decreased distance travelled fetch water for domestic use and watering of livestock.
- Improved nutrition in the community.
- Promote livelihood diversification because people are able to keep livestock and grow crops.
- Promote small scale irrigation especially in the area adjacent to the water Dam.
- Promote afforestation and re-afforestation of the project area.
- The women are able to be more productive at household level because they can now spend the time spent in fetching water to do other productive work.
- Decreased school drop out because children would leave school to accomDamy their parents in search of water for domestic and livestock use.

4.5 Major Environmental & Social Issues Identified and their proposed mitigation measures

4.4.1 Environmental Issues

- Overgrown vegetation and trees on the embarkment. It was suggested that the beneficiaries of the earth dam should ensure that the vegetation within the embarkment are trimmed and trees pruned.

- Siltation of the Earth Dam. It was suggested that the beneficiaries should ensure that all measures are put into place to reduce siltation of the earth dam such as growing of cover crop and planting of vegetation on the catchment area.
- Water pollution. It was suggested that the community through the management of the earth dam should sensitized on pollution prevention and ways of treating water for domestic use.
- Soil erosion. It was suggested that the community through the management of the earth dam should be sensitized on soil and water management practices to minimize soil erosion.

4.4.2 Social Issues

- Fence vandalism. The fence surrounding the earth dam has been vandalized by people so as they can access the earth dam to steal fish.
- Danger of drowning. This is because the fence has been destroyed and therefore anybody can get access to the earth dam. It was suggested that the beneficiaries through the management of the earth dam should repair the blocken fence.
- Theft of fish. This is because the fence is destroyed and therefore it was suggested that the fence should be repaired.
- Destruction of water pipes trough leaving livestock to access the earth dam for watering which results into pollution. It was suggested that the beneficiaries though the dam management should repair the water pipes to drain water into the water trough.

CHAPTER FIVE: AUDIT FINDINGS ON THE ENVIRONMENTAL CONDITIONS AND SOCIAL IMPACTS

5.1 Introduction

This chapter presents a brief description of identified environmental and social impacts of the Kitambaasye Earth Dam. The impacts are based on changes, which have or are expected to occur, prior or post improvement of the Dam. Attempts have been made to indicate both positive as well as negative impacts, but for the sake of preparing an effective Environmental and Social Management Plan (ESMP), negative impacts have featured more than positive impacts.

5.2 Components of the Earth Dam

The components of the Dam that had to undergo environmental audit were as follows: earth area, embarkment, spillway channel, silt trap basin, water intake, outlet waterway, fence, water trough and water catchment.

5.2.1 Area surrounding the water Dam

The Dam area has vegetation cover mainly grasses, indigenous trees and a few exotic trees. To promote the conservation of the water dam area, the community need to be trained on tree planting, erosion control and grazing of animals around the earth dam should be prohibited.



Plate 3: A photo showing over-vegetated area surrounding the earth dam

5.2.2 Embarkment

The embarkment of the earth dam is well constructed. However, in some parts there is soil erosion that has caused cracking of the embarkment. The sections that have been affected need to be repaired and vegetation planted.

5.2.3 Spillway channel

The floor of the spillway is stone pitched and discharge back into the natural drainage. The channel equally acts as silt trap the debris at the bottom should be removed to allow silt to accumulate at the bottom.

5.2.4 Fencing

The fence around the water Dam comprises of concrete post, barbed wire and wire mesh. However, currently some parts of the fence have been destroyed and need to be repaired.



Plate 4: A photo showing fence surrounding the earth dam

5.2.5 Livestock watering trough

Livestock watering trough is well constructed but need to be fenced off to regulate entry of livestock so that a certain number of livestock are water at a time. Currently, pipes draining water into the trough are blocked and need to be repaired.



Plate 5: A photo showing the water trough

Figure 2: Photo showing water trough

5.2.6 Silt trap basin

The silt trap was constructed well but it requires regular maintenance to ensure that the silt is trapped before water reaches into the dam.

5.2.7 Water intake

The water intake is also was constructed well but it requires regular maintenance to ensure that maximum water harvesting into the earth dam.

5.2.7 Water catchment

Kitambaasye micro catchment area is in Matungulu Sub-County of Machakos County covering an area of 58.87Km².

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

6.1 Introduction

At the time of this annual EA study, the water Dam had an ESMMP prepared during the ESIA process. The ESMMP is updated annually during the annual EA process. This plan is required to provide a concise structure of actions based on set standards and guidelines with the specific time frame for the management of the environment during the project operations and future activities. The updated ESMMP below is recommended based on findings of the audit to provide a framework within which environmental protection measures will be undertaken to forestall any potentially negative impacts arising from the facility, now and in the future.

Table 1: Environmental and Social Management and Monitoring Plan (EMSMP)

Area of concern and environmental impact	Standards and guidelines	Management and mitigation measures in place	Suggestion for improvement	Indicators for monitoring	Responsible party	Priority/ action level	Budget (Kshs.)	Time frame
1. Soil erosion								
Development of gully erosion around the inlet, embankment and outlet	Application of EMCA Act on riverbank management and soil conservation	Construction of gabions where erosion is severe and plant grass and trees to hold the soil	Repair and concretize the spillway. Apply chain link within the gabions to hold the stones	Length of gabions put in place	Dam management committee	Medium	60,000	Routine
2. Run off, wastewater/effluent								
Contamination of Dam water or contaminated water from the Dam	The Public Health Act, Chapter 242 Part IX	Provide water treatment tablets and clean the water free from contaminants	Promote use of water purification tablets and training on clean water for domestic use	No. of Dam users provided with water treatment tablets. Amount of water purification	Dam management committee	High	10,000	Routine

				facilities installed				
3. Risk of downing								
Risk of downing	Occupational Health Safety	Provision of life saving jackets Fence the water Dam and employ watchman to restrict access to the Dam	Install a signage indicating the danger of drowning and existence of the Dam Sensitize the community on the danger of the water Dam	No. of life jackets provided and within reach of the vulnerable persons Signage installed Presence of fence and a watchman	Dam management committee	Medium	20,000	Routine
4. Solid / Liquid waste management								
A health hazard	EMCA, CAP 387	Solid wastes (waste papers) are collected at a point on site and decomposed or	Install dust bins and label them appropriately for ease of waste segregation.	Appropriate solid waste management system in place.	Dam management committee	High	6,000 for dustbin	Routine

		open-air incineration		A clean facility.				
Contaminated water and disposal of solids around the Dam.	EMCA, CAP 387	Restrict access to the Dam by people and livestock. People and livestock access the to the watering point only	Fence and provide gate to access the Dam and watering point	Presence of fence and gate and watchman	Dam management committee	High	30,000	3 months
5. Water quality								
Water contamination from use of agrochemicals	EMCA, CAP 387	Safe storage of the agrochemicals Application of biodegradable pesticides and at designated time when the weather is appropriate	Promote integrated pest management Promote organic farming and biodegradable pesticides with a short shelf life Promote safe use of agrochemicals	Record on the type of bio-pesticide used Date of application and withdrawal period	Dam management committee and the sub county department of agriculture	Medium	10,000 capacity building	Routine

Contamination of water by the users	Public Health Act	Water testing and treatment Designated watering points	There should be two water troughs for cattle, another one for sheep and goats Water troughs to be fenced off	Well fenced and protected water troughs and filled with water	Dam management committee	Medium	20,000	Routine
Vector borne diseases	Public Health Act	Currently no only water treatment tablets are being availed to the Dam users	Provision of long lasting treated mosquito nets and repellants. Introduction and stocking of the Dam with fish to prey on mosquitos Treatment of the affected	Number of households supplied within Mosquito nets and water treatment tablets Amount of fingerlings stocked	Dam management committee	Medium	10,000	Routine
6. Material handling and storage								
Arrangement and storage of farm produce ,	EMCA, CAP 387	o All items are arranged in different store.	Maintain records of materials at the facility and their	Arrangement of products,	Dam management committee	High	5, 000	Routine

Contamination of food items, handling of expired goods that may find their way into the Dam		<ul style="list-style-type: none"> Storage and handling of hazardous substances is guided by the manufacturer's specifications and guidelines 	description for ease of handling. Storage and handling of hazardous substances should be guided by the manufacturer's specifications and guidelines always.	goods is effective. Labeling of all items done appropriately. Records of all products and handling procedures in place.				
7. Employee welfare, Occupational health and Safety Measures.								
Accidents and exposure to harmful substances and pathogens	Occupational Safety and Health Act (OSHA), 2007	<ul style="list-style-type: none"> There is no first aid kit Training of employees on all aspects of dealing with emergencies has been done 	Warning signs should be appropriately displayed at the Dam Training of workers on emergency issues. Enforce the use of PPEs/uniforms	Efficient safety measures in place. Records on staff training in place. Availability of life	Dam management committee	High	8,000	Routine

				saving jackets				
8. Record keeping and documentation								
Records on number of Dam users, washing clothes and collecting water for domestic use Number of cattle watering	o EMCA, CAP 387	Record keeping documents. A water meter installed	Documentation of water consumption and sales to the community members	All records in place.	Dam management committee	High	Nil	Routine
9. Sanitation and general								
Environmental health hazards	Public health Act, OSHA 2007 and EMCA CAP 387	Construct bathrooms to avoid open waster disposal	Ensure Dam water is drawn through piping Periodic check of quality of Dam water	Efficient management of the water piping and pumping system	Dam management committee	High	5,000 for checking quality of Dam water	Routine
11 Social issues								

Covid 19	Ministry of health guidelines	Social distancing of 1.5metres apart Use of sanitizers and handwashing by using soap	Use of face masks, discourage social gathering. Install hand washing facilities	Number of face masks supplied. Amount of sanitizers used Number of hand washing facilities installed Number of persons vaccinated	Dam management committee Ministry of health	High	5,000 purcahes sitizers, soap face masks	Routine
Gender based violence and Sexual harassment	Sexual Offences Act, 2006	Reporting desk	Sexual Gender Based Violence action plan	Incidences reported	Dam management committee	Medium	10,000 awareness creation	Routine
HIV /AIDS Prevention	HIV /AIDS Prevention and Control Act 2006 and Gender Mainstreaming:	HIV and AIDS information and services	HIV/ AIDs and gender issues in all the stages of implementation	Number of persons sensitized	Dam management committee	High	10,000 awareness creation	Routine

Child Abuse	Children Act Cap 141 of 2012	Discourage and prohibit child labor and sexual abuse	Develop and implement a Children Protection Strategy that will ensures minors are protected against negative impact	Incidences reported	Dam management committee	Low	Nil	Routine	
Conflicts		Confliict mitigation measures	Trainings on water use management, hygiene, group cohesion and conflict mitigation	Reported incidences of conflicts Reported incidences of GRM	Dam management committee	High	30,000	Routine	
Total ESMP cost								239,000	

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATIONS

7.1 Conclusion

Based on the review of baseline information, field visits to Kitambaasye Earth Dam and data analyses; it is evident that there are environmental and social issues/impacts/problems which need to be addressed in order to ensure sustainable and sound operation of the water Dam. Key environmental and social issues identified/raised such as risk of downing due to absence of a fence, soil erosion, pollution of water, conflict of water use and human – wildlife conflicts among others need to be addressed.

7.2 Recommendations

To ensure that the operations of the Kitambaasye Earth Dam are properly undertaken all the environmental and social issues need to be adequately addressed by the proponent and all relevant authorities. They include the following:

- Fencing of the water Dam with concrete post and install electric fence to prevent elephants from accessing the water Dam.
- Train the community and especially farmers on soil conservation methods to conserve the catchment area.
- Sensitize the community/beneficiaries on importance of paying water use charges to ensure sustainability of the water Dam.
- The water Dam users should join Water Resources Users Association (WRUA).
- Regularly repair the damaged parts of the water Dam.
- Install a gate and employ a watchman to restrict access to the water Dam.
- Train water Dam management team on conflict resolution and management to be able to manage the water use conflict when they emerge.

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- x). Various Multilateral and International Agreements on Environment.
- xi). Hydrological Survey Report for Makanyanga Water Project

ANNEXES

- Experts NEMA License
- Attendance list
- Key informant Questionnaires
- Minutes of Public Participation

Annex 1: EIA/EA Licences of the experts

FORM 7 (r.15(2))



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mazingira yetu | uhai wetu | wajibu wetu

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/17153
Application Reference No: NEMA/EIA/EL/22182

M/S **Dickson Kimathi Muthaura**
(individual or firm) of address

P.O. Box 2269-60200 MERU

is licensed to practice in the

capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert**
registration number **6235**

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

Issued Date: **4/6/2022** Expiry Date: **12/31/2022**

Signature.....



(Seal)
Director General
The National Environment Management Authority

Annex 2: Minutes of public participation meeting

MINUTES FOR THE ENVIRONMENTAL AUDIT OF THE KITAMBASYE EARTH DAM PUBLIC CONSULTATION AT KITAMBASYE ON 7TH APRIL 2022



The meeting was called to order by Peter Mwanzia Muinde and started with a word of prayer by Jane Kioko at 12.06 pm.

AGENDA

- i. Public participation of the environmental audit for the Kitambasye earth dam
- ii. Administering Questionnaires
- iii. Site visit

INATTENDANCE

Attendance list as attached

MIN 1/4/2022: PRELIMINARIES

Peter Wambua who is a project management committee (PMC) official then welcomed the Ward Agricultural officer for Mr. Kioko. Mr. Kioko welcomed everyone, thanked them for taking the time to come to the meeting and asked everyone if they knew the reason for the meeting. He said that we will not get into the details, however, he informed them that it was linked entirely to Kitambasye earth dam.

The area chief/ assistant chief Angeline Mutua was next to speak. She was pleased to see that her people showed up to a meeting that would to their growth as a community. She noted that the people around the dam were mainly responsible for the security of the dam. The reports she has been receiving about people who have been fishing in the dead of the night. Hence the PMC needs to hold election to elect new committee leaders, so that can come up with better ways to manage the project that is now in their possession as the community. She assured them that she will not let the project fall apart since it has so many benefits to the community.

The area / assistant chief Angeline Mutua was followed by the village administrator Kiboko Stellamarris Wambua. She said that she was new and most people knew her predecessor, however, she affirmed that she was devoted to work in improving the community especially through the projects that build the community.

The project management committee officials that were present introduced their names as Peter Mwanzia, Jane Mumbua Kioko and Patricia wambua (chairperson). The members of the clergy present John Mutua Nzioko from the catholic church who stated that he has seen firsthand the benefits of the project. They all have access to water, that is why they should take care of it. Ann Mwikali represented the African Brotherhood Church (ABC) and from the salvation army who came in much later Sg in charge Onesmus. Grace Mukumbi the nursing officer at Kitambasye level two hospital and the chairman of Kitambasye primary school Sila introduced themselves.

Mr. Kioko then introduced Madam Diana Komo to address the community and state the agenda. Madam Diana thanked everyone that came to the environment audit meeting. This process is a follow up process meant to track the progress of Kitambasye Earth dam. She continued to say that the meeting was not a villain naming and shaming crusade, but a meeting to speak out the real issues that are related to the project and ways for the community to solve them. What can be done and what should be stopped and they should keep doing. She reminded them that they had initially accepted the project as their own. For the sustainability of the project a vibrant PMC needs to be present. She stated that they also have fish in the dam which is an added advantage for the community. She stressed that without stakeholder engagement nothing can move forward. Before she welcomed the other guests with her she added that the project has always been intended to be a blessing not a curse.

Madam Alice Ndaru (Agriculture engineer) and the Environmental auditor present introduced themselves.

MIN 2/4/2022: PUBLIC CONSULTATION

The environmental auditor said that they were pleased to see everyone in the meeting. They went ahead to explain what an environmental audit is and its importance. They stated that an environmental audit is an environmental management tool that occurs periodically and evaluates the objective of the ongoing project. This process is moreover, mandated by law to check compliance and safety. They audit is there to access whether the project is achieving its intended objectives.

The environmental auditor went through a brief history of the dam. The key points were that Kitambasye earth dam was initially started in 1984, after breaking its wall in 2018 the World bank through the Kenya Climate Smart Agriculture Project funded its rehabilitation. KSCAP mostly focuses on increasing agriculture productivity, build resilience and reduce greenhouse gas emissions. Hence the objective of the dam is to enable continued rain water harvesting for subsistence irrigation and domestic use.

They also talked about the dam capacity 30,000 m³ and the total project cost KSH. 18.5 million. The auditor went through a brief list of the anticipated impacts that came up during the initial Environmental and social impact assessment report before the implementation of the project.

The community was then welcomed to share their views. They were encouraged to be honest and open during the exercise.

MIN 3/4/2022: IMPACTS OF KITAMBASYE EARTH DAM

Gregory Sila mutinda was first to state that now they have drinking water for both people and animals, for domestic use at home. The environmental auditor asked them whether they used the water for irrigation purposes. They community responded with a resounding no. They were asked why and Patricia Wambua (PMC chairperson) responded that they feared that the water will end and also they might pollute the water when they pump the water. The auditor asked them whether they were trained on water users or natural resource management and the community said no.

The Sgt in charge Onesmus (Salvation Army clergy) stated that they were not sure whether the water can support their daily use and support agricultural activities since the dam capacity seems very small. Also if they finish the water the fish that were stocked by the fisheries department will all die. Madam Diana suggested that the community can have small kitchen where they can irrigate them with the water from the dam. This can help improve the nutrition of the community. The auditor in turn poses the question to the Grace Mukumbi (Nurse at Kitambasye level two hospital) said that there is no increase in water borne and vector borne disease cases that could be related to the presence of the dam. She also added that the children brought in for check-ups are not malnourished.

The community surprisingly seemed convinced that the dam did not hold any apparent benefits to their day to day livelihoods. This is until they were given an example by Madam Diana, when they first visited Kitambasye the town had few buildings, the construction process was facilitated by the presence of water. A community member disclosed that the market mostly uses water from the dam. And suggested that if they could get pipes and pipe the water close to them for their daily use.

With the good comes the bad the community cited some negative socio-economic impacts that they have been experiencing. Those are school children go to hide at the dam to take drugs, one of the two toilets is always close, the one open is always dirty, theft of the pipes and, the youth sneak in late at night through the gaps in the fence to go fish, the water looks like it is not quality, the water-attracting wild animals and on their way they eat their produce, the PMC does not seem like they are doing their job.

MIN 4/4/2022: CONCERNS, QUESTION & ANSWER SESSION AND RESPONSES

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

SN.	Issues raised by the community	Brief explanation/ comment	Response
1.	Availability of water	Gregory Sila mutinda: stated that they have drinking water for both people and animals, for domestic use at home The environmental auditor: asked whether they used the water for irrigation.	The community responded that they did not use the water for irrigation since they feared that it might get polluted when they pumped it using a water pump that uses fuel.

			The technical team also added that they can instead conduct small scale irrigation like having kitchen garden
2.	Water shortage	The Sgt in-charge Onesmus (Salvation Army clergy) stated that they were not sure whether the water can support their daily use and support agricultural activities since the dam capacity seems very small	The technical team responded that the dam capacity is 30,000m ³ , which is a sufficient amount, however, due to siltation which has been occurring it will keep reducing. If the community does not conduct desilting during the dry periods, to maintain its capacity.
3.	The health of the community	Grace Mukumbi (Nurse at Kitambasye level two hospital) said that there is no increase in water borne and vector borne disease cases that could be related to the presence of the dam. She also added that the children brought in for check-ups are not malnourished. Also there are no accident incidents that are linked to the dam	
4.	Drug abuse	The community cited that school children go to hide at the dam to take drugs bhang	
5.	Crime	The community complained that the pipes and are being vandalized and the fence has been cut by individual who go to fish at night	The technical team advised that the community is responsible for reporting the cases and the individual to the area chief

MIN 5/4/2022: ADMINISTERING QUESTIONNAIRE

After the community exhausted their views the auditor took them through the questionnaires. They explained the importance of the exercise especially in the writing of the audit report. Also, how this is proof of their involvement in the process. The community wrote down their views.

MIN 6/4/2022: CLOSING STATEMENTS

Once the environmental auditor was done the chief addressed the community to remind them about the project and its importance. She asked to meet the PMC as soon as possible so as to come with possible solutions to the issues that have come up, especially the management issues.

Mr. Kioko the Ward Agricultural Officer said that he is available any time the community needs him. Madam Alice Ndaru gave her closing remarks, followed by Madam Diana

MIN 7/4/2022: AOB

The veterinary officer Dickson Kioko reminded the community about the rabies drive and they should all bring their dogs to be vaccinated for free. The importance of having their dogs vaccinated.

Meeting ended with a word of prayer at 3.20 pm by Patricia wambua

PICTORIALS





Annex 3: Attendance list



REPUBLIC OF KENYA
MACHAKOS COUNTY
KENYA CLIMATE SMART AGRICULTURE PROJECT
(KCSAP)



ATTENDANCE LIST

Activity... *Kitamborasiye*... *Earth dam - Governmental*... *Prudf.*

Venue... *Kitamborasiye*... Date... *7.14.2022*

S/No	Name	P/No. / ID No.	Age		Gender (M/F)	Organization/ Ward/Zone	Contact.	Signature
			Less than 35yrs	Above 35yrs				
14	Prisca Musau	21418594	✓		F	Kitamborasiye	0768716020	<i>[Signature]</i>
15	Josephine Nyathi	29063942		✓	F	Kitamborasiye	0992556020	<i>[Signature]</i>
16	Jane Mutoni	24903332	✓		F	Kitamborasiye	0913667276	<i>[Signature]</i>
17	Catherine Kimbu	3264091	✓		F	Kitamborasiye	0717716114	<i>[Signature]</i>
18	Nivins Muthira	3071832	✓		F	Kitamborasiye	N/A	<i>[Signature]</i>
19	Mareta Mwikali	N/A	✓		F	Kitamborasiye	N/A	<i>[Signature]</i>
20	Anna Mwangi	N/A	✓		F	Kitamborasiye	N/A	<i>[Signature]</i>
21	Angelina Mutua	20151941	✓		F	Mogochu N.	0726345370	<i>[Signature]</i>
22	Christine Mutunga	34366828	✓		M	Kitamborasiye	0799988668	<i>[Signature]</i>
23	Grace Mwakumbi	24929537	✓		F	Kitamborasiye	07233735416	<i>[Signature]</i>
24	Anthony Moko	8995130	✓		M	MDFE	0711572297	<i>[Signature]</i>
25	Dickson Kioko	23586524	✓		M	Kitamborasiye	0727022117	<i>[Signature]</i>

ANGELINE N. MUTUA
 ASSISTANT CHIEF
 RIBOKO SUB-LD
 Date: *[Signature]*



REPUBLIC OF KENYA
MACHAKOS COUNTY
KENYA CLIMATE SMART AGRICULTURE PROJECT
(KCSAP)



ATTENDANCE LIST

Activity: *Kitambaa sys* *Earth idem* *Environmental* *Atendit*

Venue: *Kitambaa sys* Date: *7/4/2022*

S/No	Name	P/No. / ID No.	Age		Gender (M/F)	Organization/ Ward/Zone	Contact.	Signature
			Less than 35yrs	Above 35yrs				
1.	<i>JACKSON KIMWILI</i>	<i>20301417</i>		<input checked="" type="checkbox"/>	<i>M</i>	<i>CCAP/MPW</i>	<i>0705965146</i>	<i>[Signature]</i>
2.	<i>ALICE MAMUN</i>	<i>1997025572</i>		<input checked="" type="checkbox"/>	<i>F</i>	<i>KCSAP</i>	<i>0722811428</i>	<i>[Signature]</i>
3.	<i>PSION KIRIE</i>	<i>20150158562</i>	<input checked="" type="checkbox"/>		<i>M</i>	<i>CCSAP</i>	<i>0715891880</i>	<i>[Signature]</i>
4.	<i>SILAMON MUTUM</i>	<i>2011214434</i>		<input checked="" type="checkbox"/>	<i>M</i>	<i>EMUDU</i>	<i>0728753178</i>	<i>[Signature]</i>
5.	<i>DIONIA N. KONO</i>	<i>1998077954</i>		<input checked="" type="checkbox"/>	<i>F</i>	<i>KCSAP</i>	<i>0721585125</i>	<i>[Signature]</i>
6.	<i>S. MURISYA</i>	<i>200808181</i>		<input checked="" type="checkbox"/>	<i>M</i>	<i>WARD</i>	<i>0725135448</i>	<i>[Signature]</i>
7.								
8.								
9.								
10.								
11.								
12.								
13.								

LINE N. MUTUM
DISTRICT CHIEF
MACHAKOS SUB. LOCATION
S/No: *[Signature]*



REPUBLIC OF KENYA
MACHAKOS COUNTY
KENYA CLIMATE SMART AGRICULTURE PROJECT
(KCSAP)



ATTENDANCE LIST

Activity: Kitamborasige Earth and Environmental Audit

Venue: Kitamborasige Date: 7/4/2022

S/No	Name	P/No./ ID No.	Age		Gender (M/F)	Organization/ Ward/Zone	Contact.	Signature
			Less than 35yrs	Above 35yrs				
1.	SELIAMANGEI MARIAMU	03303415	✓		F	Kitamborasige	0718306140	SP
2.	IZITHI MUTHIA NGICHIA	45291532			M	KITAMBORASIGE	071607462207	IZITHI
3.	PATRICIA K MUTHIA	44290586			F	KITAMBORASIGE	0712233204	Patricia
4.	PETER MUDANZIRA	44297804			M	Kitamborasige	0753442266	Peter
5.	JANE KIROKO	13164505			F	Kitamborasige	0716664486	Jane
6.	YITU KIBINDA	10639776			M	Kitamborasige	0798859083	YITU
7.	NICHOLAS NJISEI	25241170	✓		M	Kitamborasige	0724492053	Nicholas
8.	LUENT MUKU	8296359			M	Kitamborasige	0708335782	Luent
9.	MISIRINGU KANGELLA	8896609	B		M	Kitamborasige	071099782	MIRINGU
10.	ALBERT SIKU	12533117	YOUNG		F	Kitamborasige	0713882087	ALBERT
11.	DAPHAS MUKU MUKU				F	Kitamborasige		DAPHAS
12.	SALOME MATHINYU	74520433			F	Kitamborasige	0720320353	SALOME
13.	PAULINE MUTHIANE N. MUKU	07257316			F	Kitamborasige	0709257196	PAULINE

ASSISTANT DIRECTOR
AGRO SUB-LEADER
SIGN: [Signature]

Annex 4: Sample of filled key informants

**ENVIRONMENTAL AUDIT
KEY INFORMANTS**

Ministry of Agriculture, Livestock, Fisheries and Cooperatives through Kenya Climate Smart Agriculture Project (KCSAP) intends to identify the environmental and Socio-economic impacts of Kitaambasye Earth Dam project implementation as a means to ensuring conformity to existing regulations.

In efforts to ensure a safe and sustainable environment, NEMA under Environmental Management and Co-ordination Act (EMCA), 1999 Section 58 (Amendment 2015) requires that an Environmental Audit incorporating public/stakeholders views be conducted to enable it make informed decisions in either approving and/or recommending remedial measures in relation to the subject project.

As a member of the local community/institution, we kindly request for your comments on the existing environmental and socio-economic impacts of the Earth Dam.

Your valuable response will contribute immensely towards achieving this goal. Please note that your response will be treated with the confidentiality it deserves.

1. Name: GREGORY SILA
2. Mobile No. 0713 862 007
3. Gender: Male () Female ()
4. Name of the institution.....
5. Designation..... KITAAMBASYE
6. Are you aware of the Kitaambasye Earth Dam project?
Yes () No ()
7. Are you involved in the implementation of the project?
Yes () No ()
8. If Yes in Q7 above, are you directly or indirectly involved.....
9. What positive environmental that have resulted from the implementation of the project?
.....
.....
.....
.....
10. Are there any negative environmental impacts that have arisen as a result of implementation of this project?
Yes () No ()
11. If yes in Q10, briefly explain.....

Thank you for your co-operation!

ENVIRONMENTAL AUDIT

KEY INFORMANTS

12. In your own opinion how can the negative environmental impacts that you have highlighted above be mitigated? *1. Can be*

13. What positive socio-economic that have resulted from the implementation of the project?

14. Are there any negative socio-economic impacts that have arisen as a result of implementation of this project?
Yes () No *X*

15. If yes in Q14, briefly explain.

16. In your own opinion how can the negative impacts that you have highlighted above be mitigated?

17. Additional remarks/comments

Signature *[Signature]*

Date *7/4/2022*

Thank you for your cooperation!

2

ENVIRONMENTAL AUDIT

KEY INFORMANTS

Ministry of Agriculture, Livestock, Fisheries and Cooperatives through Kenya Climate Smart Agriculture Project (KCSAP) intends to identify the environmental and Socio-economic impacts of **Kitaambasye Earth Dam** project implementation as a means to ensuring conformity to existing regulations.

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As a member of the local community/institution, we kindly request for your comments on the existing environmental and socio-economic impacts of the Earth Dam.

Your valuable response will contribute immensely towards achieving this goal. Please note that your response will be treated with the confidentiality it deserves.

1. Name: Toshop Mutua Kuyhe
2. Mobile No. 0716682529
3. Gender: Male () Female () Male
4. Name of the institution ANMCA
5. Designation Kenya Climate Smart Agriculture
6. Are you aware of the Kitaambasye Earth Dam project?
Yes () No ()
7. Are you involved in the implementation of the project?
Yes () No ()
8. If Yes in Q7 above, are you directly or indirectly involved yes
9. What positive environmental that have resulted from the implementation of the project?
ANMCA

10. Are there any negative environmental impacts that have arisen as a result of implementation of this project?

Yes () No ()

11. If yes in Q10, briefly explain.....

Thank you for your cooperation!

ENVIRONMENTAL AUDIT

KEY INFORMANTS

12. In your own opinion how can the negative environmental impacts that you have highlighted above be mitigated? *Animal*

13. What positive socio-economic that have resulted from the implementation of the project? *NO*

14. Are there any negative socio-economic impacts that have arisen as a result of implementation of this project?
Yes () No ()

15. If yes in Q14, briefly explain. *Animal comes from the hill.*

16. In your own opinion how can the negative impacts that you have highlighted above be mitigated? *Caselling and using them*

17. Additional remarks/comments *Nothing*

Signature *[Signature]* Date *2/4/2022*

Thank you for your co-operation!

3

ENVIRONMENTAL AUDIT

KEY INFORMANTS

Ministry of Agriculture, Livestock, Fisheries and Cooperatives through Kenya Climate Smart Agriculture Project (KCSAP) intends to identify the environmental and Socio-economic impacts of Kitaambasye Earth Dam project implementation as a means to ensuring conformity to existing regulations.

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As a member of the local community/institution, we kindly request for your comments on the existing environmental and socio-economic impacts of the Earth Dam.

Your valuable response will contribute immensely towards achieving this goal. Please note that your response will be treated with the confidentiality it deserves.

1. Name: Lukas Musali
2. Mobile No. 0700335787
3. Gender: Male () Female ()
4. Name of the institution: Agriculture
5. Designation: Kitaambasye
6. Are you aware of the Kitaambasye Earth Dam project?
Yes No ()
7. Are you involved in the implementation of the project?
Yes No ()
8. If Yes in Q7 above, are you directly or indirectly involved.....
9. What positive environmental that have resulted from the implementation of the project?
N/A
.....
.....
.....
.....
10. Are there any negative environmental impacts that have arisen as a result of implementation of this project?
Yes () No ()
11. If yes in Q10, briefly explain.....

Thank you for your co-operation!

ENVIRONMENTAL AUDIT

KEY INFORMANTS

12. In your own opinion how can the negative environmental impacts that you have highlighted above be mitigated? *no*

13. What positive socio-economic that have resulted from the implementation of the project? *water*

14. Are there any negative socio-economic impacts that have arisen as a result of implementation of this project?

Yes ()

No ()

15. If yes in Q14, briefly explain.

water has been not clean

16. In your own opinion how can the negative impacts that you have highlighted above be mitigated? *1 can mail*

17. Additional remarks/comments

Kutami & masi u. zawi

Signature

[Signature]

Date

7/4/2022

Thank you for your cooperation!

4

ENVIRONMENTAL AUDIT

KEY INFORMANTS

Ministry of Agriculture, Livestock, Fisheries and Cooperatives through Kenya Climate Smart Agriculture Project (KCSAP) intends to identify the environmental and Socio-economic impacts of Kitaambasye Earth Dam project implementation as a means to ensuring conformity to existing regulations.

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As a member of the local community/institution, we kindly request for your comments on the existing environmental and socio-economic impacts of the Earth Dam.

Your valuable response will contribute immensely towards achieving this goal. Please note that your response will be treated with the confidentiality it deserves.

1. Name: HISAINGU Rangathe NZIVO
2. Mobile No. 0710997912
3. Gender: Male () Female () Physician
4. Name of the institution:
5. Designation: Mr. KITAMBASYE
6. Are you aware of the Kitaambasye Earth Dam project?
Yes () No ()
7. Are you involved in the implementation of the project?
Yes () No ()
8. If Yes in Q7 above, are you directly or indirectly involved? Yes
9. What positive environmental that have resulted from the implementation of the project?
Child coming to smoke bangs
10. Are there any negative environmental impacts that have arisen as a result of implementation of this project?
Yes () No ()
11. If yes in Q10, briefly explain:

Thank you for your co-operation!

ENVIRONMENTAL AUDIT

KEY INFORMANTS

12. In your own opinion how can the negative environmental impacts that you have highlighted above be mitigated?

Casertling

13. What positive socio-economic that have resulted from the implementation of the project?

Caching water

14. Are there any negative socio-economic impacts that have arisen as a result of implementation of this project?

Yes ()

No ()

15. If yes in Q14, briefly explain.

Animals coming from hill

16. In your own opinion how can the negative impacts that you have highlighted above be mitigated?

Collaring them and to Casertling

17. Additional remarks/comments

Thuisun'o mafi' vizum

Signature.....

[Signature]

Date.....

7/4/2022

Thank you for your co-operation!

6

ENVIRONMENTAL AUDIT

KEY INFORMANTS

Ministry of Agriculture, Livestock, Fisheries and Cooperatives through Kenya Climate Smart Agriculture Project (KCSAP) intends to identify the environmental and Socio-economic impacts of **Kitaambasye Earth Dam** project implementation as a means to ensuring conformity to existing regulations.

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As a member of the local community/institution, we kindly request for your comments on the existing environmental and socio-economic impacts of the Earth Dam.

Your valuable response will contribute immensely towards achieving this goal. Please note that your response will be treated with the confidentiality it deserves.

1. Name: LAPHAL MAMUWA
2. Mobile No. 0710117234
3. Gender, Male () Female ()
4. Name of the institution Agriculture
5. Designation Assistant
6. Are you aware of the Kitaambasye Earth Dam project?
Yes () No ()
7. Are you involved in the implementation of the project?
Yes () No ()
8. If Yes in Q7 above, are you directly or indirectly involved... yes
9. What **positive environmental** that have resulted from the implementation of the project?
water saving

10. Are there any **negative environmental impacts** that have arisen as a result of implementation of this project?

Yes () No ()

11. If yes in Q10, briefly explain.....

Thank you for your cooperation!

ENVIRONMENTAL AUDIT

KEY INFORMANTS

12. In your own opinion how can the negative environmental impacts that you have highlighted above be mitigated? *Animal carrier from hill*

13. What positive socio-economic that have resulted from the implementation of the project? *Child coming to smoke marijuana*

14. Are there any negative socio-economic impacts that have arisen as a result of implementation of this project?

Yes

No

15. If yes in Q14, briefly explain

Child coming to smoke marijuana

16. In your own opinion how can the negative impacts that you have highlighted above be mitigated? *ceasing*

17. Additional remarks/comments

Signature 

Date *7/4/2022*

Thank you for your co-operation!

9

ENVIRONMENTAL AUDIT

KEY INFORMANTS

Ministry of Agriculture, Livestock, Fisheries and Cooperatives through Kenya Climate Smart Agriculture Project (KCSAP) intends to identify the environmental and Socio-economic impacts of Kitaambasye Earth Dam project implementation as a means to ensuring conformity to existing regulations.

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As a member of the local community/institution, we kindly request for your comments on the existing environmental and socio-economic impacts of the Earth Dam.

Your valuable response will contribute immensely towards achieving this goal. Please note that your response will be treated with the confidentiality it deserves.

1. Name: GRACE MAKUMBI
2. Mobile No. 0723725216
3. Gender: Male () Female ()
4. Name of the institution KITAMBASYE IGODI ASSOCIATION
5. Designation NURSING OFFICER
6. Are you aware of the Kitaambasye Earth Dam project?
Yes () No ()
7. Are you involved in the implementation of the project?
Yes () No ()
8. If Yes in Q7 above, are you directly or indirectly involved INDIRECTLY
9. What positive environmental that have resulted from the implementation of the project?

- Fish farming
- Employment
- Drinking water for domestic animals
- Kitchen Gardens

10. Are there any negative environmental impacts that have arisen as a result of implementation of this project?

Yes () No ()

11. If yes in Q10, briefly explain.....

Thank you for your co-operation!

ENVIRONMENTAL AUDIT

KEY INFORMANTS

12. In your own opinion how can the negative environmental impacts that you have highlighted above be mitigated?

13. What positive socio-economic that have resulted from the implementation of the project?

✓ Employment
① fish farming

14. Are there any negative socio-economic impacts that have arisen as a result of implementation of this project?

Yes ()

No (✓)

15. If yes in Q14, briefly explain.

16. In your own opinion how can the negative impacts that you have highlighted above be mitigated?

17. Additional remarks/comments.

This dam has been of great positive impact to the community.

Signature.....

Date.....

1/11/2022

Thank you for your co-operation!

10

ENVIRONMENTAL AUDIT

KEY INFORMANTS

Ministry of Agriculture, Livestock, Fisheries and Cooperatives through Kenya Climate Smart Agriculture Project (KCSAP) intends to identify the environmental and Socio-economic impacts of Kitaambasye Earth Dam project implementation as a means to ensuring conformity to existing regulations.

In efforts to ensure a safe and sustainable environment, NEMA under Environmental Management and Co-ordination Act (EMCA), 1999 Section 58 (Amendment 2015) requires that an Environmental Audit incorporating public/stakeholders views be conducted to enable it make informed decisions in either approving and/or recommending remedial measures in relation to the subject project.

As a member of the local community/institution, we kindly request for your comments on the existing environmental and socio-economic impacts of the Earth Dam.

Your valuable response will contribute immensely towards achieving this goal. Please note that your response will be treated with the confidentiality it deserves.

1. Name: KIKO TATI

2. Mobile No. 0711572297

3. Gender: Male Female ()

4. Name of the institution MOALE

5. Designation WARD AGRICULTURAL OFFICER

6. Are you aware of the Kitaambasye Earth Dam project?

Yes No ()

7. Are you involved in the implementation of the project?

Yes No ()

8. If Yes in Q7 above, are you directly or indirectly involved. Directly

9. What positive environmental that have resulted from the implementation of the project?

- (1) Led to more trees grown because of water availability.
- (2) income generation from sale of water
- (3) more of a tree growth from in same because of grass used to build the construction structure
- (4) Recreational value - birds & aquatic life

10. Are there any negative environmental impacts that have arisen as a result of implementation of this project?

Yes No ()

11. If yes in Q10, briefly explain - Rise of Humidity in the area

- school children hide in papyrus to smoke bang
- theft

Thank you for your cooperation!

ENVIRONMENTAL AUDIT

KEY INFORMANTS

- Theft of fish

12. In your own opinion how can the negative environmental impacts that you have highlighted above be mitigated?

Yes: planting more trees to counter the
had harmful matter
Educate youths how to utilize water ie make nurseries to
avoid - burning to the extent of smoking ban

13. What positive socio-economic that have resulted from the implementation of the project?

Availability of fish water for LBRock
and change the use

14. Are there any negative socio-economic impacts that have arisen as a result of implementation of this project?

Yes ()

No (✓)

15. If yes in Q14, briefly explain.

16. In your own opinion how can the negative impacts that you have highlighted above be mitigated?

17. Additional remarks/comments

The committee managing the
Dam should be strengthened to ~~run~~ run
the affairs of the Dam

Signature

Date

7/6/2022

Thank you for your cooperation!

