Environmental and Social Impact Assessment Study Report for the Proposed Mountain Bongo and Black Rhino Sanctuary in Marania &Mucheene Forest in Mt. Kenya Ecosystem, Meru County


Submitted to National Environment Management Authority

Proponent

Meru Bongo &Rhino Conservation Trust in Partnership with County Government of Meru
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Document Authentication

This report has been compiled by Research scientists from the Wildlife Research and Training Institute (WRTI) in consultation with stakeholders. The information contained in the report is correct and truthful to the best of my knowledge.

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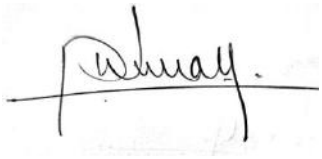
Signed: 

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Meru Bongo and Rhino Conservation Trust

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Mr. John K M'kirigia

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The ESIA team acknowledges the Lewa Wildlife Conservancy for convening and hosting the team during the planning meetings in addition to mobilising stakeholders during the consultation and public participation process. We wish to single out the committee Chairman Mr Kinoti for showing great leadership during the entire process. We are also grateful to the Meru Bongo and Rhino Conservation Trust which is the project proponent.

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TECHNICAL SUMMARY

The Mountain Bongo (Tragelaphus eurycerus isaaci) and Black rhinoceros (Diceros bicornis michaeli) are listed by IUCN as Critically Endangered species in the species Red List. The two species have declined significantly in numbers and range due to various factors. In Kenya, through public private partnership, (PPP) the Black rhinoceros increased from 300 individuals in the 1980s to 795 animals in 2019. However, the Mountain bongo has witnessed minimal gain with only about 96 and 77 animals in the wild and captivity respectively today. The strategic efforts to recover this antelope are detailed in the recently launched National Recovery and Action Plan for the species.

Strategic Objective number 3 of the National Recovery and Action Plan of the Mountain Bongo (NRAP), 2019-2023 recognises the potential to use captive bred Bongos to supplement wild populations. Similarly, the Black Rhino Action Plan, 2017-2021 identified the need to establish new areas to expand the population and achieve the Plan's vision.

It is on the basis of these two Plans that the Meru County Government and the Community Forest Associations of Kamulu and Ntimaka located on the Northeastern section of Mount Kenya Forest, proposes to establish a phased Mountain bongo and Black rhinoceros sanctuary within the two forest blocks of Mucheene and Marania. Phase I of the project targets repatriation of 20-25 Mountain Bongos from Florida, United States of America by 2022. The founder population will be intensively managed in holding paddocks (bomas). Thereafter, the F1 and F2 generations will be gradually introduced into an expanded area which will overlap with the Rhino sanctuary. Phase II targeting the Black rhinoceros will follow thereafter. The reintroduction of the black rhinos will be through translocation of a founder population of free ranging individuals from one of the rhino sanctuaries in Kenya.

The project will comply with all policy and legislative requirements in Kenya. One of the key compliance requirements for the project is the undertaking of Environmental and Social Impact assessment for the project in accordance with the Environmental Management and Coordination Act (EMCA) 1999(rev 2015). This ESIA report has elucidated the nature of the project, associated activities, environmental setting and most important it has predicted the potential positive and negative impacts of the project.

A summary of potential negative impacts and mitigation measures is outlined below.

POTENTIAL IMPACT	**MITIGATION**
Construction Phase	
Soil erosion and compaction	▪ Human labour to be used for all vegetation clearance and digging of holes post for the holding pens and the sanctuary fence ▪ Excavation will be done only when and where necessary. ▪ Controlling movements of vehicles to prevent unnecessary compaction outside access roads and paths.
Vegetation loss	▪ Cutting of trees will only be restricted to the fence alignment to a maximum of 10 metres wide clearance to allow construction of the

	perimeter fence. ▪ Fence alignment to follow the moat line where vegetation had been cleared as much as possible ▪ Alignment to meander through big trees to avoid their cutting ▪ Animal enclosures to be designed around the existing indigenous trees and shrubs to reduce vegetation clearance. ▪ The project site will be enriched through habitat modification with appropriate trees, grass and shrubs. While other areas will be left for natural regeneration following reduced grazing and browsing pressure after fencing off
Solid waste generation	▪ Employing waste minimization techniques such as the 4Rs (Reduce, Reuse, Recycle, Recover) principle ▪ Daily collection, segregation, and disposal of waste at designated areas ▪ Provide litter bins at the operation base for temporary holding before disposal ▪ Sensitization and awareness creation amongst the workers
Air pollution	▪ Ensuring proper maintenance and frequent servicing of engines for operation vehicles ▪ Cover all trucks hauling soil, sand and other loose materials
Increased water demand	▪ Employing sustainable use measures that reduce demand on water resources and using the available water conservatively. ▪ Control usage by installation of monitoring metered gauges.
Human Wildlife conflict	▪ Maintain a corridor between the Lewa conservancy and the Sanctuary to allow elephant movement between Mt. Kenya Forest and Lewa Conservancy and Ngare Ndare forest to avoid funnelling them into the neighbouring farms ▪ Increase security patrols during construction and on sanctuary operations ▪ Ensure fencing workers are accompanied by armed KWS/KFS rangers to avoid possible attack by elephants ▪ Sensitise workers on the presence of dangerous animals like the elephants and buffaloes ▪ Inform stakeholders mainly farmers under PELIS the inception of construction works and associated activities.
Occupational health and safety (OHS)	▪ Employ authorised and competent contractors who comply with relevant regulations ▪ Sensitization of construction workers and staff on safe use of equipment and substances. ▪ Providing construction workers with PPEs and replacing them as necessary. ▪ Notifying neighbours and communities about construction activities to raise awareness and enable them to adjust.

	▪ Securing the site and controlling movement in and out during construction. ▪ Controlling movement of workers at the campsite during night hours ▪ Putting the necessary signs to warn or alert people of the eminent risks such as works in progress. ▪ Provide and maintain fire-fighting and first aid equipment.
Operational Phase	
Increased Water consumption	▪ Employing sustainable use measures that reduce demand ▪ Use watertight taps and recycling wherever applicable ▪ Install roof catchment and storm water collection to supplement existing supplies at the holding facility and staff camp ▪ Installing monitoring metered gauges
Increased energy consumption	▪ Adopt green technology in all the buildings (solar power, energy saving bulbs, use of natural lighting, etc). ▪ Installing monitoring metered gauges
Noise generation	▪ Ensuring noises generated are within acceptable limits and ensuring most noisy activities are carried out during the day. ▪ As much as possible materials to be supplied in large quantities at once to avoid frequent and unpredictable traffic ▪ Prepare and display clear rules and regulations at strategic visitor areas ▪ Use of buffers between human settlements and animal enclosures ▪ Constructing animal enclosures away from settled areas ▪ Prepare and display facility rules and regulations against excessive noise that may disturb the animals
Solid waste generation	▪ Ensuring the movement of waste from source to dumpsite is safe and controlled to prevent spillages and pollution. ▪ Employing waste minimization techniques such as the 4Rs (Reduce, Reuse, Recycle, Recover) principle ▪ Daily collection, segregation and disposal of waste at designated areas ▪ Provide litter bins at the operation camp for temporary holding before disposal ▪ Sensitization and awareness creation amongst the workers ▪ Prepare and display sanctuary rules and regulations against littering ▪ Adhere to integrated solid waste management regulations
Wastewater	▪ Wastewater from the washrooms will be handled through a septic tank. Services of licensed waste handlers will be employed to empty the waste as is necessary.
Disease epidemic	▪ Undertake pre and post translocation disease screening for the animals to be repatriated ▪ Undertake regular disease surveillance for the bongos and rhinos ▪ Liaise with CFAs to restrict livestock grazing within a kilometre

	radius of the sanctuary to minimise contacts that can lead to disease transmission from livestock to the bongo an rhinos and vise versa ▪ Regular screen the animals in the area for rinderpest outbreaks early detection ▪ Vaccinate the bongos against rinderpest ▪ Recruit a veterinary doctor and paramedics or have a veterinarian on call whenever signs of illness are detected ▪ Train animal keepers on early detection of sick animals
Predation of the bongos	▪ Undertake carnivore survey inside the sanctuary and relocate hyenas and leopards outside the sanctuary if necessary, on recommendations of the carnivore study ▪ Ensure the perimeter fence is predator proof as much as possible ▪ Monitor the sanctuary for incidences of predator intrusion
Competition for browse with other species	▪ Exclude mega herbivores to minimize competition ▪ Extend the sanctuary in future to include all the area envisaged in the Sanctuary management plan that will accommodate intra and interspecies interaction as described in the Mt. Kenya ecosystem management plan
Illegal hunting of the bongos and rhinos in the sanctuary	▪ Ensure 24 hrs security surveillance along the fence and entire sanctuary when it is operationalised ▪ Install sensors along the fence and a monitoring system ▪ Maintain a robust post release monitoring including collaring of the animals ▪ Undertake Conservation education awareness and community sensitization programme
OHS Risks ○ Human injury and accidents ○ Fire incidences	▪ Workers sensitization and awareness creation on safety and risk management ▪ Routine vaccination of staff and animals ▪ Training of facility workers on safe use of equipment and substances. ▪ Providing workers with adequate and quality PPEs and replacing them as necessary. ▪ Provision of emergency gates in the facility ▪ Ensuring there is adequate security within and around the facility ▪ Putting the necessary signs to warn or alert people of the eminent risks ▪ Ensuring hazardous/flammable chemicals such as detergents and fuels are stored safely and appropriately according to Controlled Substances and Regulations Act ▪ Providing and maintaining fire-fighting and first aid equipment(side buckets, hydrants, fire extinguishers) ▪ Designate and clearly label fire assembly points in the facility. ▪ Regular training of facility workers on emergency preparedness ▪ Maintain a fire break around the sanctuary

	▪ Plant fire resistant species near the sanctuary ▪ CFAs to have elaborate fire monitoring and early warning reporting system
Socio-cultural impacts (Cultural erosion, Crime , HIV/AIDs spread)	▪ Awareness creation on HIV and AIDs ▪ HIV/AIDS preventive and management initiatives ▪ Awareness creation on importance and preservation of the Ameru culture ▪ Employing local content for most of the project activities ▪ source all unskilled labour from the local community
Security	▪ Install fence sensor systems ▪ Prepare a security management plan ▪ Collaborate with KWS, KFS and County Government to enhance the security of the sanctuary ▪ Ensure day and night onsite security surveillance Ensure animal enclosures are regularly maintained to avoid escapes ▪ Controlling movement of facility workers during night hours ▪ Ensure main access gates are manned at all times

Upon evaluation of the potential impacts the ESIA experts have prepared an environmental and social impact management plan framework which will ensure adverse impacts are avoided, mitigated, and restored in the different phases of the project. The very nature of the project is ecological restoration of a natural environment system by reintroduction of native species and hence its associated activities may not have significant adverse impacts on the present environmental setting. If the project is well implemented putting in place the proposed mitigation measures it will ultimately result to a net gain in biodiversity. Approval of the proposed project is thus recommended.

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ACRONYMS

1.	CBD	Convention on Biological Diversity
2.	CBOs	Community Based Organisations
3.	EIA	Environmental impact Assessment
4.	EMCA	Environmental Management and Co-ordination Act
5.	EMP	Environmental Management Plan
6.	ESIA	Environmental and Social Impact Assessment
7.	GPS	Global Positioning System
8.	IUCN	International Union for Conservation of Nature
9.	KFS	Kenya Forest Service
10.	KWS	Kenya Wildlife Service
11.	NBTF	National Bongo Task Force
12.	NEMA	National Environment Management Authority
13.	NGO	Non -Governmental Organisation
14.	OHS	Occupational Health and Safety
15.	PELIS	Plantation Establishment Livelihood Improvement Scheme
16.	PPEs	Personal Protection Equipment
17.	CMSMB	Conservation Management Strategy for Mountain Bongo
18.	WRTI	Wildlife Research and Training Institute
19.	WRA	Water Resources Authority
20.	BSP	Bongo surveillance programme
21.	NPTF	National Bongo Task Force
22.	CITES	Convention on International Trade in Endangered Species
23.	GIS	Geographical Information System
24.	UNESCO	United Nations Educational, scientific and cultural Organisation
25.	MKWC	Mount Kenya Wildlife conservancy
26.	MASL	Meters above sea level

1.0 INTRODUCTION

1.1. Background information

Wildlife is an important component of Kenya's heritage with great economic, social, and cultural values. The importance of the wildlife sector to Kenya's sustainable development is well highlighted in Kenya's Vision 2030. Kenya is among the leading countries in wildlife management and conservation . The diverse and dynamic landscapes of protected areas - including National Parks and Forest Reserves, and increasingly community and private conservancies, provide the backbone for Kenya's wildlife conservation activities.

The Mount Kenya Forest ecosystem is one of the five water towers in the country. The Mount Kenya water tower consists of Mount Kenya National Park, Mt Kenya Forest Reserve/ National Reserve and other connected ecosystems including Ngare Ndare Forest, and northern rangeland areas of Laikipia and Samburu through the Mount Kenya Elephant Corridor.
Gazetted in 1932, Mount kenya forest reserve was placed under the jurisdiction of the Forest Department (currently Kenya Forest Service (KFS)) with the National Park under the Kenya Wildlife Service (KWS). The overall goal being to protect and conserve its water catchment and biodiversity, especially endemic, rare and threatened species. The Mount Kenya Forest ecosystem has continued to face several challenges such as logging, fires, encroachment, illegal livestock grazing, and wildlife poaching. This has led to loss of biodiversity with two critically endangered species, the Mountain Bongo (*Tragelaphus eurycerus isaaci*) and Black rhinoceros (*Diceros bicornis michaeli*), becoming locally extinct in the ecosystem.

To achieve the long-term goals of conservation and natural resource management in the Mount Kenya ecosystem, local communities around the constituent Marania and Muchiene forests, in partnership with Meru County Government, have proposed a long-term rehabilitation programme. Part of this initiative seeks to reintroduce Mountain bongo and Black rhinoceros into the forest, which lie on the northeastern section of Mount Kenya Forest. The two forest blocks are managed through Community Forests Associations (CFA) of Kamulu and Ntimaka as part of a recognised mechanism of community participation in forest conservation and management under KFS.

These two species' current National Recovery and Action Plans promote community inclusion in natural resource management to complement ongoing government conservation programmes. This way, community livelihoods are enhanced and good will to conserve wildlife is perfected from grassroot level. The proposed project therefore falls in line with both national strategies for these two identified species. In addition, this project promotes environmental conservation and improves community livelihoods through socio-economic benefits and enterprises aligned with the Meru County Government's development agenda.

1.2 Project conceptualization

Meru County Governor, HE. Kiraitu Murungi, ECH sent a letter dated 20th April 2020 to Kenya

Wildlife Service on the proposed establishment of a Black rhino and Mountain bongo Sanctuary in Marania and Muchiene forest of Mt Kenya Forest ecosystem under the Community Forest Associations (CFAs) of Kamulu and Ntimaka. The idea was conceptualised at the inaugural ceremony of Mount Kenya Mountain Running Championship held in Mt Kenya Forest in February 2020. One of the objectives of the event was to raise funds for environmental conservation including conservation and protection of the flora and fauna of Mt. Kenya Forest and establishment of a community-managed Mountain bongo and Rhino Sanctuary.

The whole idea had an objective of addressing the challenges of deforestation, encroachment, drying up of rivers and near extinction of Black rhino and Mountain bongo species in Mt. Kenya ecosystem attributed by human beings. To address these challenges, community participation in biodiversity conservation is important. One of the ways to involve local communities in natural resource conservation within gazetted government Forest Reserves is the establishment of community conservancies which is anchored in the Wildlife Conservation and Management (Amendment) Act, 2013 or through Community Forest Associations (CFAs) under the Kenya Forest Service (KFS) Forest Act, 2005. These two Acts define how communities should derive tangible benefits from natural resource conservation through registered user rights.

In these regards, the County Government of Meru (MCG) expressed its willingness to support the local community, through CFAs that manage the Marania and Muchiene forest blocks in the conservation of Mt Kenya Forest. Following the unique nature of the project proposal, the Meru County Government and the two CFAs requested the Kenya Wildlife Service and Kenya Forest Service, the lead state conservation agencies in Mount Kenya Forest for permitting, technical guidance and participation in the project's cycle starting from conceptualization, development and operations.

1.3 Project partners

Meru Bongo and Rhino Conservation Trust project proponent

The Mt.kenya bongo and rhino conservation trust is a partnership of several stakeholders that have common interest in re-introducing bongo and rhino species in Mt kenya where they existed naturally back in 1980s and 1990s. The project proponents are 10 in number with each stakeholder having specific roles to implementation in order to actualize the establishment of the conservation trust.

LEWA- Provide technical expertise to the technical committee and support repatriation of Bongos from San Diego Zoo (US). Lewa also headed fundraising for the sustainability of the project.

Kenya Forest Service - key role is Providing technical advice to technical committees who undertake surveys for the proposed Sanctuary. They also Issue concessions for the Sanctuary establishment and coordinate PFMPs review for Ntimaka and Kamulu CFAs. KFS will issue a Special User License (SUL) to enable the County government of Meru through the respective CFAs establish the Sanctuary within the forest reserve.

Kenya Wildlife Service - Undertake project approval and register the Sanctuary. Provide technical expertise to the technical committee. Train community scouts on Sanctuary management.

Undertake anti- poaching operations and intelligence gathering for wildlife protection. Enhance collaboration between WRA and KFS to safeguard water resources.

Meru County Government (MCG)-Provide technical expertise to the technical committee and collaborating with Rare Species Conservatory Fund (RSCF) on repatriation of Bongos from San Diego Zoo (US). MCG also Collaborates with KWS, LWC and KFS on re-introduction of Black Rhino. Establishment of a trust fund to ensure project sustainability. Infrastructure development (fencing, road network, housing, communication and surveillance equipment) in the Sanctuary. Allocate funds to train community scouts on sanctuary management and CFA members on enterprise development.

Rare Species Conservatory Fund (RSCF) -Sourcing and transportation and initial management of Bongo from Florida Zoo (US) to the Sanctuary

Community Forest Association. (CFA) - Member of the Technical Committee. Overall project institutional responsibility (ownership). Continue with enrichment tree planting programs. Nominate CFA members to be trained on tourism marketing and promotion, customer service and enterprise development. Tree planting (indigenous and exotic) in the natural and harvested exotic plantation forest blocks and ensuring their survival 27 respectively. Rehabilitation of degraded sites.

Mt.Kenya Trust -Partner with KWS and CFAs on protection of Bongo and Rhino and de-snaring exercise. Continuous forest rehabilitation programs through tree planting. Continuous community engagement on conservation and education awareness creation programs

Water Resource Management Authority (WRMA)-Collaborates closely with KWS and KFS to safeguard water resources. Ensure water resource use patterns are regulated, controlled and monitored; sustainable water management enhanced and natural water flow regimes protected.

Kenya School of Adventure & Leadership (KESAL)-Collaborate with MCG on resource mobilization in the following areas; Market Bongo and Rhino sanctuary as a tourism destination of choice, Provide visitors accommodation facility Development and hosting of the Mt. Kenya athletics Championship.

In Situ and ex situ of Bongo and Rhino in Mt Kenya

The Eastern or Mountain Bongo (Tragelaphus eurycerus isaaci) is a critically endangered species as classified by the International Union for the Conservation of Nature (IUCN) and the Wildlife Act 2013. The Bongo population in Kenya declined from approximately 500 wild living individuals in the 1970s to approximately less than 100 individuals confined to Aberdares, Mt. Kenya, Eburu, Masai Mau and southwestern Mau forests. In Mt. Kenya Forest ecosystem animals were reported all around the forest until 1980 and 1990s when poaching and other human activities impacted heavily on bongo with their local extinction in Muchene and Marania forest blocks of Mt. Kenya. Towards the end of 2019, there were 77 animals confined in captivity in Mt. Kenya game ranch while sighting of a very small wild population of 6 animals was reported in Ragati/Chehe forest blocks of the ecosystem.

1.4 Project Rationale

The mountain bongo and the black rhino are both listed as critically endangered by IUCN. Both species once inhabited the proposed project area but their populations have since been decimated mainly due to poaching and bushmeat activities. In order to enhance the conservation status of these species, there is a need to restore the decimated population within their original range. One possible approach is the translocation or reintroduction of species into formerly occupied habitat. As the list of threatened and endangered species lengthens, the need for employment of reintroduction as a conservation tool increases. This proposed project seeks to contribute towards reintroduction of not one, but two species, and in the process securing the conservation of an important natural resource under the management of a local indigenous community.

The proposed project is an innovative community-based conservation initiative, involving reintroduction of two critically endangered wildlife species, the Mountain bongo and Black rhinoceros, into a landscape conserved and managed by communities. The project is envisioned as a broad partnership, incorporating National and Meru County governments, indigenous community, and the private sector. Conservation within the Mount Kenya ecosystem has been subjected to multiple threats emanating from human activities. These include illegal extraction of natural resources, including logging, charcoal burning, illegal livestock grazing, poaching, and wildfires. In addition, in the face of climate change and the need for ecosystem linkage to cope with increasing drought frequency, connectivity of the Mt. Kenya ecosystem with adjacent savannah ecosystems to the north and west is critical for ensuring dispersal and integrity of dry season refugia.

1.5 Objectives of the Project

The main objective of the proposed project is to promote the achievement of the long-term goals of conservation and natural resource management in the Mount Kenya ecosystem. The specific objectives include:

1) To re-introduce Mountain bongo and Black rhinoceros in the North Eastern section of mount Kenya so as to enhance the conservation status
2) To involve local communities in wildlife conservation in the area so as to increase their perception
3) To develop strong partnerships among stakeholders so as to achieve a strong conservation impacts
4) To increase livelihood incentives to communities and reduction of costs associated with living with wildlife so as to enhance community wildlife coexistence and support to conservation.
5) To enhance the ecotourism sector to grow and diversify the country's economies, while protecting biodiversity.

1.6 The ESIA study

The purpose of this Environmental Impact Assessment (EIA) is to ensure that the proposed project is in line with the provisions of the Environmental Management and Coordination Act (1999) and

the subsequent Environmental Impact Assessment and Audit Regulations (2003). It also seeks to provide information on the nature and extent of potential environmental impacts, both negative and positive, during the establishment and operationalization of proposed project. The goal is to ensure environmental sustainability of the project.

1.6.1 Objectives of the ESIA study

The EIA process aimed to achieve the following objectives:

i) Establish the environmental baseline conditions of the project area and review all information related to the project that would form the basis of future monitoring
ii) Identify and predict anticipated significant environmental and social impacts associated with the proposed project
iii) Recommend measures to mitigate the anticipated adverse impacts
iv) Develop a comprehensive environmental and social management plan for the project

1.6.2 ESIA Activities

The ESIA activities undertaken were as follows;

- Scoping: This includes several stakeholder sensitization meetings and project awareness creation barazas. It was aimed at scoping the project area and issues to be considered in the EIA.
- Consultation and public participation: The following consultation meetings were organised;
- Consultation workshop for the area opinion leaders
- Public barazas with the local communities and affected and interested individuals

These consultations assisted in identification and analysis of impacts and proposition of practical mitigation measures.

- Analysis of animal welfare and competition issues
- Review of policy and legislative framework
- ESIA Report writing
- Development of EMP
- ESIA draft report review and stakeholder validation workshop
- Compile final ESIA report as per NEMA guidelines and submit to NEMA for approval

1.6.3 Methodology and approach

1.6.3.1 Desktop Literature Review

Desktop research involved review of relevant literature on the project area and it included review of various documents such as County integrated Development plans, Feasibility studies, Marania and Mucheene forest management plans and various legislations

This involved compilation of available data and literature covering various aspects of the project area. Various documents were reviewed to obtain information on the baseline information of the project area. The documentary review included project proposal, feasibility report for the proposed sanctuary, Marania bongo and Rhino ecological report, reports on similar projects and relevant existing legal and policy documents.

1.6.3.2 Reconnaissance survey

This entailed a pre-visit of the project site including the Marania and Muchiene forest blocks to understand the geography of the site. The team also met the management to plan the project logistics and the parties' obligations. Several site visits were undertaken to ascertain and verify issues highlighted during meetings and interviews with stakeholders. The exercise focused on the proposed project site, current land uses and immediate neighbourhood. This mainly involved transect walks and photography where the team recorded the environmental setting such as the flora and fauna, terrain, soils, physical features, infrastructure and any other significant findings. Through these methodologies the study team was able to gain practical experience on the biophysical conditions of the project area, how operations will be carried out, where the facilities will be situated, and how the various components are expected to operate.

1.6.3.3 Stakeholder Consultation

This process was covered in three levels namely scoping, stakeholder analysis and actual consultation. The stakeholder consultations were conducted through interviews, focused group discussions in a workshop forum, formal and informal meetings and administration of a questionnaire. These were meant for the collection of socio-economic data that was aimed at unearthing the community perceptions and concerns on the proposed project and its likely influences on the socio-economic conditions of the project area.

1.7 Terms of Reference of the EIA team

Fundamentally, the activities proposed under this ESIA are not only in fulfilment of the National Environmental Policy, but also take care of Animal Welfare Standards (in the wild and captivity), and Prescribed International Guidelines for Animal Reintroduction activities. Based on the scoping exercise, the following terms of reference were developed for the EIA team:

i) Clearly describe the nature and geographical scope of the project including desktop review of the Mountain Bongo ecology
ii) Study and describe the baseline environmental attributes of the project study area including and not limited to the physical, biological and socio-economic environments.
iii) Gather and collate views and perceptions of the public and other stakeholders
iv) Identify the relationship of the project to existing policies, legislation and institutional framework
v) Identify and evaluate the potential significant impacts of the proposed project on various environmental receptors
vi) Establish mitigation measures to minimise the identified negatives and enhance the positive impacts of the proposed project

vii) Identify and analyse project alternatives with respect to fence design, fence patrols and maintenance, and other associated infrastructure (e.g., security posts, animal corridor, water provision, power source etc.).
viii) Develop an Environmental Management Plan, which outlines the responsibilities and time schedules for implementing the mitigation measures.
ix) Provide conclusions and recommendations for the proposed project sustainability
x) Provide and outline the modalities for Environmental Audit and Monitoring
xi) Prepare an Environmental and Social Impact Assessment Project report for the proposed Mountain Bongo sanctuary for submission to National Environmental Management Authority (NEMA).

1.8 Composition of the EIA Team

The ESIA was undertaken by a multidisciplinary team of experts as listed below.

Table 1.
EIA team composition

No.	Name	Expertise	NEMA Certification
1.	Mr. Peter N. Mwangi	Team Leader & Natural resource management specialist	Lead Expert: Reg. No.710
2.	Bernard Kuloba	Environmental Science	
3.	Mr. John Kariuki	Ecologist	Lead Expert: Reg.No. 2547
4.	Geoffrey Bundotich	Environmental and social expert	
5.	Peris Akinyi	Botanist	
6.	Faith Muchiri	GIS expert	
7.	Vasco Nyaga	Environmental Science	
8.	Dr. Mathew Mutinda	Wildlife Veterinary Expert	
9.	Zainabu Salim	Environmental education specialist	
10.	George Osuri	Wildlife Security Specialist	
11	John Kinoti	Community Development	

2.0 PROJECT DESCRIPTION

2.1 Project Location

The proposed bongo and rhino sanctuary is found in Meru County (Fig.1) within the Mt. Kenya Forest Reserve (Legal notice 48 of 1948). The sanctuary will be located inside the two forest blocks of Marania and Mucheene. These forests falls within within two Community Forest Associations (CFA) i.e. Ntimaka CFA for Marania forest block and Kamulu CFA for Mucheene forest block. Mucheene Forest occupies 10,200 ha (25,204.75 acres) while Marania Forest covers about 7,280 ha (17,989.27 acres) totaling 17,480 ha 43,194.04 acres). A total area of 9,001 acres is currently under plantation in both forest blocks. The site is accessible from Kibirichia market towards Kenya School of Adventure and Leadership road.

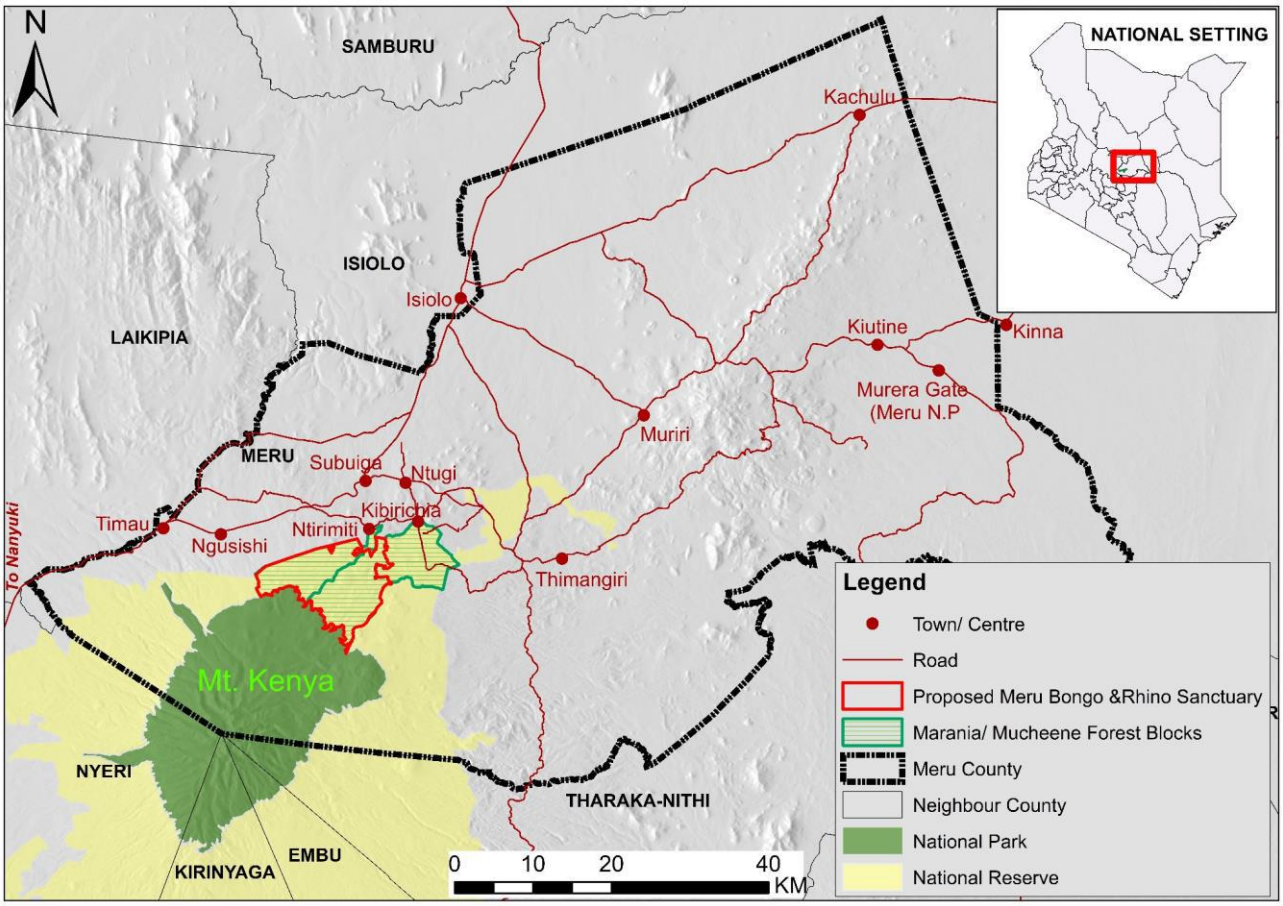


Figure 1: ***Location of the proposed MBRS within Meru County***

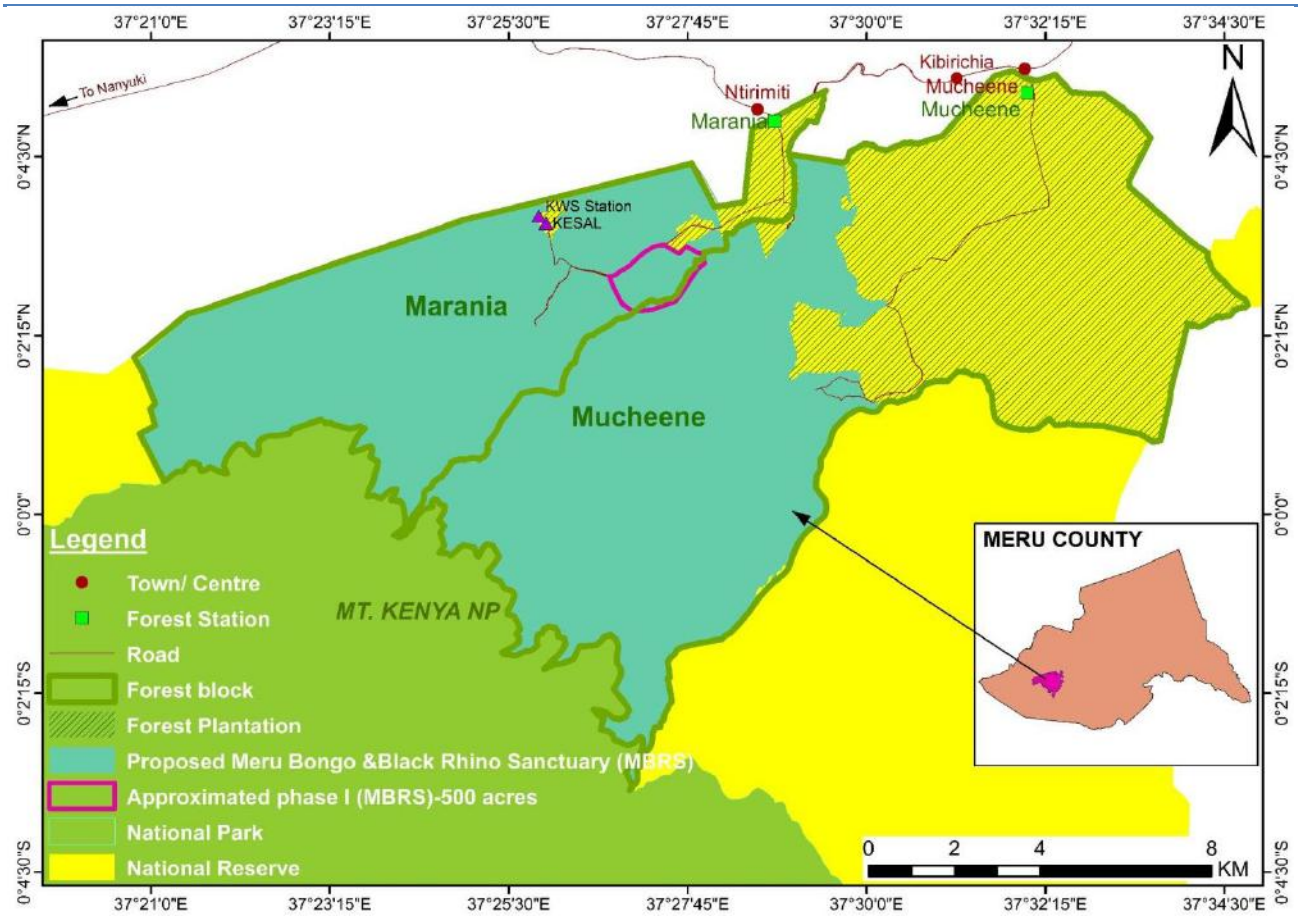


Figure 2: Location of the proposed MBRS within Marania and Mucheene forest blocks

2.2 Selected project site

The project is expected to be undertaken in two phases, with the first phase targeting the introduction of bongos into a sanctuary covering an area of 500 acres. Initially the founder population will be hosted in a 10-20 acres paddocked area. Later the F1 generation will be released in a 250 acre area and ultimately the sanctuary will be expanded to 500 acre to accommodate the F2 generation.

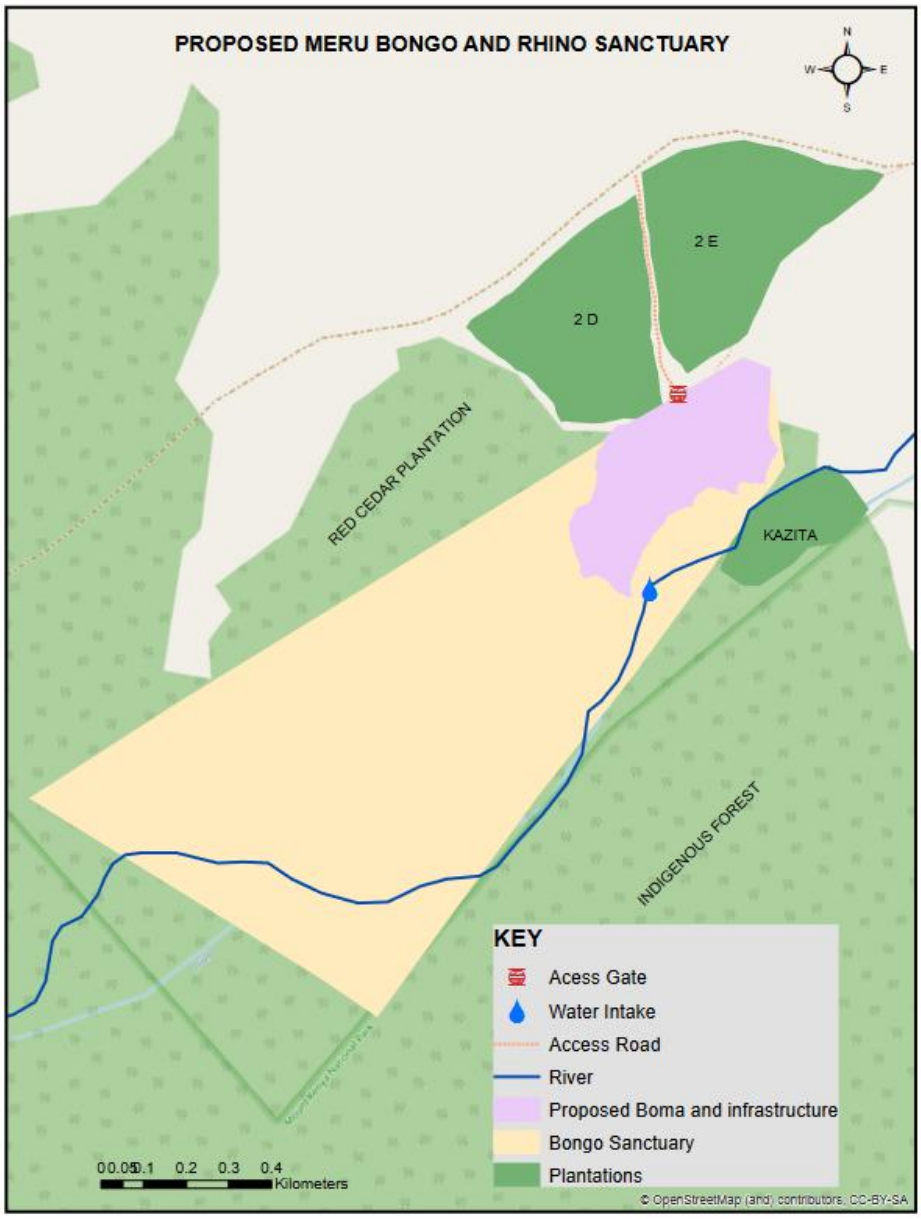


Figure 3: Phase I of the proposed Meru Bongo & Rhino Sanctuary (MBRS)

Phase 2 will target the reintroduction of the black rhinoceros and will entail expansion of the sanctuary overlapping the 250-acre bongo sanctuary. An area of 39 km^2 (9,690 acres) has already been identified as suitable for both species (Figure 4)

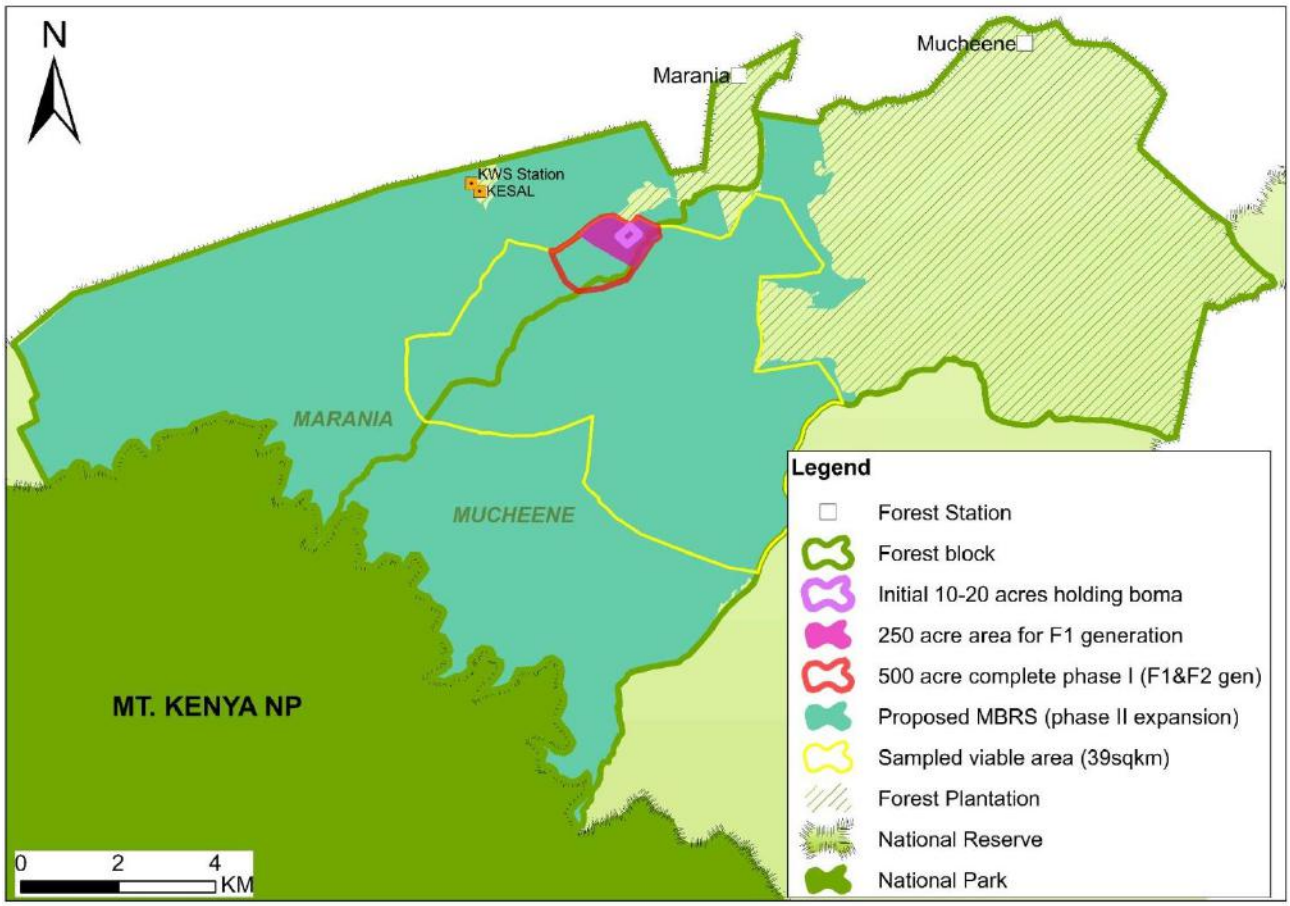


Figure 4: Phase I & II of the proposed MBRS

2.3 Components of the Proposed Facility

The proposed MBRS will consist of the following components.

- A holding paddocked area for the founder population of the bongos and rhino. The facility will be spacious enough to meet the animals' spatial requirements and provided with appropriate enrichment to mimic natural habitat within the animal holding area. The proposed size will be between 10-20 acres.
- This will be followed by fencing of an expanded 250-acre area for the F1 generation.
- A further expansion is proposed to accommodate the F2 generation covering 500 acre enclosure as demarcated for the establishment of the sanctuary.
- A perimeter electric fence and service road around the sanctuary that will double up as a fire break.

2.3.1 Temporary holding paddocks

The proposed holding paddocked area will cover a total area of 10-20 acres constructed using locally available building materials. The structures will include:

- A nursery enclosure for new-borns equipped to take care of young animals,
- A well-equipped veterinary clinic which will include a triage, observation area, laboratory, treatment area, surgery, post-mortem room, drugs' store, a safe for dangerous drugs
- An office block which will have a firearms armoury, offices, records room, and restrooms.
- Quarantine facilities
- Feed storage facility which will include an indoor dry-food storage for all hay (alfalfa) and pellet feed will need to be provided in the design to avoid mould and feed contamination.

2.3.2 Rewilding area

There will be an initial fencing of a 250-acre rewilding area for the F1 generation where soft release from the holding paddock will be done. A further 250-acres expansion is proposed to accommodate the F2 generation covering a total area of 500-acre enclosure.

2.3.3 Sanctuary Perimeter Fence-Faith

A solar powered electric fence will be constructed around the sanctuary to provide security and ensure animals are entirely contained therein. The perimeter fence round the 500 acres sanctuary when complete will be approximately 10 Km long.

2.4 Repatriation of the bongos

There are two options that will be explored for the movement of the bongos from US Florida to the sanctuary. In Florida, the first option will be baiting the animals into crates, loading in the aircraft, and airlifting them to Kenya. The second option will be to transport them from the airport by a vehicle to an open fenced section of the sanctuary where the animal will be herded through into the sanctuary. The animals will be contained in the holding bomas where they will acclimatise and be provided with food supplement. Health screening will be done for the animals that will be chosen for repatriation before movement. Only healthy animals shall be moved to the new sanctuary.

2.5 Project Benefits

i) promotes conservation of endangered black rhino and mountain Bongo species by reintroducing them in their natural area of occurrence

ii) Enhance animal welfare through provision of prompt veterinary services by wildlife health practitioners

iii) Job creation and capacity building of the local community through provision of skilled and unskilled labour in the sanctuary.

iv) Create conservation education and awareness to the community and promotion of economy through tourism

v) Create room for research and increase understanding of the species in their natural setup.

2.6 Project Activities

2.6.1 Construction phase

This phase will involve the construction of the holding bomas and the paddocks within the core operation area for the acclimatisation, nurturing and intense monitoring of the bongos and later the black rhinos. It will also involve the construction of the outer sanctuary fence of 32.4 km. The construction phase entails some vegetation clearing for the necessary structures and erection of the solar powered electric fence.

2.6.2 Operation phase

This is the stage in which the sanctuary is expected to be fully operational. In this stage both negative and positive impacts are expected to occur. The most identified positive impacts of the proposed project are envisaged in this stage. Potential negative impacts with the corresponding mitigation measures and the monitoring period have been outlined in the Environmental Management Plan in this report. Activities in this stage will mainly be those of maintenance, surveillance including both security and disease/health status and monitoring in nature. The Activities to be undertaken in this phase will be to ensure that the sanctuary is in good working condition and to ensure sustainability.

2.6.3 Decommissioning phase during

This is the stage when the project becomes obsolete, abandoned, or rendered unnecessary. The sanctuary with its appropriate operational and maintenance regime is expected to be effective for a considerable period. The decommissioning is only anticipated when a meta population of the two species is fully achieved and a more effective and sustainable conservation programme of the two species within the wider Mt. The Kenya ecosystem is identified and implemented.

2.6.4 Project budget

Table 2: Project budget

No.	Activity	Time	Approximate budget (US$)
1	Govt. & Species Committees Engagement	Q1 2020 - Q2 2022	25,000

No.	Activity	Time	Approximate budget (US$)
2	Technical Committee Engagement	Q4 2020 - Q2 2022	20,000
3	Habitat Suitability Assessment	Q1 - Q2 2021	30,000
4	Water Quality & Quantity Assessment	Q1 - Q2 2021	15,000
5	Veterinary/Disease Assessment	Q2 - Q3 2021	25,000
6	Community/CFAs Mobilisation & Engagement	Q1 - Q3 2021	15,000
7	Management Plan	Q2 - Q4 2021	25,000
8	Environmental & Social Impact Assessment	Q2 - Q4 2021	18,000
9	Security Assessment	Q1 2022	8,000
10	Approval Process	Q2-Q3 2022	6,000
11	Staffing Costs	Q1 2021-Q2 2022	108,000
12	Indirect Costs: (12% fee includes, but not limited to management oversight)	Q3 2020 - Q2 2022	35,400
	Total		**330,400**

3. BASELINE INFORMATION

3.1Mountain Bongo

3.1.1 Bongo classification

The Bongo, Tragelaphus eurycerus, is the largest and heaviest African forest-dwelling antelope weighing up to 300kg. Its colour is bright chestnut red, becoming darker with age, and it has 9 to 16 transverse narrow white stripes on the shoulders, flanks and hindquarters. Both sexes have massive spiral horns with light yellowish tips, (Dorst and Dandelot, 1995).

a) Male Mountain Bongo b) Female Mountain Bongo

Plate 1. Mountain bongo photos

It is highly prized by game hunters and wildlife lovers alike for its rarity and stunningly handsome coat. They are generally gregarious with groups consisting of an adult male, adult females, sub-adults, and calves. Old bulls are however often solitary and very aggressive. Like other forest ungulates, they are seldom seen in large groups of more than 20 individuals (Kingdon, 1982).

Two subspecies, lowland rain forest and eastern montane race, are known to exist. The lowland Bongo (*Tragelaphus eurycerus eurycerus*) inhabits the lowland rain forests of West and Central Africa. The eastern montane race, *Tragelaphus eurycerus isaaci*, on the other hand, has isolated populations existing in the montane forests of East Africa, namely Mount Kenya, the Aberdare and Mau forests.

The mountain Bongo is listed as critically endangered by the IUCN/SSC Antelope Specialist Group (IUCN, 2003) and listed on Appendix III of the Convention on International Trade of Endangered Species of Flora and Fauna (CITES), which allows limited trade on the species. In Kenya, Bongos are accorded full protection under the Wildlife Conservation and Management Act, 2013.

Previously there was scanty information on the ecology of the Bongo due to the highly elusive nature of the species, which is armed with an acute sense of hearing and dwells in densely forested habitats coupled with rugged terrain, thereby making its behaviour difficult to observe. Most information came from former hunters (Kingdon, 1982) and the captive breeding program at Mount Kenya Wildlife Conservancy. However, recent comprehensive studies (Estes et al.,2008) conducted in Aberdare, Mt. Kenya, Eburu and Mau forests have generated some new information on Bongo ecology.

3.1.2 Wild Population Status and distribution

Mountain Bongos also once inhabited Cherengani hills, Chepalungu hills and Mount Elgon in Kenya and Uganda where they have been extirpated (Kingdon, 1982). In the four regions where the subspecies is found, populations have diminished, and the causes of their decline are uncertain with speculation touching on several possibilities.

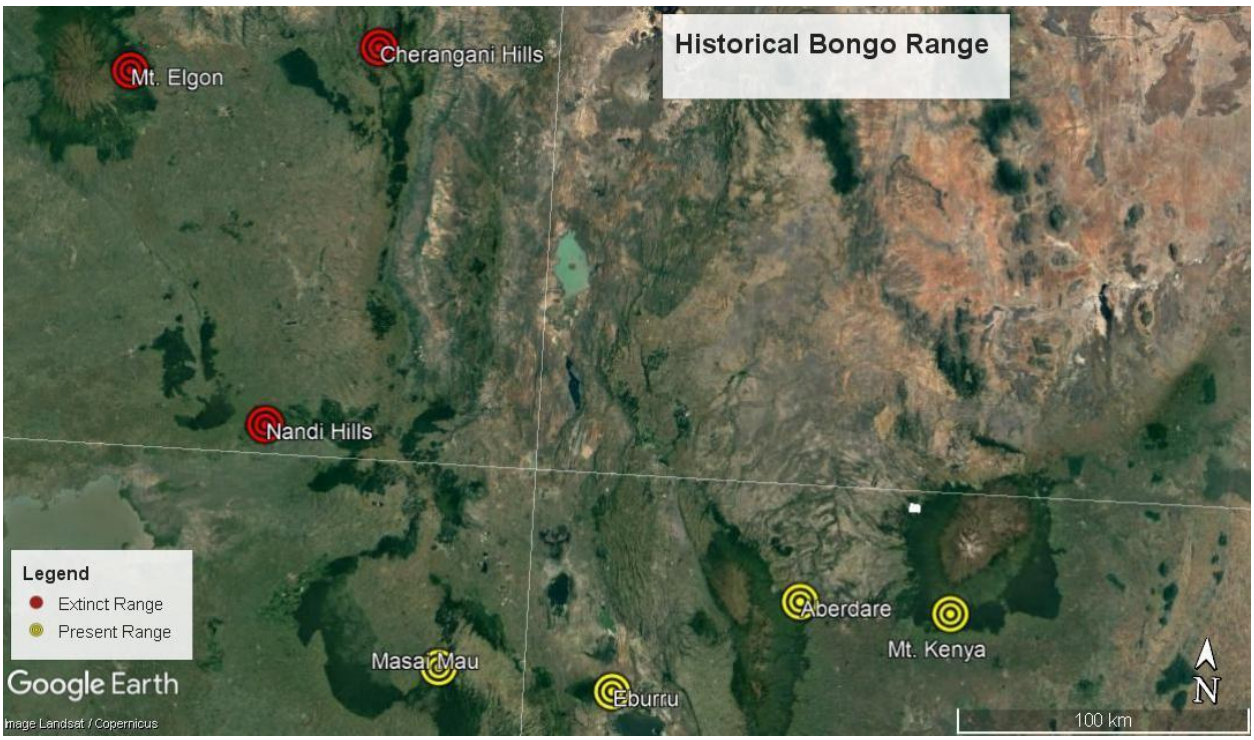


Figure 5: Historical Bongo range

Studies show that the methodologies for estimating populations of forest mammals and carrying capacity are complex and intensive due to the challenging nature of the environment. Current Bongo population estimates are based on BSP data obtained from a combination of methods such as use trackers, camera trap observations and DNA analyses of faecal samples. The Aberdare National Park was previously a Mountain Bongo stronghold, evidenced by the enormous number of individuals known to have been captured from the area (Ronald 1964). Around 1975 the Bongo

population there numbered more than 500 individuals; however, the population has been on a downward trend (Kingdon, 1982) and was estimated at about 50 -75 individuals in 2010.

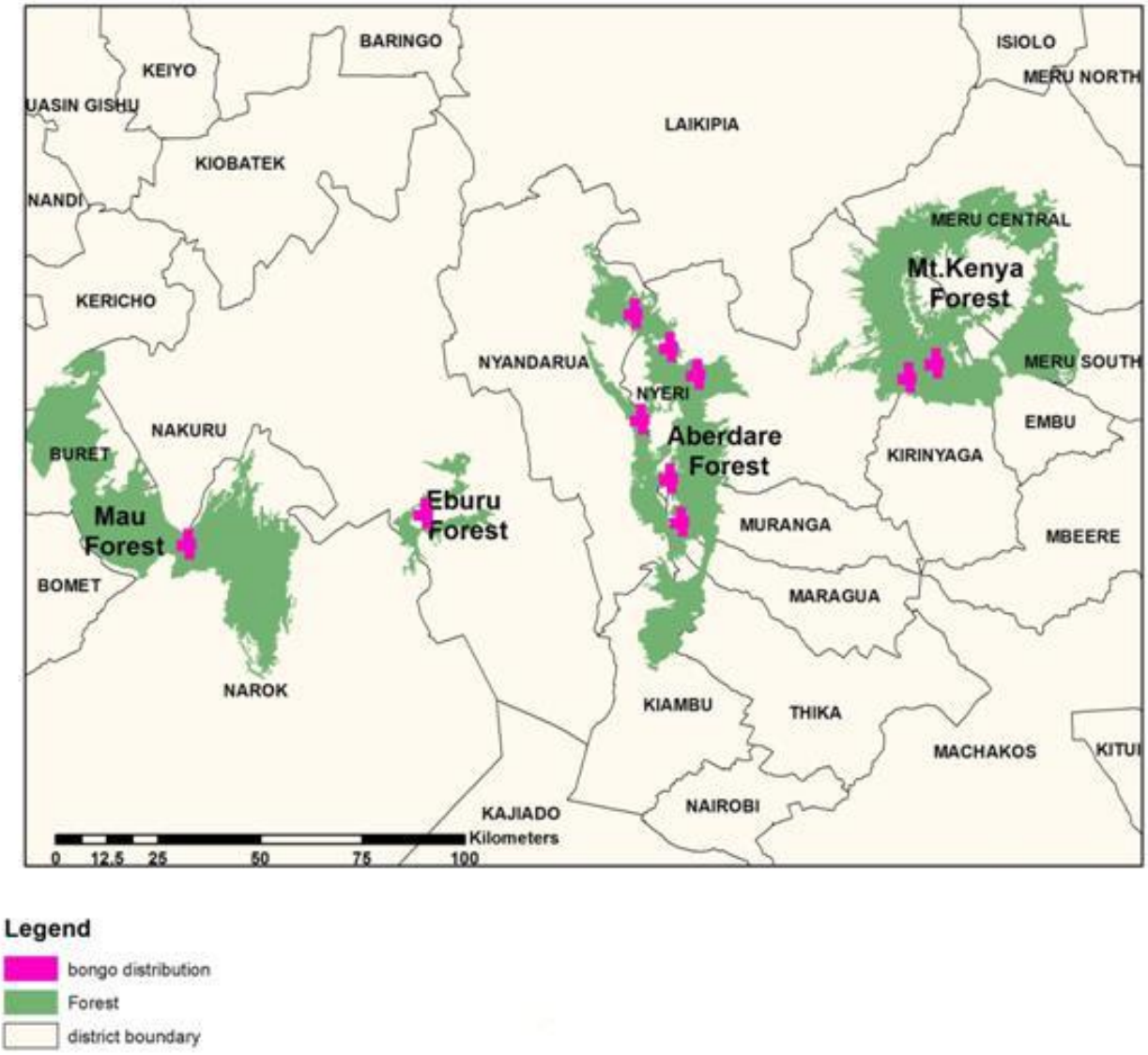


Figure 6: Current Bongo ranges in Kenya (Source CMSMB modified)

Based on camera trap photographs and visual forest information collected through the Bongo Surveillance Programme (BSP). The current wild population of Bongo is estimated at about 100 animals across its present range as summarised in the table below.

Table 3: Estimated current Bongo population (source is BSP)

Area	Population estimate
The Aberdare National Park and Reserve	40- 50
Mt. Kenya National Park and Forest Reserve (Ragati)	6
Eburu Forest	6
SW Mau Forest Forest.	6- 9
Maasai Mau..	25
Total	**96**

3.1.3 Captive Population

The global captive population of Bongo is about 824 found in zoos mainly in America but also in other parts of the world. The existence of a healthy captive population of the Mountain Bongo offers the potential for its reintroduction (Estes, 2007). In Kenya, Mountain Kenya Wildlife Conservancy (MKWC), within the ecosystem, has proven to be a successful breeding site for the mountain Bongo and therefore a future source to the wild sinks. The population in this sanctuary has grown from 34 individuals in 2004 to 72 animals as of 2019. 18 of the 34 individuals had been repatriated from the USA. The sex ratio is 24 males and 45 females and 3 unsexed. See age sex structure below.

Table 4: Population Structure of the Bongos in MKWC

SEX	Adults	Young	Total
Males	**16**	**8**	**24**
Females	**35**	**10**	**45**
Unsexed	**0**	**3**	**3**
Total	**41**	**21**	**72**

3.1.4 Habitat and food preference of the Mountain Bongo

Mountain bongos are found in mountain and bamboo forests that range in altitude from 2100 to 3000 masl. Bongo prefers dense and tangled undergrowth, they thrive on transition vegetation at forest edge and new growth areas. Mountain bongo is a mixed feeder but it is believed to be more of a browser (Klaus-Hugiet al., 2000).

The Bongos feed on stinging nettles(), *Arundinalia alpina* (bamboo leaves), bark of trees and sapling roots dug using its horns, charred wood, dead bark, burnt wood, *Parothetus communis*, *Senecio bieffrae*, *Mimulopsis solmsii* which is characterized by periodic toxicity, bark of wild croton (*Macrostachyus*), dead wood, *Impatiens sp, Hypoestis verticillaris, Justicia striata, Crassocephalum montuosum, Sericostachys scandens, Rubus,asplenium,Runanculius, Parochetus communis, Senecio petitianus, S. nandensis, Basella alba, Vernonia species, Phytolacca dodecandra* and *Erythrococca bongensis* (CBSG, 2010).

3.2 Black rhino

3.2.1 The Status of Black Rhino

Black rhino (*Diceros bicornis)* suffered a catastrophic decline across Africa in the 1970s and 1980s, both in numbers and extent of its range. Numbers plummeted from an estimated 65,000 in 1970 to fewer than 2,500 by 1992. The decline in the eastern black rhino (*D. b. michaeli*) in East Africa was particularly severe where the large National Parks and Reserves such as Tsavo National Park (NP) and the Selous Game Reserve (GR) each used to hold perhaps twice as many black rhinos as currently exist in the world. The black rhino dropped in number in Kenya from an estimated 20,000 in 1970 to less than 400 animals by 1990 (Figure 2) mainly due to poaching. All surviving subspecies of black rhino are listed in *Appendix I* of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and as *Critically Endangered* in the IUCN Red List of Threatened Species.

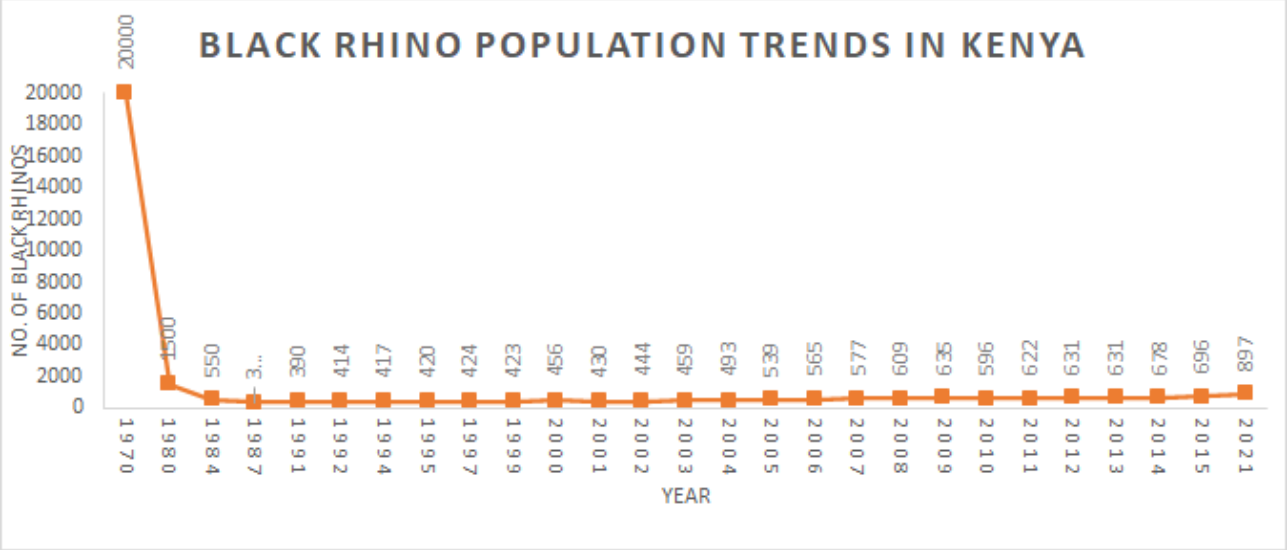


Figure 7: Black rhino numbers in Kenya from 1970 to 2011 in logarithmic scale showing the sharp decline in the 1970s and slow recovery from the mid -1980s. Note the effect of poaching in recent years.

Kenya is the stronghold of the eastern black rhino subspecies (*D. b. michaeli*) holding 80.3% of wild populations. The other significant numbers of this subspecies are found in northern Tanzania (two Important populations), and an introduced out of range Key 2 population in South Africa. The Kenyan black rhino populations are currently distributed on State, private, county council and community lands.

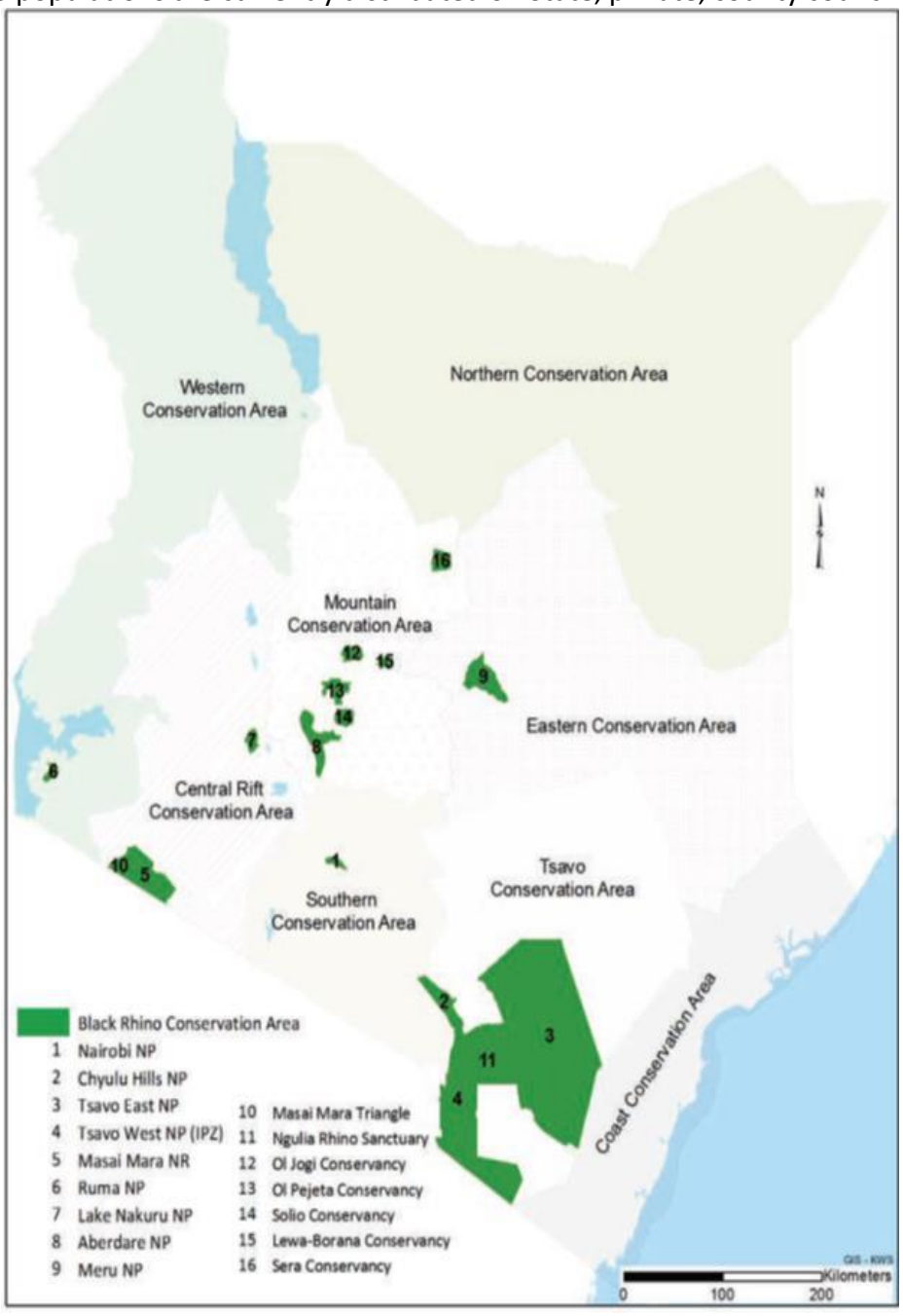


Figure 8: Distribution of Black Rhino in Kenya

3.3 Meru Bongo Rhino Sanctuary habitat suitability Assessment

3.3.1 Background information

Ecological assessment is an important step before any sanctuary or facility is established. It includes crucial aspects of habitat i.e. availability and quality of forage, water and other basic ecological requirements like mineral and salt licks. Other ecological aspects include disease and disease risks and any potential conflicts that may exist with other endemic or residual species.

3.3.2 Study methodology

For the Black rhino ecological assessment, browse availability (BA) assessment is the most critical component and it strongly influences the carrying capacity of the black rhinos other factors held constant. The assessment is mainly based on visual estimation as described by Keryn Adcock (2006) with modifications putting into consideration plant canopy and height measurements within the 0-2m plant height range. The 0-2m plant height range comprises over 90% of black rhino food resources. Black rhino's diet is composed of woody, semi woody plants, annual and perennial herbs. Various methodologies exist for assessment of the (BA) and they have been highlighted in the materials and methods section of this report. Black rhino foraging studies shows 98% of black rhino food comes from the 0-2m height range, and around 85% comes from the <1.5m. Black rhino exhibit specialist feeding strategy by confining their diet to certain preferred plant species. For browse availability assessment purposes, browse material over 2m off the ground is always ignored. Browse assessment for Bongos has not been well developed and standardized like the Rhino assessment.

This study adopted the Stuart-Hill (1991) methodology which was used in a study of the browser carrying capacity of eastern Cape succulent valley bushveld. The study by Stuart is considered the closest standardized methodology. The methods consider a visual browse vegetation "condition" index using reference "visual calibration" sites, which represented to a large extent the range in available browse from very dense thicket to sparse woody vegetation. The method has been applied in this site to come up with reliable information on the availability and suitability of the browse material for the Bongo.

Other ecological parameters that were put into consideration during the assessment was the water availability and quality which is discussed in this report in detail. The browse resources found in areas farther than 8 km from the available water sources are effectively unavailable to black rhinos. Bongos tend to stay in river valleys and prefer relatively easy water sources. This makes water availability and distribution a key factor in determining browse availability.

3.3.3 Ecological Assessment Methodology

Field work was undertaken in September 2020 and was composed of a team of scientists and managers from KWS, county government of Meru and LEWA wildlife conservancy. The objective of the ecological assessment was to establish the suitability of the proposed area for establishment of a Bongo sanctuary and black rhino conservation. The larger teams looked at four major components: the first team looked at the rhino browse availability and suitability, the second team

focused on water quality and the third team looked at security assessment and finally there was disease prevalence and disease risk assessment.

3.3.5 Assessment Results & recommendations

An assessment of 14 sampling plots (fig 2) in the proposed project site in Marania and Muchene to determine rhino and Mountain bongo food plants availability and suitability indicated that out of the 127 plant species recorded. 100 plant species (79%) were identified as mountain bongo food plants distributed in all sampled plots. 48 rhino plant species were identified out of which 31 species (65%) are rated high in terms of rhino preference while 17 species (35%) had a low suitability rating. Percent rhinos browse biomass per plot for all the species ranged between 9% in the mixed bamboo forest to 90% in the primary low montane forests while that of preferred plant species ranged from 0% in the moorland area to 18% in the primary low montane forests. Rhino browse index for all the species and for the preferred plant species was highest in the primary and secondary lower montane forest and low in the rest of the vegetation with moorland recording close to zero preferred browse index.

Based on the total browse availability (BA) scores index for all species and BA score index for preferred plant species calculated for the proposed site, the black rhino expected carrying capacity (ECC) was estimated at 0.383 rhinos per km2 which translates to 53 rhinos in the estimated 139km^2 proposed sites which supports the IUCN recommend minimum founders of a breeding population of 20 individuals which should not more than 40% of the estimated ECC. The size of the areas is comparable with other rhino sanctuaries though at lower densities compared to savannah habitats e.g., Ruma NP 120 km^2 (0.68 rhinos per km^2); Nairobi NP 117 km^2(0.5 rhinos per km^2); Ngulia rhino sanctuary 92 km^2(0.4 rhinos per km^2)

From the ecological assessment of the rhino and bongo habitat requirements, the proposed site was found suitable for the two species. The food plants, water quality and the salt licks were found adequate for the two species. However, the quality of food plants was relatively higher compared to the Mawingu area of Mt. Kenya but lower than the Ragati area where bongos are currently in existence.

To accommodate the two species in future when the project has taken off, more space and habitat will be required than stated in the proposal. All that area outside the existing forest plantations (3,642.7 ha) in the two forest blocks should be set aside for the sanctuary. This area (figure 3) with a total of 13,837 ha (139km^2) representing 79% of the forest blocks should be fenced out and intensively managed for the sanctuary.

3.3.6 Rhino and Bongo Interactions

The two species occupy different niches in a habitat and their interactions are not detrimental to each other. While Black rhinos are selective browsers and grass plays a minor role in their diet the mountain bongo feeds on broad leave plants especially in secondary vegetation areas. Existing literature does not give any problem associated with their co-existence. The two are known to

harmoniously live together in the Salient region of the Aberdare National Park where both are mostly nocturnal forest species.

3.4.0 Veterinary and disease surveillance

3.4.1 Study methodology

The disease surveillance team visited 14 homesteads adjacent to the two forest blocks and collected blood and tick samples from cattle and sheep. The blood samples were collected in EDTA tubes, labelled, and aliquoted into cryovials then frozen in liquid nitrogen pending transportation to the laboratory. Blood smears of the 51 samples were prepared on-site and fixed in methanol awaiting staining and microscopic examination in a laboratory. The sampling points were randomly distributed on and around the proposed sanctuary to offer a qualified opinion on the factors under investigation. Ticks were collected by dragging and flagging along specified 100m transects on vegetation to establish the tick diversity and density. All ticks caught and collected on vegetation were later identified under a stereo microscope.

A questionnaire was administered on each homestead for participatory disease search (PDS). A total of 14 questionnaires were administered to different community members randomly distributed in the project area. This information offered a glimpse of the community's knowledge on the prevailing diseases in the community's cattle, sheep, and goats. The acquired information was processed about the bongo project.

The team collected a total of 51 faecal samples during the surveillance exercise that corresponded to the animals whose blood sample was taken. The faecal samples were preserved in 10% formalin in a labelled faecal pot. Eggs per gram (EPG) analysis was carried out at the KWS laboratory using a McMaster slide which has specialised counting chambers.

3.4.2 Findings/results

3.4.2.1 Participatory disease search (PDS)

Information collected during participatory disease search (PDS) indicated the following disease as the main diseases occurring in the community area;

1. Lumpy Skin Disease
2. Theileriosis
3. Babesiosis
4. Anaplasmosis
5. Brucellosis
6. Borreliosis
7. Foot and mouth disease

This information was corroborated by the local veterinarian practising in the areas. The seven diseases offer the diseases that have great potential of transmission between domestic stock and wildlife.

*3.4.2.2 **Ecto** and Endo-parasites collected from livestock and vegetation at Mt Kenya*

1) Ticks collected from animals

A total of 532 ticks were collected from livestock (sheep and cows) and vegetation at Mt Kenya forest. Five tick species namely, *Rhipicephalus (boophilus) decoloratus*, *Ixodes lewisi*, *Rhipicephalus evertsi evertsi, Rhipicephalus longus,* and *Rhipicephalus appendiculatus* were collected. More ticks were collected from sheep (241 ticks, 45% of the ticks) than cows (183 ticks, 34% of the ticks). The finding of *Rhipicephalus appendiculatus* in sheep at the sampling area is likely accidental, the altitude and climatic factors are likely not to favor such a tick. *Rhipicephalus (boophilus) decoloratus* dominated in animal collections while *Ixodes lewisi* dominated the vegetation collections. The sampling period was very cold, and this may have affected tick life cycles. A collection during the warmer months will help determine the full spectrum of ticks in the area. Ticks' spectrum reduced with the increase in altitude, indeed, *Ixodes lewisi* was the only tick collected at an altitude above 2600M. The finding of *Rhipicephalus longus* at the altitude of 2800M is rather interesting and requires further investigation in a warmer season. Tick density was rather low and more attributable to the very low temperatures in the area during the sampling period. Indeed, the moorland (at 3030M above sea level) yielded no ticks after dragging.

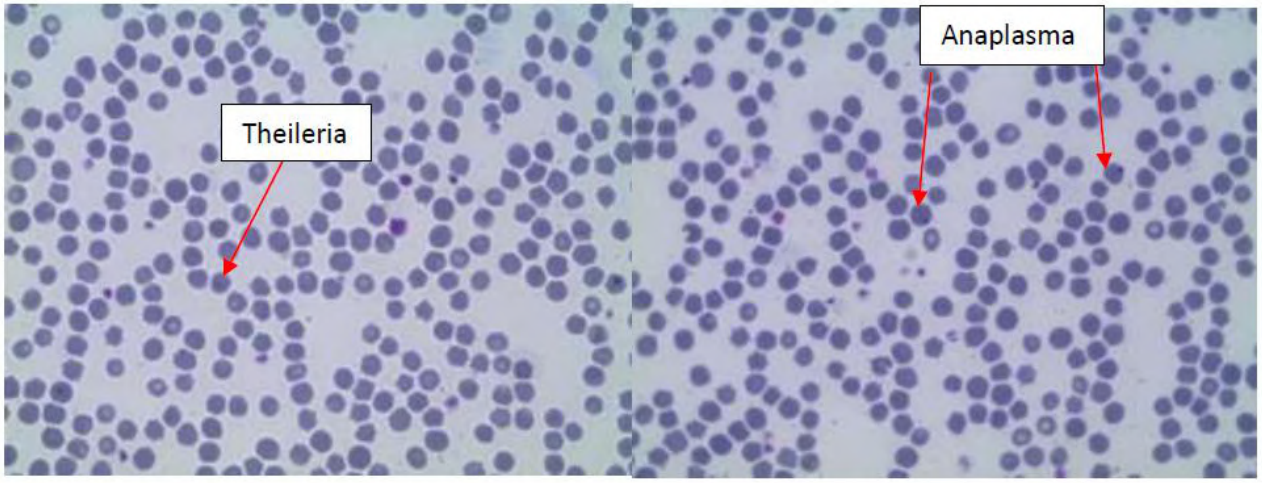
Table 5: List of Ecto-parasites collected from animals and vegetation at Mt Kenya

Tick species	Males	Female	Nymphs	Larvae	Infestation Rate/Density
Cattle					
Rhipicephalus(boophilus) decoloratus	36	64	47	0	100%
Ixodes lewisi	2	18	0	0	57.1%
Rhipicephalus evertsi evertsi	3	0	0	0	28.6%
Rhipicephalus longus	9	4	0	0	28.6%

Tick species	Males	Female	Nymphs	Larvae	Infestation Rate/Density
Sheep					
Rhipicephalus(boophilus) decoloratus	35	39	49	19	29.2%
Ctenocephalides felis	0	1	0	0	2.4%
Ixodes lewisi	8	41	0	0	63.4%
Malophaga ovinus	5	0	0	0	4.9%
Rhipicephalus appendiculatus	1	1	0	0	2.4%
Rhipicephalus evertsi	34	9	1	3	46.3%
Rhipicephalus longus	0	1	0	0	2.4%
Vegetation collection					
Ixodes lewisi	30	77	0	0	1-4/M
Rhipicephalus longus	0	1	0	0	1/M

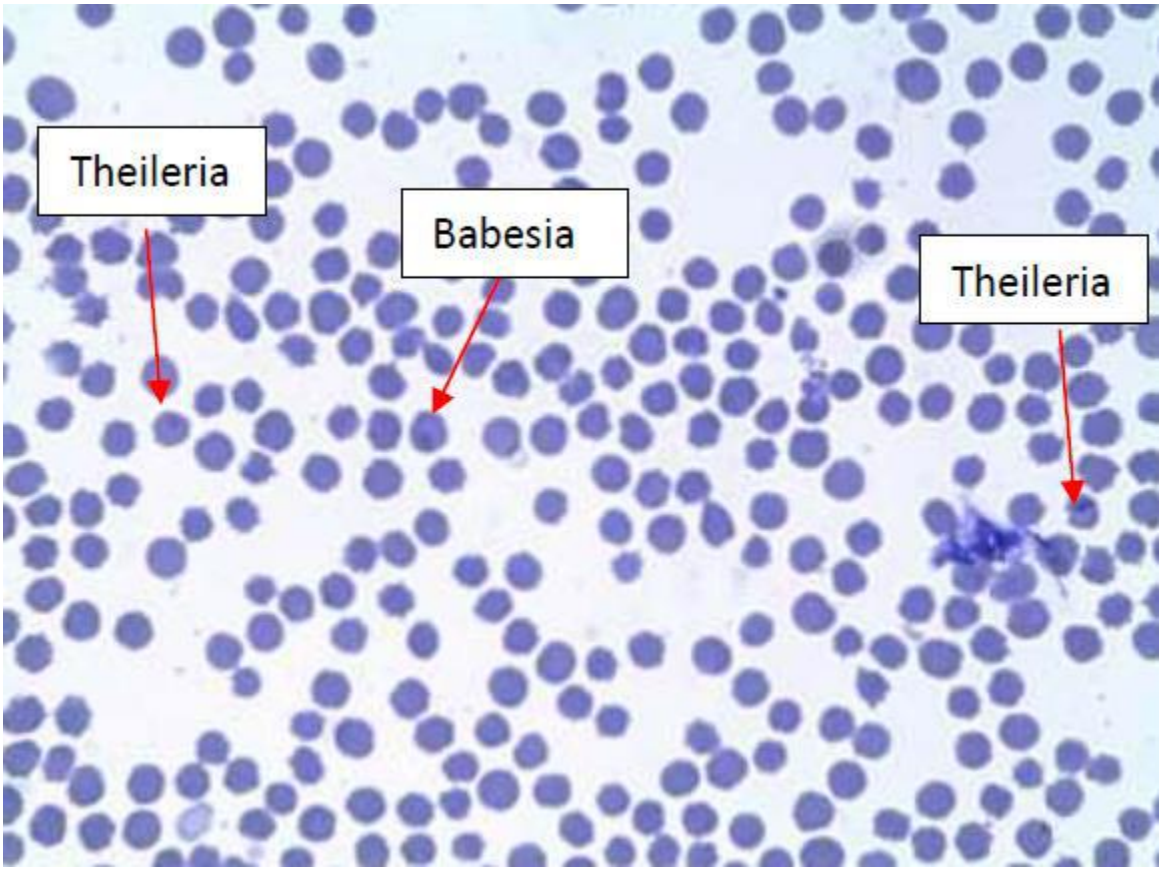
2) Haemoparasites

Haemoparasites were detected from 70.5% (36 out of 51) of the smears made during this surveillance. *Theileria* and *Anaplasma* were the predominant haemoparasites detected at 78.4% (40 out of 51). This was despite the obvious tick control measures employed by the farmers within the area of surveillance. Amitraz 125 g/l and Cypermethrin 47.5 g/l combined with chlorpyrifos 475g/l are the commonly used ant tick spray on community cattle**.** The farmers dip their cattle twice a month.

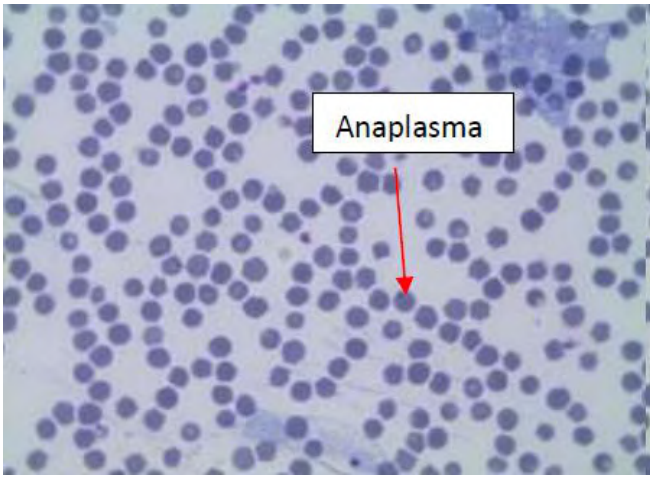


S 39 F *Theileria*

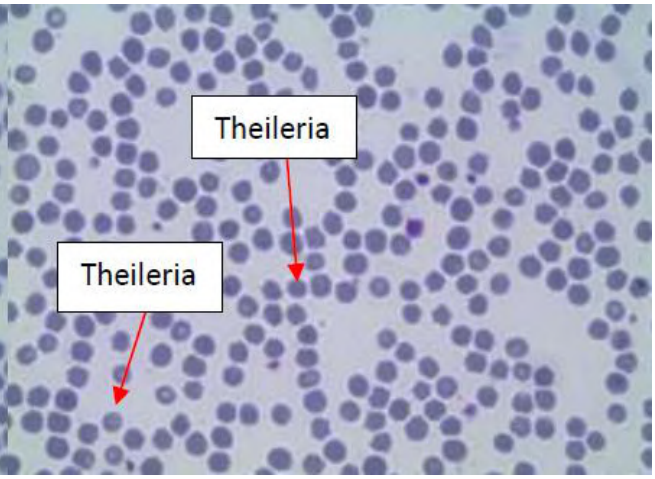
S 39 F *Anaplasma ovis*



S 6 M Babesia/Theileria



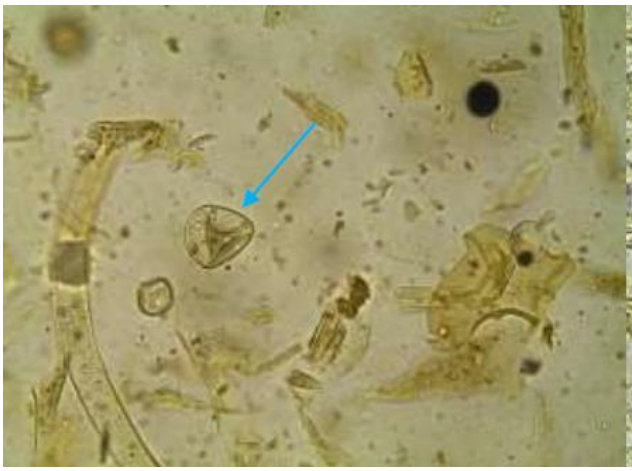
S 5 Male Anaplasma



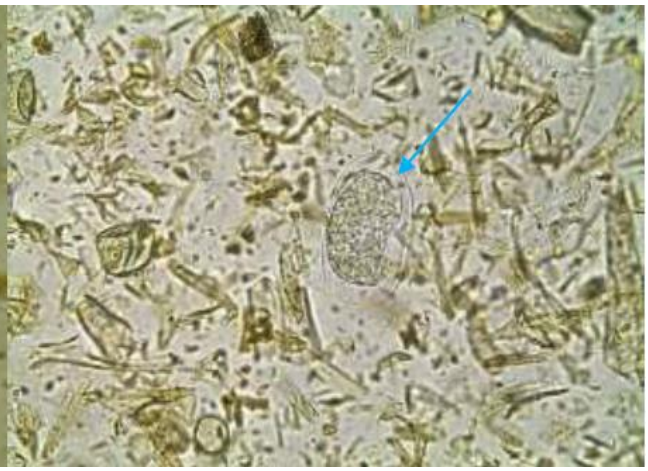
S 6 Male Theileria

3) Helminth eggs

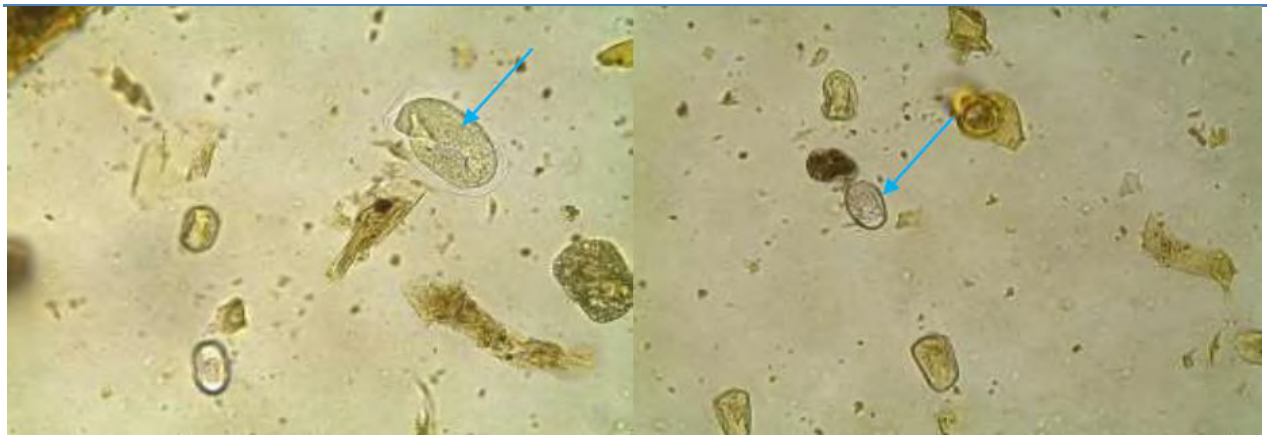
Moniezia, a common tapeworm of sheep, goat, and cattle was the most detected with an average of 100 eggs per gram (EPG) on thirty (30) individuals out of the 51 sampled. The other helminth eggs were at less than 50 eggs per gram**.** Albendazole 10%, Ricobendazole (Albendazole sulphoxide) 10 %, Endolete (triclabendazole and levamisole) and Levamisole hydrochloride 3.0% Oxyclonazanide BP 6.0% W/V and cobalt sulfate are the most used ant-helminths used by the community members to control liver flukes, stomach flukes' roundworms and tapeworms in cattle, sheep, and goats.



S 32 F Moniezia



Kimbo 3 Strongyle



Kimbo 5 Strongyloides

Kimbo 5 Paramphistomum

3.4.2.3 Disease association.

Infectious and non-infectious diseases are associated with direct and indirect damage to livestock and wild herbivores. Ticks are known to imbibe blood from animals and transmit dangerous pathogens. *Rhipicephalus (boophilus) decoloratus* is a known vector of *Babesia* and *Anaplasma* in herbivores. *Babesia* and *Anaplasma* have been reported to cause mortalities in wild herbivores (Bishop *et al* 2019). Mitigation measures should be put in place to control such diseases in the proposed project area. *Rhipicephalus evertsi everts is* attributed to tick paralysis in sheep and should be explored for such in other herbivores. *Rhipicephalus longus and Ixodes lewisi* are likely not to have any know disease association

3.4.3 Conclusions

Infectious and non-infectious diseases are a potential risk to the bongo and should always be a key consideration for mitigation to curtail the very possible risk of transfer. Ticks collected were collected in low numbers and this was associated with high altitude and low temperatures. A second sampling during a warmer period of the year is recommended to assist in determining the optimal number of species and their densities in the area (Kimberly 2021). However, the high altitude is probably responsible for the low tick density reported in this study.

3.4.4 Recommendations

The tick diversity and density on the proposed sanctuary are low compared to other savannah areas around Mt Kenya. This is possibly due to the high altitude above 3000 metres above sea level. The source population of Mountain bongos has no tick challenge and is therefore naïve to TBD's.

We opine that despite the low densities recorded the sanctuary should have strict tick management and control measures and possibly a 10-metre buffer zone to prevent an influx of ticks from surrounding areas in hot and dry months. Adaptive immunity will develop over time in

repatriated animals and offerings through trickle exposure and possibly maternal transfer. While tick resistance is a multi-factorial trait suggested involving host-related factors such as sex, age, lactation, grooming behavior, skin composition, host surface area, coat length, and environmental factors (Robbertse *et al* 2017) enzootic stability will have a balance between wild host and pathogen.

In the early days of the sanctuary, it's prudent and realistic to expect the risk of a tick-borne diseases outbreak. The team opines that prompt treatment of sick animals would be the best way. The expected TBDs,' that pose a threat are *Theileria*, *Anaplasma*, and *Babesia or a* combination.

The source population of bongos is from Loxahatchee Florida which is 16 metres above sea level, the proposed bongo sanctuary is situated between 2800- 3000 metres above sea level. High altitude disease may present an initial challenge for the parent population but not the F1 generation which will be well acclimatised to high altitude.

Faecal ECG revealed the eggs of *Moniezia*, *Strongyloides*, and *Paramphistomes*. Among the three identified helminths eggs *Strongyles* present the greatest challenge. However, they can be effectively controlled by a judicious and helminthic program in feed.

Foot and mouth disease is common in community cattle and outbreaks occur. Bi annual vaccination is recommended.

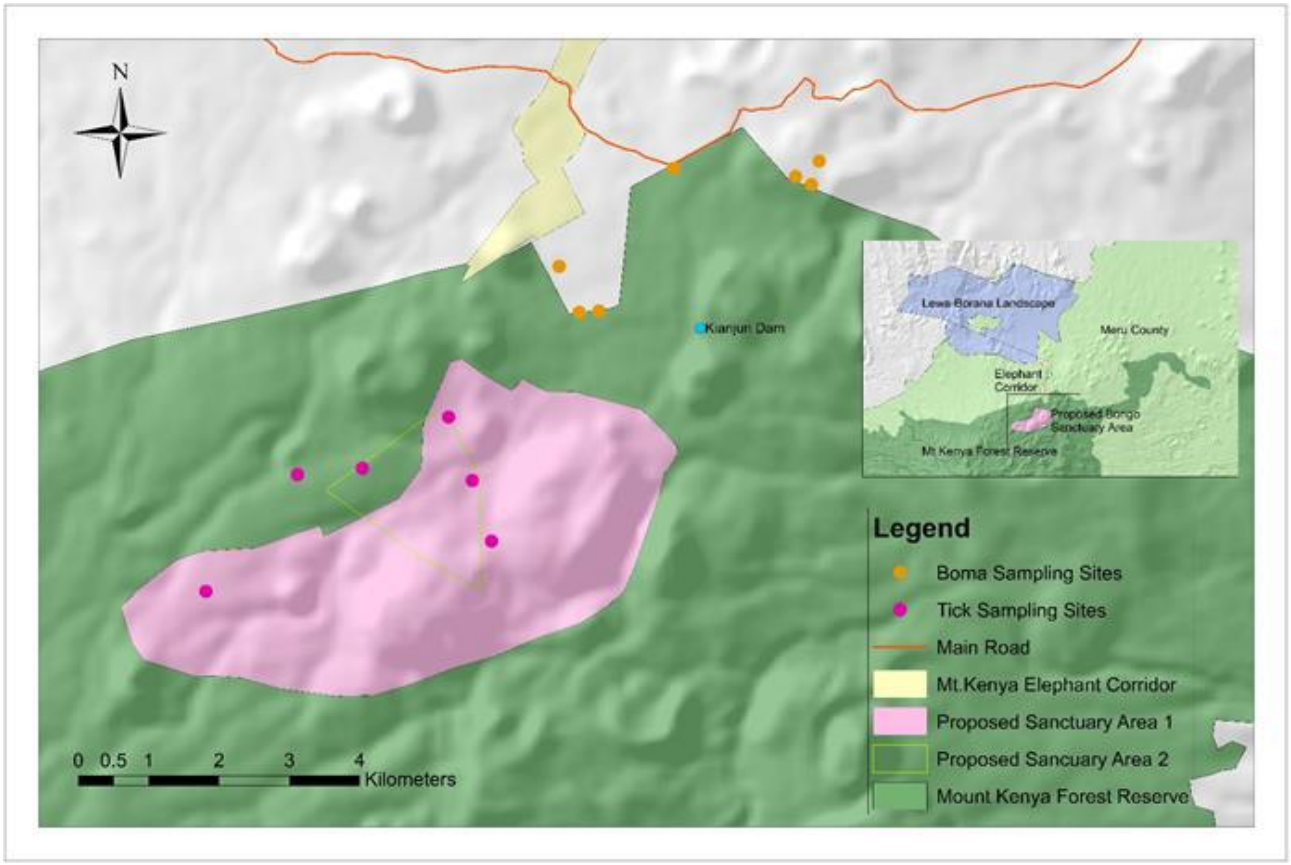


Figure 9: Veterinary sampling points points during the survey

Plate 2: Using matting cloth to collect ticks from the environment and collecting blood from sheep

3.5.0 Water and salt sources

Other ecological parameters that were put into consideration during the assessment was the water availability and quality which is discussed in this report in detail. The browse resources found in areas farther than 8 km from the available water sources are effectively unavailable to black rhinos. Bongos tend to stay in river valleys and prefer relatively easy water sources. This makes water availability and distribution a key factor in determining browse availability.

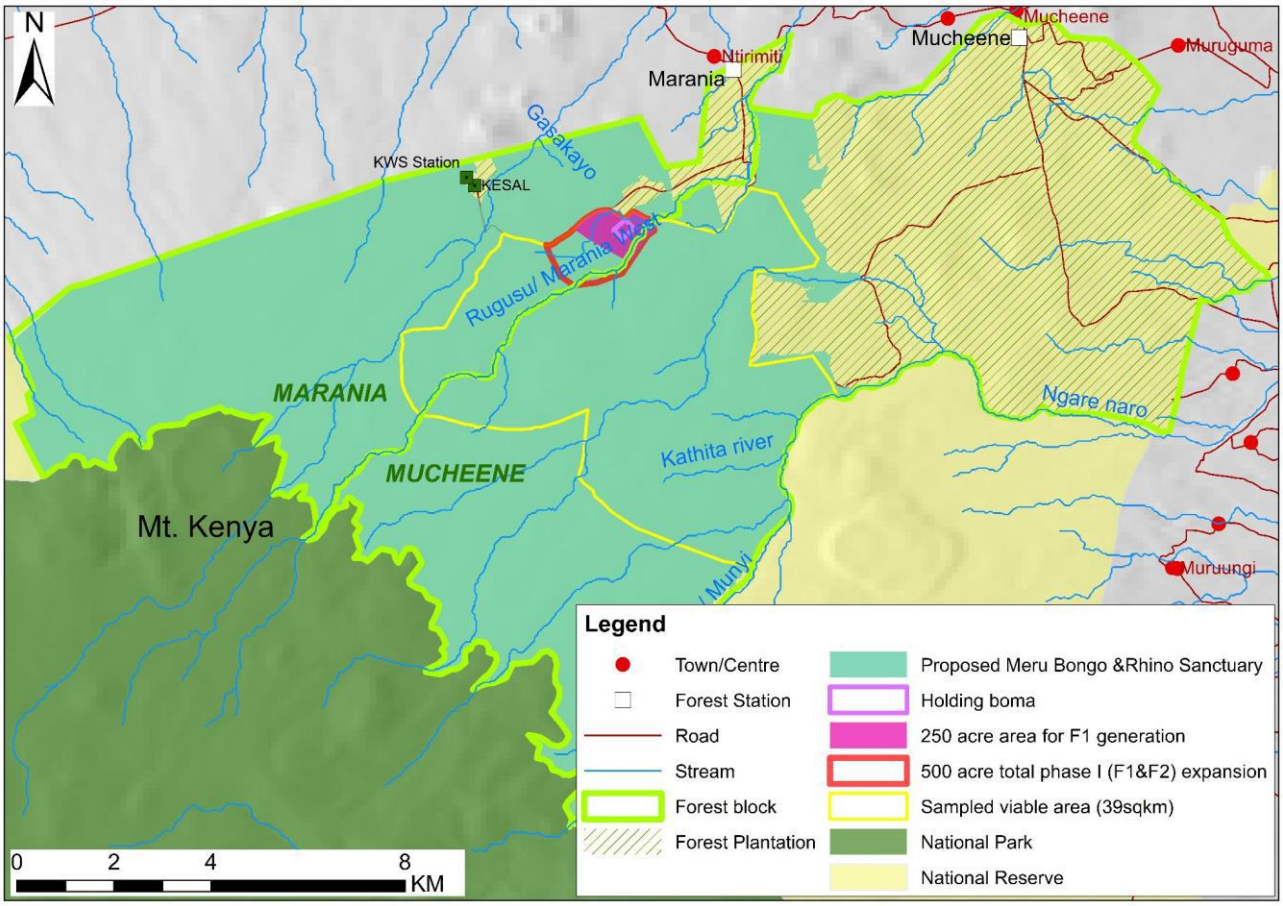


Figure 10: Rivers and streams flowing through the proposed sanctuary

There will be a need for salt supplementation because bongos are known to be highly dependent on natural salt licks.

3.4.0 Topography

Mt. Kenya was formed as a result of volcanic activity, and it has a base diameter of approximately 120km. It is the country's highest mountain and second highest in Africa with its icy summit reaching at the two highest peaks Batian (5,199 m) and Nelion (5,188 m). It is broadly cone-shaped with deeply incised valleys radiating from the peaks, which are largely attributed to glacial erosion. There are about 20 glacial tarns (small lakes) of varying sizes and numerous glacial moraine features between altitudes 3,950m and 4,800m above sea level

The proposed Marani Bongo sand rhino sanctuary falls within the larger Mt Kenya Ecosystem representing the most important pristine mountain ecosystem. The physiography of the mountain influences the overall topography of the project area and the adjoining lands outside the forested zones. The forest topography is characterised by mountainous foothills, plains, and valleys. At the lower elevations, the terrain gently slopes and becomes dotted with patches of hills. The valleys on the lower elevation are of the U-shaped but as you move up higher elevation to the mountain

peaks the gradient is steeper and the valleys- take the V-shaped. Majority of the valleys are tributaries that join into a big river towards the lower elevation.

3.6.0 Geophysical characteristics

3.6.1 Climate

3.6.1.1 *Rainfall*

Rainfall pattern in Mt. Kenya ecosystem is bimodal. It ranges from 900 mm in the north Leeward side) to 2,300 mm on the southeastern slopes (Windward side) of the mountain (Survey of Kenya, 1966) with maximum rains falling during months of March to June and October to November. The driest months are January and February with the windward side experiencing the strongest effects of the trade wind system.

The Rainfall patterns in Meru are erratic and range between 300 mm per annum in the lower midlands in the North to 2300 mm per annum in the Southeast and high mountainous areas. On average, most areas receive 1250 mm of rainfall annually. The rainfall is bimodal which forms two pronounced seasons with the long rains occurring between March and May while the short rains occurring between October and December.

Marania and Muchene forests are situated on the windward side of the mountain and receive portions of the highest rainfall in the region (Fig 2).

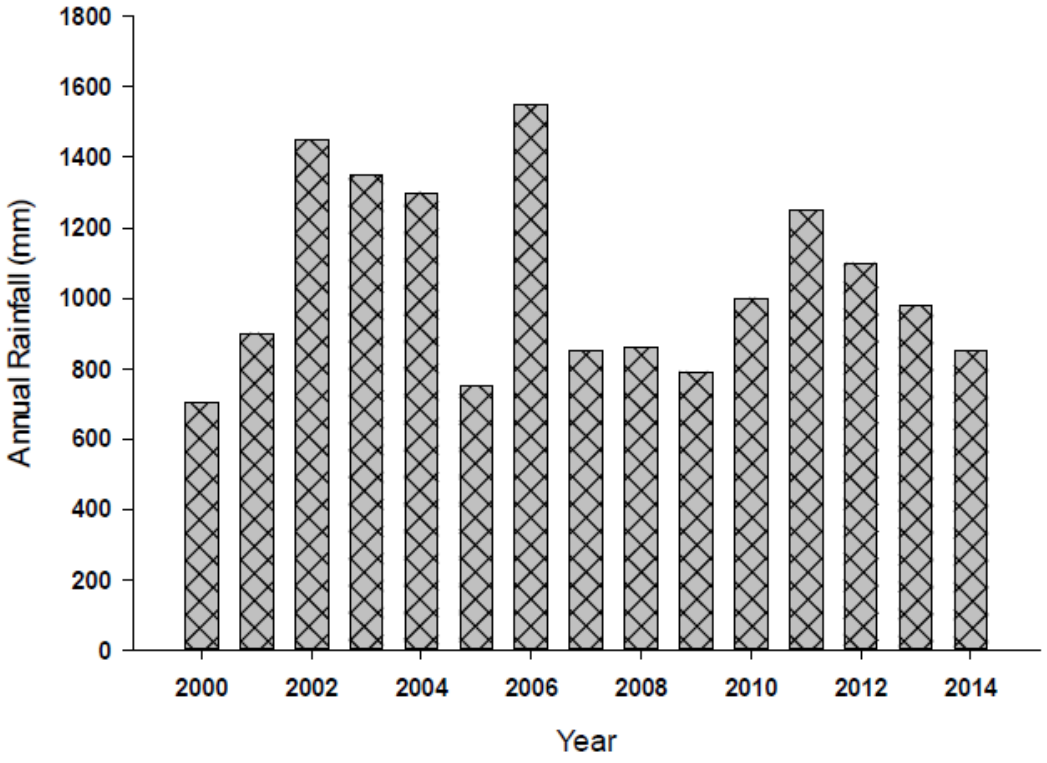


Figure 11: Rainfall patterns in Marania Forest from the year 2000 to 2004 (Data based on Cetrad, 2020)

3.6.1.2 *Temperature*

There is great fluctuation in temperatures on Mount Kenya forest.This fluctuation is largest on the lower slopes of the moorland zone. At an altitude of 3,000 metres there is an 11.5 °C mean range in daily temperature, this goes down to 7.5 °C at 4,200 metres and 4 °C at 4,800 metres. The diurnal temperature fluctuation reduces with altitude, and so the lapse rate decreases during the course of the day. Temperature variations are closely correlated with direct sunlight. The sun quickly warms the ground by a few degrees, which in turn warms the air close to the ground. This air cools to reach equilibrium with the mean air temperature very quickly when the sky becomes overcast.

3.6.2 Geology and Soils

The geology of Mt. Kenya is influenced by volcanic activities followed by many years of weathering. The geological profile of the area originated from repeated faulting and lava outpourings dating back from the early tertiary period. As a result, most of the area is underlain by the tertiary rocks. These tertiary volcanic rocks are mainly of alkaline type and include basalts, phonolites, nephelinites, trachytes and rhyolites and their pyroclastic equivalents such as tuffs, agglomerates and ashes. The proposed Marania Bongo and Rhino sanctuary is dominated by

pyroclastic rocks and volcanic ash originating from various secondary eruptions which also cover much of the mountain ecosystem.

The soils of the area vary according to rainfall, underlying rock formations and drainage conditions. Deep soils and subsoil have developed over a greater part of the area on the volcanic rocks owing to good rainfall and their decomposed nature. The soils are characterised by high fertility (organic loams, highly drained and aerated). Lower areas of the project areas are characterised by red sandy soils that are seemingly lower in fertility to black cotton soils.

3.7 Flora

Mt Kenya forest is classified as a tropical rainforest and has a high diversity in its flora. Eight eighty (880) plant species and subspecies belonging to 479 genera in 146 families have been identified in Mt Kenya. There are 11 species that are strictly endemic to Mt Kenya. Vegetation zones and species distribution are distinguished according to different climatic zones and altitudes, mostly through variation in vegetation structure, cover and composition. There are 6 major vegetation zones which have been classified according to altitude and floristic composition. They are Montane forest 1,600-2,400 m; Bamboo thickets 2,400-2,850 m; Hagenia-Hypericum woodland 2,850-3,000 m; Erica bushland/shrubland 3,000-3,300 m; Alpine zone 3,300-4,350 m and Nival zone 4,350-5,199m. The status of a World Heritage Site confers certain obligations, one of which is to protect endangered or rare species from becoming locally extinct.

The most common species of large trees are *Juniperus procera* (cedar) , *Prunus Africana*, *Hagenia abyssinica* (East African Rosewood), *Olea europaea* (Wild olive) and *Podocarpus latifolious* (Podo). Plantations occupy a sizable percentage in the area with *Juniperus* being the major indigenous species in the plantations. Cypresses (*Cypressus lustanica*) *Casuarina spp* and *Grevillea robusta* are the exotic species in the plantations:

Marania/Mucheene forest area like the larger Mt. Kenya forest has zones which are characterized by distinct vegetation cover that changes as the altitude changes from the farmland areas at the foot to the peak of Mt. Kenya. The vegetation of the Forest varies with altitude and is categorized into the following vegetation zones from the lower altitudes to high altitudes:

1) **The Plantation Forest zone:** This is found in the area between the altitude 2200m and 2400m. The main purpose is to supply commercial forest products to the forest industries located within the forest adjacent areas. Main commercial tree species planted include Cypress (80%), Eucalypts (18%) and Pines (2%). Other species in Marania/Mucheene plantation areas include Cedar and mixed indigenous species.
2) **The Indigenous Forest zone:** The zone starts at 2000m to 2400m and is dominated by *Podocarpus latifolia*, *Artemisia afra, Bridelia micrantha, Arudinaria spp, Erythrina abyssinica, Olea europea ssp africana, Hagenia abysinica* and *Juniperus procera* among others.

3) T**he Bamboo Zone:** It is found between 2560 and 3200m a.s.l and is dominated by bamboo (*Arudinaria spp*). However, in some areas the bamboo zone may also contain some indigenous trees, mainly the *Podocarpus latifolia*. In Marania/Mucheene Forest, the Bamboo zone is not extensive as it lies on the leeward and as such not wet enough to allow the bamboo to flourish as well as in the windward slopes.

4) **The Moorland**: It lies between 3000 m and 3500 m and is mainly covered with giant heath, African sage (*Artemisia afra*) and several Gentians (*Swertia spp*). It is also characterized by smaller trees in glades, such as the East African Rosewood (*Hagenia abyssinica*) and St. John's Wort (*Hypericum spp*). The trees in this zone are usually covered with moss and lichens (*Usnea spp*). In Marania/Mucheene forest, this zone takes up the largest proportion of the forest area.

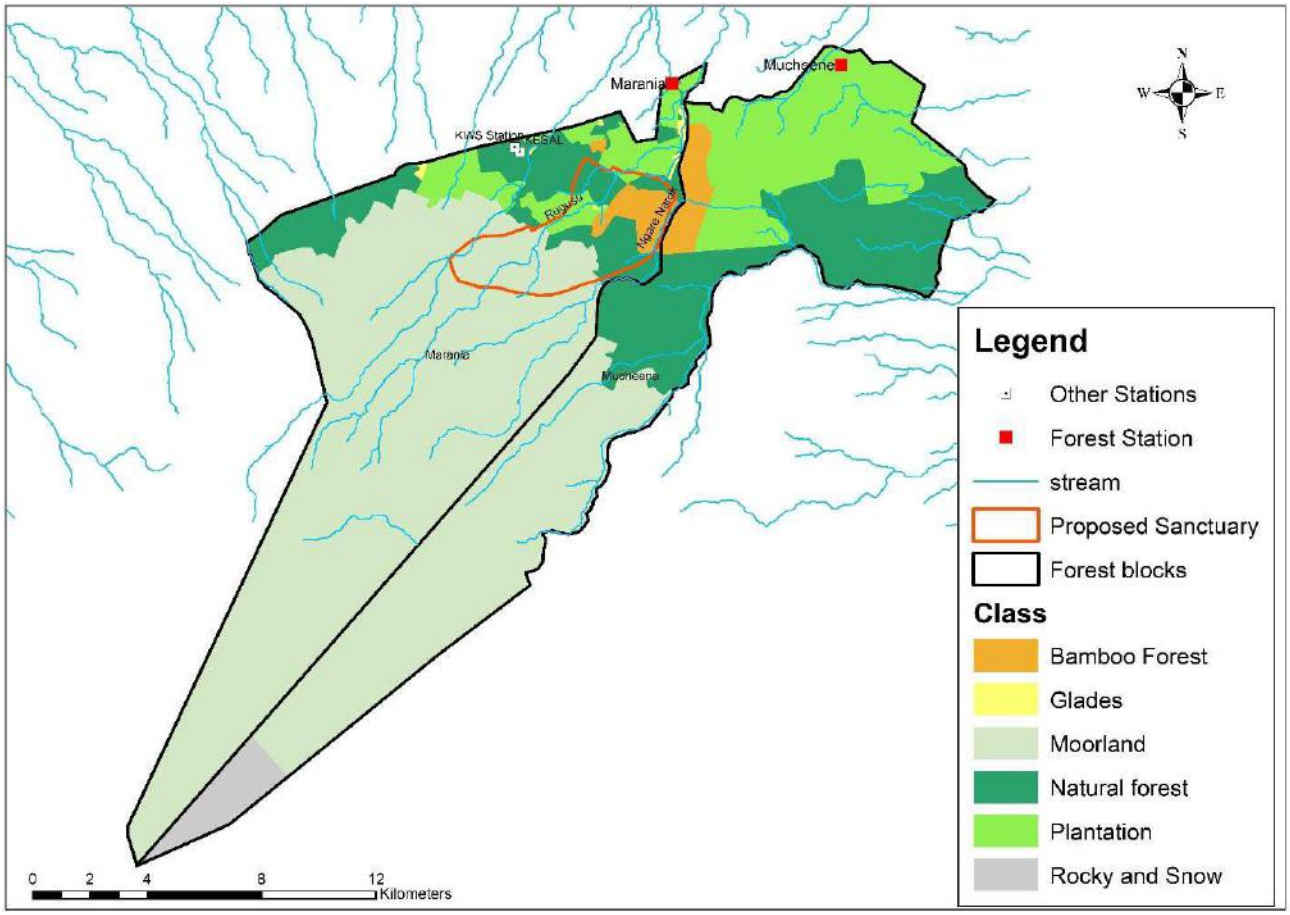


Figure 12: Vegetation classes in Marania and Muchene Forests

3.8 Fauna

Marania/Mucheene forest is home to a wide diversity of fauna. Mammals with a conservation interest in the forest include African elephant (*Loxodonta africana*), leopard (*Panthera pardus*), giant forest hog (*Hylochoerus meinertzhageni*), and the black fronted duiker (C*ephalophus*

nigrifrons). Other animal species found in the forest include the Cape buffaloes (*Syncerus caffer*), duiker (*Neotrragus moschatus*), bushbuck (*Tragelaphus scriptus*), deffassa waterbuck (K*obus ellipsiprymnus*), mountain reedbuck (*Redunca fulvorufula*), bush pig (*Potamochoerus porcus*), the common zebra (*Equus burchelli*), eland (*Tragelaphus oryx*), steinbok (*Raphicerus campestris*), Harveys red duiker (*Cephalophus Harveyi*) and common duiker (*Sylvicapra grimmia altivallis*).

Several primates are found in the forest, the most common being the black and white colobus (*Colobus guereza*) and Sykes monkey (*Cercopithecus mitis*) and the olive baboon (*Papio anubis*) which is common on the forest margins where it is a nuisance to farmers from nearby communities.

The only large carnivores other than the leopard (*Panthera pardus*) found within the ecosystem are the spotted hyena (*Crocuta crocuta*) and the striped hyena (*Hyena hyena*). Occasionally, Lions cross from Olpejeta into the forest area. Other small carnivores found in the forest include; genet (*Genetta tigrina*), civet (*Civettictis civetta*) and several species of mongoose including the slender mongoose (*Herpestes sanguineus*), marsh mongoose (*Atilax paludinosus*), the white tailed mongoose (*Ichneumia albicauda*) and the Egyptian mongoose (*Herpestes ichneumon*).

The Forest is habitat to several small mammals. The most commonly sighted include the giant pouched rat (*Cricetomys gambianus*), giant cane rat (*Thryonomys swinderianus*), mole rat (*Tachyoryctes rex*), zorilla (*Ictonyx striatus albescens),* tree hyrax (*Dendrohyrax arboreus*), the Huet's bush squirrel (*Paraxerus ochraceus kahari*), the red-legged sun squirrel (*Heliosciurus rufobrachium*), the aardvark (*Orycteropus afer*) and the porcupine (*Hystrix cristata*).

The forest is part of Mount Kenya which is an important bird area (IBA). Some of the bird species found within the forest are; Ayres' hawk eagle (*Hieraaetus dubius*), crowned hawk eagle (*Stephanoaetus coronatus*), hartlaub's turaco (*Turaco hartlaubi*), Jackson's francolin (*Francolinus jacksoni*), scaly francolin (*Francolinus squamatus*), silvery cheeked-hornbill (*Ceratogymna brevis*), bronze-naped pigeon (*Columba iriditorques*), rufous-breasted hawk (*Accipiter tachiro)*. Other birds include the harmer Kop (*Scopus umbretta*), green ibis (*Lambribis olivaceae*), olive pigeon (*Colomba arquatrix*), giant kingfisher (*Megacerryle maxima*), crowned hornbill (*Tockus alboterminatus*) and grey-headed kingfisher (*Halcyon leucocephala*) among other common birds.

Reptiles have also been recorded including monitor lizard (*Veranus niloticus*), agama lizard (*Agama agama*), African python (*Python sebae*), spitting cobra (*Naja nigricollis*) and African turtle (*Trionyx triungis*).

3.9 Socio-Economic of the Area

The area surrounding Mount Kenya forest is one of the highest agricultural potentials in Kenya.The agricultural lands both large-scale (horticulture, floriculture) and small scales are held under freehold (Private ownership), while ranches and sanctuaries are held under leasehold as

government lands. Farm areas are of different sizes with tea bushes covering an important share of the available land, except for small plots on valley bottoms where vegetables and other horticultural crops are grown. Small plots near the homesteads are used for subsistence crops such as maize and beans with farm forest trees planted along the boundaries of the plots. Agroforestry and farm forestry are also practiced within the area. The tree mix consists of both indigenous and fast-growing exotics species. Trees are planted around homesteads and along farm boundaries. Within Maranaia and Muchene, PELIS is a common land use and majority of the farms cultivate Irish potatoes, maize, and other horticultural products. Subsistence livestock grazing is also allowed in the forest area. Other land uses include construction of water intakes and firewood collection

4.o POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

The proposed project will fall under several policy and legal frameworks which are discussed below.

4.1 The Constitution of Kenya

In its preamble, the Constitution of Kenya, 2010 declares that the people of Kenya are respectful to the environment, which is their heritage, and they are determined to sustain it for the benefit of future generations.

This constitution also states, in article 42, that every person has a right to a clean and healthy environment. Sub article 1 states that this right includes the right to protect the environment for the benefit of present and future generations through legislative and other measures. Article 43 declares economic and social rights for every Kenyan.

The constitution also endorses the national land policy and chapter 5 which deals with land and environment, states principally in article 60 that land in Kenya shall be held, used, and managed in a manner that is equitable, efficient, productive and sustainable.

The principles outlined in subsections of article 60 and article 61 declare that all land in

Kenya belongs to the people of Kenya collectively and sub articles 2 classify land to be public, community or private. The national land commission is established under article 67 and its main function is to manage land on behalf of National and County governments.

On environment and natural resources, the constitution in Article 69 sub article (1) subsection (a) states that the state shall ensure sustainable exploitation, utilisation, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits. The following subsections give regulations in terms of forest cover, biodiversity, cultural resources, indigenous knowledge, systems for environmental impact assessment and prevention of activities that may harm the environment. Section 2 states that every person has a

duty to cooperate with state organs and other persons, to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources. Article 70 deals with enforcement of environmental rights and everyone who feels their right to a clean and healthy environment has been denied, has the obligation to go to court to seek redress. **Compliance:** In implementing the project, the proponent will safeguard the rights of the citizens enshrined in the constitution while ensuring that it is an ecologically sustainable development with social and environmental safeguards.

4.2 The Environmental Management and Coordination (Amendment) Act, 2015 (EMCA)

This is an Act of Parliament to amend the Environmental Management and Co-ordination Act, 1999. The EMCA is an Act of Parliament to provide for the establishment of an appropriate legal and institutional framework for the management of the environment. It also establishes the National Environment Management Authority (NEMA). The main objective of the Act is to:

Provide guidelines for the establishment of an appropriate legal and institutional framework for the management of the environment in Kenya.

Provide guidelines for Environmental Impact Assessment, Environmental Audit and monitoring, environmental quality standards and environmental protection orders.

The Act empowers NEMA to exercise general supervision and coordination over all matters relating to the environment and to be the principal instrument of government in implementation of all policies related to the environment. This project report has been undertaken in accordance with the Environmental (Impact Assessment and Audit) regulations, 2003, which are one of the regulations under EMCA.

These Regulations clearly provide the step-by-step guidelines in undertaking an EIA, the procedures for submission and the approval process by NEMA. It also gives regulations on Environmental Audits, which the project proponent shall be required to undertake a year after the proposed project is commissioned.

Part II of EMCA states that every person is entitled to a clean and healthy environment in accordance with the Constitution and relevant laws and has the duty to safeguard the same. To achieve the goal of a clean Environment for all, new projects listed under the second schedule of Section 58 of EMCA shall undergo an environmental Impact Assessment. The proposed project does fall within the Second Schedule and since it is a project that will be undertaken in a conservation area setting, it requires an EIA.

EMCA, Cap 387-part VI section 58 (1) and (2) states that:

The proponent of any project specified in the Second Schedule shall undertake a full environmental impact assessment study and submit an environmental impact assessment study report to the Authority prior to being issued with any licence by the Authority:

Provided that the Authority may direct that the proponents forego the submission of the environmental impact assessment study report in certain cases.

The proponent of the project shall undertake or cause to be undertaken at his own expense an environmental impact assessment study and prepare a report thereof where the authority, being satisfied, after studying the report submitted under subsection (1), that the intended project may or is likely to have a significant impact on the environment, may reject the project or issue conditions**. Compliance:** The proponent on preparing this EIA report therefore complies with the stipulations of EMCA.

4.2.1 The Environmental Management and Coordination (Water Quality) Regulations, 2006.

The Water Quality Regulations provides for the protection of lakes, rivers, streams, springs, wells and other water sources. The regulations also stipulate that all projects should refrain from any actions, which directly or indirectly may cause water pollution.

These regulations set the standards of domestic water and wastewater. The regulations are meant for pollution control and prevention and provide for protection of water sources. In **compliance** with these regulations, the project will ensure that the intended water sources which include River Rugusu are protected and the water distributed within the project scope is potable.

4.2.2 Environmental Management and Coordination (Waste Management) Regulations, 2006

The Waste Management Regulations sets out standards for handling, transportation, and disposal of various types of wastes from any project. The regulations stipulate the need for projects to resort to waste minimization or cleaner production, waste segregation, recycling, or composting. This is important for any wastes generated during the construction and operation of the project. The proponent shall adhere to the regulations and shall dispose waste at designated sites and ensure incineration of any clinical waste generated.

Compliance: The proponent will use the 4Rs principle for reduce, recover, reuse, and recycle any waste generated during all the stages of the project. Handling of any hazardous waste will be in accordance with this regulation.

4.2.3 Environmental Management and Coordination (Wetlands, riverbanks, lake shores and seashore management) Regulations 2009

These regulations provide for protection and conservation of wetlands and riverbanks.

They stipulate that no person shall carry out any of the activities stipulated in Section 42 of the Act without a Wetland Resource Use Permit by the relevant lead agency and an Environmental Impact Assessment Licence issued by the Authority where applicable.

They support the enforcement of Section 42 (g) of the Act which prohibits the draining of wetland, ensuring that every owner, occupier, or user of land which is adjacent or contiguous to a wetland shall, with advice from the Authority, have a duty to prevent the degradation or destruction of the wetland, and shall maintain the ecological and other functions of the wetland.

Compliance: The water needs for the project will be met through the existing water supply system from the Likii River and hence will not degrade any wetland in the Forest reserve.

4.2.4 The Environmental Management and Coordination Act (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006

Regulation 4 (1) states that a person shall not engage in any activity that may;

(a) Have an adverse impact on the ecosystem;

(b) Lead to the introduction of exotic species;

(c) Lead to unsustainable use of natural resources, without an Environmental Impact Assessment licence issued by the Authority under the Act.

Under regulation 5 (2), without prejudice to the generality of the foregoing, the Authority shall, in consultation with the relevant lead agencies – (a) Issue licences for the establishment and maintenance of facilities for recovery and rehabilitation of threatened species.

(b) Determine full recovery and rehabilitation measures of threatened species to ensure its restoration into its natural habitat.

Compliance: The proposed project is aimed at the achievement of these regulations.

4.3 The Wildlife Conservation and Management Act, 2013

This is an Act of Parliament to provide for the protection, conservation, sustainable use and management of wildlife resources in Kenya and for connected purposes. Part VI has provisions for the conservation, protection and management of wildlife. Based on this Act, Kenya Wildlife Service is the principal lead agency in all matters pertaining to conservation and management of wildlife within Kenya. Under the Wildlife Conservation and Management (Amendment) Act 2013, Part (1) under general principles provides for the devolution of wildlife conservation and management as much as possible and formulation of a wildlife conservation and management strategy with clear principles, objectives, standards, indicators, procedure and incentives with which wildlife resources shall be protected, conserved, managed and regulated.

Under the Act, where any person suffers any bodily injury or is killed by any wildlife listed under the Third Schedule, the person injured, or in the case of a deceased person, the personal representative or successor or assign, may launch a claim to the County Wildlife Conservation and Compensation Committee within the jurisdiction established under this Act.

Section 26 (1) states that the provisions of this Act with respect to conservation, protection and management of the environment shall be in conformity with the provisions of the Environmental Management and Coordination Act. Under section 27

(2), a user or other related right shall not be granted under this Act where the requirement for a strategic environmental, cultural, economic and social impact assessment licence under the Environmental Management and Coordination Act, 1999 has not been complied with.

Section 28 of the Act stipulates that no provision and no right entitlement conferred and granted under the Act shall wherever appropriate operate to exempt a person from compliance with the provisions of the water Act, 2002 concerning the right to the use of water from any water resource, reservoir or point. Therefore the proponent shall be required to comply with the provisions of the water Act 2002 when designing water requirements for the facility.

Under Section 44 (1) of the Act, every national park, marine protected area, wildlife conservancy and sanctuary shall be managed in accordance with a management plan that complies with the requirements prescribed in the Fifth Schedule. **Compliance**: The proponent is in the process of developing a management plan for the Sanctuary in compliance with this section of the Act. The implementation of this project will comply with the requirements of this Act in order to protect wildlife species and their habitats and ecosystems.

4.4 Forest Conservation and Management Act, 2016

The Act provides for the establishment, development and sustainable management, including conservation and rational utilisation of forest resources for the socio-economic development of the country. The Act recognizes the critical role that forests play in soil, water conservation, wood products provision, biodiversity conservation and as a habitat for wildlife. The Act provides for clear definition in respect to the ownership of forests, i.e., State, county, community, or private individuals. In addition, there are provisions on community participation which are intended to give such communities an incentive to participate actively in forest conservation. An association registered may apply to the Director (Chief Conservator) for permission to participate in the conservation and management of a state forest or county government forest in accordance with the provision of the Act. Such associations are permitted to participate in, among other activities: protection, conservation and management of such forests; formulate and implement forest programs consistent with the traditional forest user rights of the community concerned in accordance with sustainable use criteria and protect sacred groves and trees. The Act further provides for user rights in respect of, collection of medicinal herbs, honey harvesting, harvesting of timber and fuel wood, grass harvesting and grazing, ecotourism and educational activities.

The Cabinet Secretary may, upon the recommendation of the Board of the Service and after consultation with the relevant County Government and relevant stakeholders, by notice in the Gazette, declare any national, county, community or private forest, as a nature reserve. Where a nature reserve is to be declared by the Cabinet Secretary within community or private land, the Cabinet Secretary shall make prior arrangements for compensation to the forest owner. Every nature reserve shall be established for the following purposes—

- the conservation of forestland of particular environmental, cultural, scientific or other special significance;
- the preservation of biological diversity and threatened or endangered species among others

Upon declaration of a national, community or private forest as a nature reserve, the Chief Conservator of Forests shall in consultation with the relevant county governments, government agencies and stakeholders, prepare a management plan in respect to the declared nature reserve.

According to the Act, all indigenous forests and woodlands shall be managed on a sustainable basis for purposes of conservation of water, soil and biodiversity; habitat for wildlife in terrestrial forests and fisheries in mangrove forests.

Section 44 stipulates that where the Service is satisfied that utilisation of a public forest can be done through the granting of a concession, the Service shall grant the concession subject to the provisions of the Constitution, this Act and any other relevant written law. However, the Service shall not recommend any such proposal unless the proposal has been subjected to an independent environmental impact assessment; and public consultation in accordance with the Second Schedule has been undertaken and completed.

Compliance: The Act is important for this project because the site is within a national forest reserve that is part of a forest ecosystem. The proponent has acquired the requisite special use license from the KFS and the project will adhere to the provisions of the Forest Conservation and Management Act, 2016 during the project implementation phase.

4.5 The Tourism Act No.28 of 2011

This is an Act of Parliament to provide for the development, management, marketing and regulation of sustainable tourism and tourism-related activities and services, and for connected purposes.

Section 3 requires the minister responsible for Tourism to formulate and publish in the Gazette a national tourism strategy at least once every five years, in accordance with which the tourism sector shall be developed, managed, marketed, and regulated. The national tourism strategy shall prescribe the principles, objectives, standards, indicators, procedures and incentives for the development, management and marketing of sustainable tourism and shall, prescribe among others, measures to facilitate and enhance domestic and regional tourism taking cognizance of the county governments plans and desires for the tourism sector.

Section 28 establishes the Kenya Tourism Board that is mandated to among others,

- develop, implement and coordinate a national tourism marketing strategy;
- market Kenya at local, national, regional and international levels as a premier tourist destination;
- identify tourism market needs and trends and advise tourism stakeholders accordingly;

Section 98 of the Act stipulates that no person shall undertake any of the tourism activities and services specified in the Ninth Schedule, unless that person has a licence issued by the Tourism regulatory authority. Among the scheduled activities in category D is the establishment of nature trails and amusement parks. The proponent will adhere to the Act by applying for any applicable

the licence from the tourism Authority during the operation phase of the facility and seek advice from the Kenya Tourism Board (KTB) from time to time.

4.7 The National Land Commission Act, 2012

This Act established the National Land Commission which has wide powers in the management and administration of public, private and community land. The Act defines the legal land ownership status. The Environment and Land Court will have jurisdiction to hear and determine disputes related to land. **Compliance:** The project under assessment is on Public land reserved as a Forest Reserve managed by Kenya Forest Service (KFS) in the pr**oject area.**

4.8 The Land Act, 2012

This is an Act of parliament that applies to all land declared as public land under article 62 of the constitution, private land under article 64 and community land under article 63 of the constitution. In the discharge of their functions and exercise their powers under this Act, the land commission and any state officer or public officer shall be guided by the following values and principles among others,

I. Equitable access to land
II. Security of land rights
III. Sustainable and productive management of land resources
IV. Conservation and protection of ecologically sensitive areas
V. Technical and financial sustainability
VI. Affording equal opportunities to members of all ethnic groups
VII. Non discrimination and protection of the marginalized and
VIII. Democracy, inclusiveness and participation of the people.

Compliance: The project is sited within public land that is held in trust for the government by KFS that has leased the same to the proponent. Public participation and consultation was undertaken to make sure that the affected and interested stakeholders participated in the project planning and will continue to participate in the operation phase of the project.

4.9 The Land Registration Act

This Act seeks to revise, consolidate and rationalise the registration of titles to land, to

give effect to the principles of and objects of devolved government in land registration.

Subject to section 4, this Act shall apply to:

- ❖ Registration of interests in all public land as declared by Article 62 of the Constitution
- ❖ Registration of interest in all private land as declared by article 64 of the constitution and
- ❖ Registration and recording of community interests in land as declared by Article 63 of the constitution.

Compliance: The proponent holds a lease- hold ownership of the public land where the project is to be located.

4.10 Physical Planning Act

This Act provides for the preparation and implementation of physical development plans for connected purposes. It establishes the responsibility for the physical planning at various levels of government in order to remove uncertainty regarding the responsibility for regional planning. A key provision of the Act is the requirement for Environmental Impact Assessment (EIA).

The Act provides for a hierarchy of plans in which guidelines are laid down for the future physical development of areas referred to in a specific plan. The intention is that the three-tier order plans, the national development plan, regional development plan and the local physical development plan should concentrate on broad policy issues.

The Act also promotes public participation in the preparation of plans and requires that in preparation of plans proper consideration be given to socio- economic development needs of the population, the existing planning and future transport needs, the physical factors which may influence orderly development in general and urbanisation, and the possible influence of future development upon natural environment.

Any change of use of the actual development without authority constitutes an offence.

Similarly, anyone who deposits refuse, scrap, or waste materials in a designated area without the consent of the planning authority or the relevant County government shall be guilty of an offence under the Act. The general sentence under the regulations is a fine of not exceeding five thousand shillings or imprisonment not exceeding six months, or both, such fine and imprisonment. This Act gives precedence for the need of undertaking an environmental impact assessment on all projects, inviting public participation, and considering possible influence of the future development upon the natural environment.

According to this Act, it is required that a physical plan is prepared for the project and that it is implemented as per area or region. The main issue regarding this Act is the zoning for developments. **Compliance:** The site of the proposed project is within the jurisdiction of the KFS and will have minimal influence upon the natural environment since the area is a suitable habitat for the target species. In any case the project site is zoned as conservation/forest land use area.

4.11 Water Act 2016

This is an Act of Parliament to provide for the regulation, management and development of water resources, water and sewerage services, and for other connected purposes. The Act vests ownership of every water resource and is held by the national government in trust for the people of Kenya. Under this provision the responsibility to regulate, manage, use and control of water resources is vested in the Water Resources Authority (WRA that serves as an agent of the national government. The Water Act protects water bodies and sources from pollution and controls their use by the project. The proposed project will seek to ensure that the amount abstracted from the Rugusu River will be sustainable and that the project design will work to conserve the available water and minimise wastage.

Under section 22 (l) Where the Authority is satisfied that in order to conserve a vulnerable water resource, special measures are necessary for the protection of a catchment area or a part thereof, it may by Order published in the Gazette declare such catchment area to be a protected area (2) The Authority may impose such requirements or regulate or prohibit such conduct or activities, in or in relation to the protected catchment area as the Authority may consider necessary for the protection of the area and its water resources. **Compliance:** The proponent will be required to obtain the requisite water permits and licences from WRA to abstract water from River Rugusu.

4.12 Agricultural Act (Cap 318)

The Agriculture Act is the principal land use statute covering inter alia soil conservation, agricultural land use and conservation issues such as preservation of soil fertility. The Act prohibits any land use practises that may intensify soil erosion. They prohibit cutting down or destroying vegetation on any land of which the slope is 35% or higher. The rules stipulate strict regulations on the cultivation of any land whose slope is between 12% and 35% when the soil is not properly protected from erosion**. Compliance:** The project site will not be cultivated, and the slope is lower than 35% therefore soil erosion will be minimal.

4.13 Grass Fire Act (Cap 327)

The Grass Fire Act (Cap 327) provides for protection of vegetation by regulating burning of bushes, shrubs, grass, crops and stubble through issuance of permits to carry out planned burning processes within protected areas, trust land and in private lands. **Compliance:** The project proponent will adhere to the provisions of the Act by not burning any vegetation on the project site and ensuring that protective measures are put in place to control any fires that may emanate from outside the sanctuary.

4.14 Public Health Act Cap 242

The Act protects human health, prevents, and guards against introduction of infectious diseases into Kenya from outside, to promote public health and the prevention, limitation, or suppression of infectious, communicable, or preventable diseases within Kenya, to advice and direct local

authorities in regard to matters affecting the public health to promote or carry out research and investigations in connection with the prevention or treatment of human diseases. This Act provides for the impetus for a healthy environment and gives regulations to waste management, pollution, and human health. This Act controls the activities of the project in regard to human health and ensures that the health of the surrounding community is not jeopardised by the activities of the project. The proponent will adhere to provisions of this Act and all instructions provided by the Meru County Public Health Department. **Compliance:** The proponent shall acquire the requisite approvals from the Public Health Department for the project and institute measures to monitor any disease outbreak that may emanate from the operations of the Sanctuary. The Sanctuary workers whose duties include coming into contact with the animals will be required to be vaccinated regularly as per the protocols of operation of a captive animal facility.

4.15 Occupational Safety and Health Act of 2007

The main objective of this Act is to secure the safety, health and welfare of persons at work; and to protect persons other than persons at work against risks to safety and health arising out of, or in connection with, the activities of persons at work. It assigns duties and liabilities to employers, employees, and the public in order to facilitate this and promote healthy work environments subsequently enhancing outputs, ergonomically.

Under part II of the Act the duty of occupiers in section 6 (1) is to ensure the safety, health and welfare at work of all persons working in his workplace, sub- section (2) (a) to (g) outline specific duties under sub section 6 (1). These include provision of Personal Protective Equipment (PPEs), preventing risks, information, notifications, and maintenance of places of work. Sub section 3 stipulates that occupiers must carry out risk assessments and, section 4, send a copy to the occupational health and safety officer in the area.

Employees duties are described in section 13 and they include (a) ensuring their own health and safety and that of other persons; (b) cooperation with employer or anyone else in the discharge of duty; (c) wear PPEs at all times; (d) comply with regulations of health and safety; (e) report hazards; (f) report accidents or injuries, and (g) report with regard to any duty or requirement imposed on his employer or any other person by or under any other relevant statutory provision, cooperate with the employer or other person to enable that duty or requirement to be performed or complied with. Section 16 of the act also prohibits anyone from creating hazards to others in the workplace.

Section 21 places the duty of reporting accidents and dangerous occurrences in the workplace on the employer who should report any incidents to the area occupational health and safety officer.

This Act provides for compensation to employees for work-related injuries and diseases contracted in the course of their employment and for connected purposes. Key sections of the Act include the obligations of employers; right to compensation; reporting of accidents; compensation; occupational diseases; medical aid; appeals; and miscellaneous provisions. Schedules provided in the Act outline the degree of disablement; occupational diseases; and

dependant's compensation. In case of any accidents or incidents during the project cycle, this Act will guide the course of action to be taken by the proponent and its contractors.

4.16 The County Government Act, no. 17 of 2012

This Act provides for the establishment of county governments and defines their functions as delegated from the constitution. It also provides for public participation in running the affairs of the county. The Act gives the county government oversight and control of all devolved functions from the National Government. **Compliance:** The proponent will comply with all laws and rules enacted by the county assembly that impact on this project and the county government will be informed and consulted on implementation of this project. since they are part of the proponent consortium**.**

4.17 Building Code 2000

This provides the basic rules, guidelines and standards for construction. It is a comprehensive document, which every developer/contractor should have. All approvals will be sought before commencement of the work and regular monitoring will follow to ensure compliance with set standards especially for the animal enclosures including holding pens, water storage tanks and associated civil works. The proponent shall acquire all approvals for the architectural and structural engineering drawings.

4.18 The Penal Code Cap. 63

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

The proponent will be required to ensure strict adherence to the Environmental Management plan throughout the project cycle in order to mitigate against any possible negative impacts.

4.19 The Employment Act, 2007

This Act declares and defines the fundamental rights of employees; minimum terms and conditions of employment; provide basic conditions of employment; and to regulate the employment of children, among other rights. Key sections of the Act elaborate on the employment relationship; protection of wages; rights and duties in employment; termination and dismissal and protection of children, among others. This Act will guide the management of workers, especially during the construction period. **Compliance:** The proponent will not employ any labourer below 18 years and would have clear terms of employment to all cadres under their employ.

4.20 Some Relevant Government Policy Papers & Multilateral Environmental Agreements

4.20.1 Vision 2030

Vision 2030 is Kenya's development blueprint aiming at making the country a newly industrialized middle-income nation, providing high quality of life for all citizens.

Environmental management is captured under the social pillar that seeks to build a just and cohesive society with social equity in a clean and secure environment. The project will enhance conservation of endangered species that will enhance tourism and related enterprises in the area. Tourism development is identified as a key sector in the economic pillar of the Vision 2030.

The proposed project will have a multiplier effect on the economy of the Meru County through the introduction of a unique tourism product that will attract visitors to the County.

4.20.2 National Tourism Blueprint, 2030

The Tourism blueprint is intended to identify critical drivers and enablers of tourism growth for the country and will provide a practical implementation plan towards the achievement of the country's overarching tourism and economic goals.

The objective of the blueprint as follows:

• Provide a framework and strategic direction for the Ministry of Tourism, it's state agencies and stakeholders in the tourism industry;

• Set policies and identify programmes that will make tourism a catalyst and engine in economic development and attainment of middle-income status as stipulated in the Vision 2030 Blueprint; and Set policies and identify programmes that will make tourism a catalyst to sustainable national development, engine in protecting the environment and preservation of cultural heritage, creating shared value of tourism to surrounding communities and enhancing gender equality.

4.20.3 National Wildlife Strategy 2030

One of the agenda for the Government and goal of the National Wildlife Strategy 2030 is Safeguarding Kenya's valuable wildlife for the current and future generation.

The purpose of the National Wildlife Strategy is to provide an overarching framework that prioritizes, coordinates, and inspires participation for the transformation of the wildlife sector in Kenya. The strategy prescribes principles, objectives, standards, indicators, procedures and incentives for the protection, conservation, and management of wildlife resources. The Establishment of this sanctuary will play a goal in the achievement of this strategy.

4.20.4 Convention on Biological Diversity (CBD), 1992

Given that Mt. Kenya National reserve has a wealth of biodiversity that is important at national, regional and international level, the principles of the Convention on Biological Diversity shall be a given priority whenever the use of biodiversity of the area is under consideration. The following articles of the convention are applicable in respect to the proposed project:

Article 3 Principle which holds that States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction.

Article 7 on Identification and monitoring states, inter alia, that each Contracting Party shall as far as possible and as appropriate, in particular for the purposes of Article 8 to 10:

(a) Identify components of biological diversity important for its conservation and sustainable use;

(b) Monitor through sampling and other techniques the components of biological diversity identified, paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use;

(c) Identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity and monitor their effects through sampling and other techniques; and

(d) Maintain and organise, by any mechanism data derived from identification and monitoring activities pursuant to subparagraph (a), (b), and (c) above.

The proposed project will review and take into consideration past and recent inventories in the area to acquaint itself with the other key species that should receive special attention to avoid their decimation in implementing the project. Monitoring of the components of biological diversity in the project site will be undertaken over time to assess the impact the proposed project will have on them compared to the baseline resources.

Article 8: In-situ Conservation. Each Contracting Party shall, as far as possible abide as appropriate:

(a) Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity;

(b) Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use;

(c) Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings; The proposed project has one of its components

being the conservation of the critically endangered Bongo antelope and black rhino in the ecosystem through wild release in a specified area.

(d) Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, inter alia, through the development and implementation of plans or other management strategies;

(f) Prevent the introduction of, control or eradicate those alien and invasive species which threaten ecosystems, habitats or species;

(g) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practises of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practises and encourage the equitable sharing of the benefits arising from the utilisation of such knowledge, innovations and practises.

Article 10. Sustainable Use of Components of Biological Diversity requires that each

Contracting Party:

(a) Protect and encourage customary use of biological resources in accordance with traditional cultural practises that are compatible with conservation and sustainable use requirements;

(b) Support local population to develop and implement remedial actions in degraded areas where biological diversity has been reduced;

(c) Encourage cooperation between its government authorities and its private sector in developing methods for sustainable use of components of biological diversity.

The proposed project seeks to contribute to Kenya's implementation of this article through:

a) Strengthening Mt. Kenya National Reserve position as a special area for the conservation of indigenous and endemic species through limiting degradation.

(b) Providing labour opportunities to locals during the implementation, promoting livelihood support through the multiplier effect the sanctuary will accord.

4.20.5 Convention on International Trade in Endangered species, CITES

According to CITES, the Convention does not require repatriation of listed animals to the country of export be considered as an option for disposal neither does it require animals be returned to the wild in that country. The convention options of disposal falls into three(3) categories; i) maintenance of the individuals in captivity ii) returning the individuals in question to some form of life in the wild iii) euthanasia. For endangered or threatened species, particular effort is directed towards evaluating how these animals might contribute to conservation programme for the species. The decision made depends on various legal, social, economic and biological factors.

However, the guidelines suggest that return to the wild would be a desirable option in a very small number of instances and under very specific circumstances. The country returning an animal to its country of origin for release must ensure that the management authority in the country of origin is aware of the return.

Before return to the wild is considered, the following concerns and benefits are evaluated: i) welfare of the animals. There must be humane treatment of the animals when attempting to return to the wild, ii) Conservation value. Repatriation should not threaten existing populations of wild animals or the ecological integrity of the area. The conservation of the species as a whole and other animals already living free must take precedence, iii) The cost of returning animals to the wild can be prohibitive if outweighing the benefits. Poorly planned or executed re-introduction programme is equivalent to dumping animals in the wild and should be vigorously opposed on both conservation and humane grounds, iv) Origin of individuals. Supplementation without knowledge of the source of the individuals may lead to inadvertent pollution of distinct genetic races or sub-species. If particular local races or sub-species show specific adaptations to the local environment, mixing in animals from other races or sub-species may be damaging to the local population. Introducing an animal into the wrong habitat type may also doom it to death. CITES v) Diseases: animals held in captivity or transported may be exposed to pathogens and release of these animals into the wild may result into introduction of diseases to unrelated species with potentially catastrophic effects. Potential effects of introduced diseases on the wild populations are so great that this often preclude returning captive animals into the wild. Disease screening and appropriate quarantine is essential to ensure that they are free from diseases. Introduced diseases can also be dangerous to captive facilities where infection across different species in a collection is a serious threat hence the need for quarantine. Animals held in captivity are frequently exposed to diseases not usually encountered in natural habitats.

CITES leaves open the possibility for the management authority to obtain the advice of a scientific authority or of the secretariat. However, CITES is concerned about the risks of releasing confiscated specimens into the wild such as the introduction of pathogens and parasites, genetic pollution and negative effects on the local fauna considering that, the release to the wild may not always be in the interest of the conservation of species, especially one not in danger of extinction and recalling that, IUCN has developed guidelines for the disposal of confiscated animals and guidelines for re-introductions and convinced that, the ultimate objective of the convention is the continued existence of wild populations in their natural habitat.

Disposal of captive animals is not a simple process and only on rare occasions will such disposal be straightforward or result in an action with conservation value. Options for disposal of such animals are influenced by the perception that returning animals to the wild is the optimal solution in terms of both animals' welfare and conservation. A growing body of scientific study of reintroduction of captive animals suggests that such actions may be among the least appropriate options for many reasons. This recognition requires that the options available for disposal of the animals be carefully reviewed.

Addition of individuals to an existing population of the same taxon is a powerful conservation tool when natural populations are diminished by a process which can be reversed. The added animals are then used to supplement depleted wild populations. Reinforced animals have very grave risk similar to individuals held in captivity e.g. are potential vectors for disease back into a wild population. Because of inherent disease risks, reinforcement should only be employed in instances where there are direct and measurable benefits -demographically and genetically.

4.20.6 IUCN guidelines for re-introduction

These policy guidelines by the Re-introduction Specialist Group of the IUCN's Species Survival Commission were developed to help ensure re-introductions of species achieve their intended conservation benefit. Section 5 of the IUCN guidelines sets out important planning, preparation and release stages of reintroduction of species. Some of these include:-

- Approval of relevant government agencies and landowners, and coordination with national and international conservation organizations.

- Construction of a multidisciplinary team with access to expert technical advice for all phases of the programme.

- Identification of short- and long-term success indicators and prediction of programme duration, in context of agreed aims and objectives.

- Securing adequate funding for all programme phases.

- Design of pre- and post- release monitoring programme so that each re-introduction is a carefully designed experiment, with the capability to test methodology with scientifically collected data. Monitoring the health of individuals, as well as the survival, is important; intervention may be necessary if the situation proves unforeseeably favourable.

- Appropriate health and genetic screening of release stock, including stock that is a gift between governments. Health screening of closely related species in the re-introduction area.

- If release stock is wild-caught, care must be taken to ensure that: a) the stock is free from infectious or contagious pathogens and parasites before shipment and b) the stock will not be exposed to vectors of disease agents which may be present at the release site (and absent at the source site) and to which it may have no acquired immunity.

- If vaccination prior to release, against local endemic or epidemic diseases of wild stock or domestic livestock at the release site, is deemed appropriate, this must be carried out during the "Preparation Stage" to allow sufficient time for the development of the required immunity.

- Appropriate veterinary or horticultural measures as required to ensure health of released stock throughout the programme. This is to include adequate quarantine arrangements, especially where founder stock travels far or crosses international boundaries to the release site.

- Development of transport plans for delivery of stock to the country and site of reintroduction, with special emphasis on ways to minimize stress on the individuals during transport.

- Determination of release strategy (acclimatization of release stock to release area; behavioural training - including hunting and feeding; group composition, number, release patterns and techniques; timing).

- Establishment of policies on interventions (see below).

- Development of conservation education for long-term support; professional training of individuals involved in the long-term programme; public relations through the mass media and in local community; involvement where possible of local people in the programme.

- The welfare of animals for release is of paramount concern through all these stages.

Policy guidelines on the Management of Introduction, Re-introduction and Donation of Wildlife Species, re-introduction "means movement of a species from within or outside the country to an area where it was previously extirpated or to supplement an existing population while repatriation" implies taking wildlife specimens that were seized/confiscated and or rescued or their progeny back to the country of origin or export. Section 5 of the guidelines outline the purposes and conditions for introductions and donations with subsection 5.1 giving general provisions under which this can happen.

These includes wildlife introductions into the country being subject to approval by the wildlife management authorities of the respective countries, introduced/donated species being fully certified and ascertained to be free from diseases and pests (parasites), being subject to EMCA, 2015 and IUCN guidelines on introduction and supplementation of wildlife, being subject to Memorandum of Agreement (MOA/MAT), Material Transfer Agreement (MTA) and other relevant protocols. The proponents are also supposed to abide by all the provisions of the Wildlife Conservation and Management Act, 2013 and other relevant laws of Kenya and international conservation related protocols. The precautionary principle also applies in all proposals for introductions while Subsection 5.4 provides details on how requests on rescue, rehabilitation and repatriation are to be made. Where a species range State request Kenya or vice versa to offer refuge or repatriate wildlife, a government-to-government agreement is entered into. Requests from private entities seeking refuge for- or repatriation of wildlife are submitted through the host governments of their facilities and the intended recipient. The captive Wildlife management and welfare guidelines apply for rescue and rehabilitation of wildlife within the country.

Subsection 6.3 provides details on the circumstances in which donation and repatriation of indigenous species into Kenya can be undertaken. The Government may request another State for donation of species indigenous to Kenya for purposes of re- introduction, genetic augmentation, and supplementation of the local populations. Where a State hosts a population of indigenous species originally sourced from Kenya, the Government may request such State on mutually agreed terms for repatriation of individuals for re- introduction, genetic augmentation, and supplementation of the local populations. The repatriated species from captive facilities are then held in controlled environment for gradual release in to the wild where they are free released in the wild among their conspecifics.

4.20.7 The Kenya National Biodiversity Strategy Action Plan

This is a national framework of action for the implementation of the Convention on Biological Diversity (CBD) to ensure that the present rate of biodiversity loss is reversed, and that present levels of biological resources are maintained at sustainable levels. Two of the goals spelled out in the action plan are quite relevant in the proposed project namely:

- To achieve sustainable utilisation of ecosystem resources for the benefit of the present generations while ensuring their potential to meet the demands of future generations
- To preserve genetic resources and biological diversity in the nation's ecosystem and to preserve their cultural value.

4.20.8 Animal Welfare Policy Guidelines

Whilst animal welfare issues lay emphasis on the handling and caring of domestic animals, they have been extended to wild animals held in captivity or under the care of humans for whatever reason. The World Organisation for Animal Health (OIE) explains animal welfare as the way an animal is coping with the conditions in which it lives. An animal is in good state of welfare if (as indicated by scientific evidence) it is healthy, comfortable, well nourished, safe, able to express innate behaviour and it is not suffering from unpleasant states such as pain, fear and distress. Good animal welfare requires disease prevention and veterinary care, appropriate shelter, management, nutrition, humane handling and humane slaughter/killing. Animal welfare is said to be compromised if the animal fails to benefit from the five fundamental rights. These are: -

i) Freedom from thirst and hunger by providing ready access to fresh water and diet so as to maintain full health and vigour.

ii) Freedom from discomfort by providing an appropriate environment including shelter and a comfortable resting area

iii) Freedom from pain, injury, and disease by preventing or rapid diagnosis and treatment of diseases

iv) Freedom to express normal behaviour by providing sufficient space, proper facilities and company of the animal's own kind.

v) Freedom from fear and distress by ensuring conditions and treatment which avoid mental suffering.

In Kenya, these fundamental rights are safeguarded in the Prevention of Cruelty to

Animals Act (CAP 360) and in the Veterinary Surgeons and Veterinary Paraprofessionals Act, 2011. In evaluating site suitability and sustainability of the project, these international guidelines and associated national laws were given consideration. A site that could not meet the minimum requirements provided for by these policy guidelines was not considered for project development.

4.20.9 IUCN Guidelines for Reintroductions

These Guidelines were developed by a Task Force of the Reintroduction and Invasive Species Specialist Groups, working between 2010 and 2012 under the auspices of the International Union for Conservation of Nature (IUCN). The guidelines are intended to guide the movement of animals from one site for release to another site. The project proponent will follow as much as possible these guidelines in the movement of the target species for reintroduction and introduction into the sanctuary.

4.21 Institutional Framework

Various institutions will be involved in the implementation of the project as summarised below.

Table 6: Institutions & their roles

Institution	Role
MB&RCT	❖ Provide the financial support for the project ❖ Provide relevant technical advice and support ❖ Facilitate procurement of goods and services ❖ Provide advice on day-to-day management of the sanctuary ❖ Sensitise and mobilise the local community to ensure their full participation in the proposed project

KWS & WRTI	❖ Provide technical and expert advice on EIA and implementation of mitigation measures for the project implementation. ❖ Provide the animals to be introduced and facilitate repatriation ❖ Provide technical support for the operation and running of the facility ❖ Provide technical and expert advice on design and construction of the perimeter fence and animal holding structures. ❖ Ensure active engagement of relevant stakeholders to ensure successful project implementation ❖ Collaborate with MB&RCT to ensure security of animals in the sanctuary.
NEMA	❖ Approval of the project ❖ Enforce environmental compliance with existing national environmental laws and regulations
KFS	❖ Provide land for the project through a special use License ❖ Advise on access to the forest resources by the communities ❖ Collaborate with MB&RCT and ensure that the indigenous forest patches remain intact within the sanctuary
County Government of Meru	❖ Advise on adjacent land uses to the project ❖ Creating awareness and public sensitization on the facility ❖ Support connectivity to general infrastructure and utilities-roads, sewerage, water etc
Bongo Task Force	❖ Provide advisory services for the sustainable operation and management of the bongos in the sanctuary ❖ Provide guidance on release for free ranging bongos in their natural habitat

5 CONSULTATION AND PUBLIC PARTICIPATION

5.1.0 Overview

The public participation in this EIA Study process was undertaken with the various stakeholders interested and affected by the proposed project. The reason for this extensive consultation was mainly to inform and involve the public and the affected community/stakeholders in the decision-making process. Through the public consultation public views and concerns on the proposed project were solicited. Stakeholder consultations were conducted in all the areas through focused group discussions. Photographs and names of those consulted were also taken and form part of this report.

5.1 Objectives of Public Consultation

The specific objectives for this consultation were to;

- Inform and engage the community and other stakeholders about the project for their understanding and support
- Seek concerns and issues on the project and consolidate them
- Identify probable negative impacts and find ways to minimize them
- Identify and enhance positive impacts of the project within the final design
- Obtain indigenous technical knowledge of the project area and how best to incorporate it in the EIA process and final project implementation

5.2 Consultation approach

Public consultation was undertaken through meetings held with stakeholders at different levels including interviews with project site neighbours and the Kamulu and Ntimaka CFAs of the two forest stations of Mucheene and Marania respectively, community barazas and stakeholders and leaders' consultative workshops. Meetings with relevant government offices and consultations with the local community were undertaken to establish the public opinion with respect to the project. Among the major issues addressed included social, economic benefits, values of the project and compatibility with other undertakings in the area as well as any other perceived impacts of the project to the welfare of the people. Questionnaires were also administered to the stakeholders that use or neighbour the proposed project site including the CFA members and the workshop participants (Sample of completed questionnaire is attached as Appendix 1). Opinions on different impacts of the proposed sanctuary were collected and collated. The consultation forums proceedings are described herein either as minutes or summary of issues raised and responses provided by the EIA team and the proponent. An analysis of the administered questionnaires is also summarised here below.

One aspect of the survey sought to evaluate the frequency of bongo sightings in relation to the respondent distance of settlement. The results revealed that the respondents living in less than 3km had seen the bongo followed by the respondents living in between 3km and 10 km. Respondents living 1okm away from the proposed bongo and rhino sanctuary had fewer bongo sightings while the respondents who did not indicate their distance of settlement had fewest bongo sightings

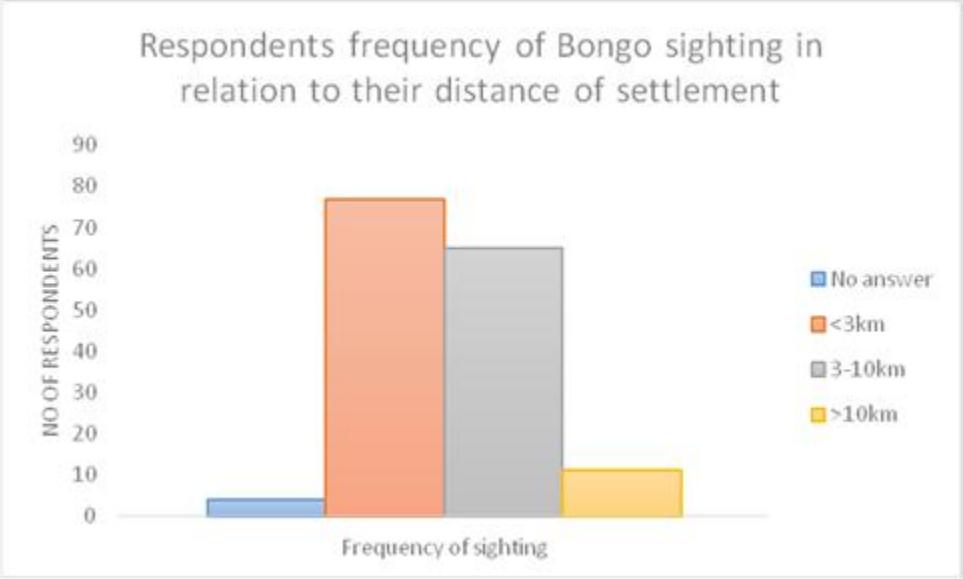


Figure 13: Respondents frequency of bongo sightings in relation to their distance from project

In bid to understand the possibility of the respondent's general knowledge of bongo on how many had seen a bongo, 71% of the respondents never saw the bongo while 23% had seen bongo and 6% did not respond on the question.

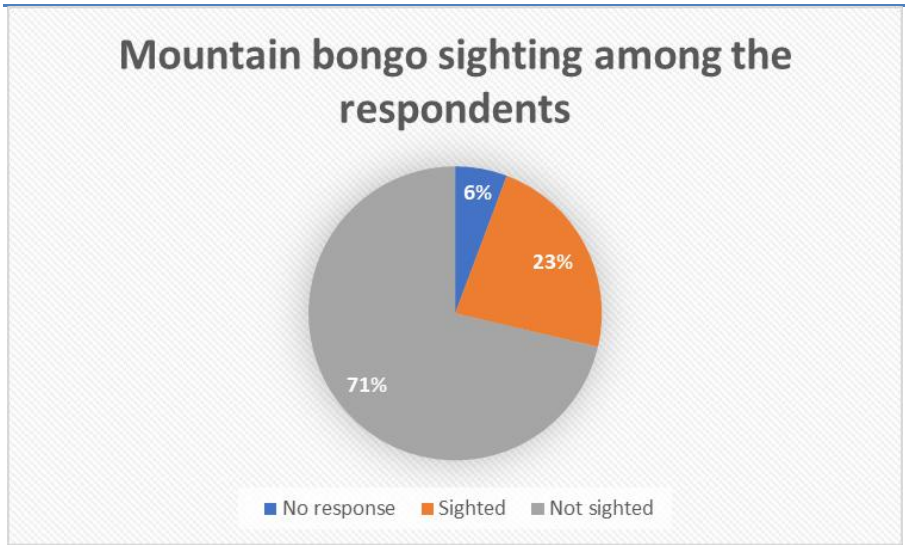


Figure 14: Bongo sighting among the respondents

Further investigation on the bongo sighting based on the CFA each of the respondents belonged and the results revealed that participants from Ntimaka CFA had many people who had seen the bongo species before local disappearance from the area of study. A small proportion of the respondents had seen bongo though they did not belong in either of the CFAs.

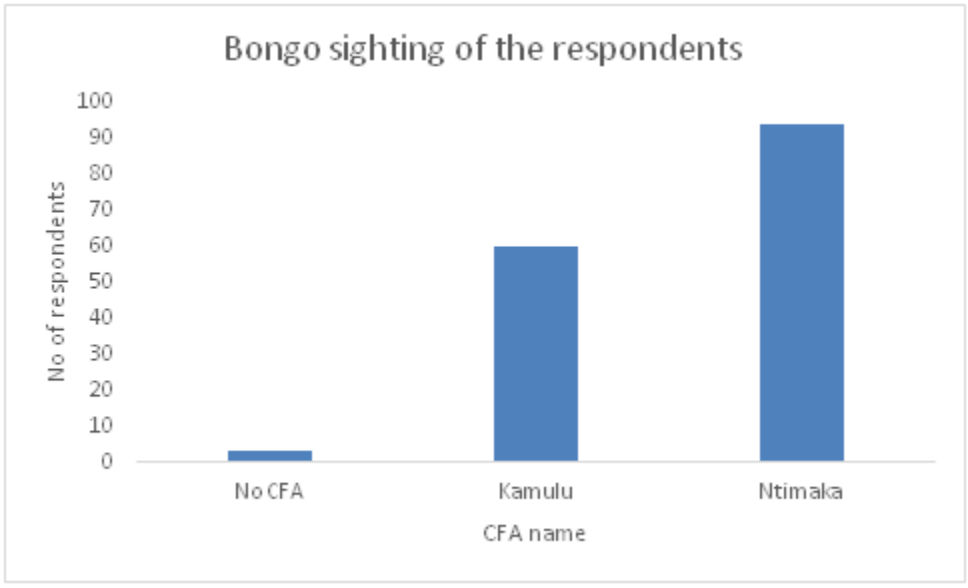


Figure 15: Bongo sighting by respondents from CFA members and non members

A survey in the bid to evaluate the economic activities around the area of the proposed bongo and rhino sanctuary revealed that the majority of the respondents turned out to be farmers followed by the business people. A few turned out to be employees in the education and health sector and least were casual labourers.

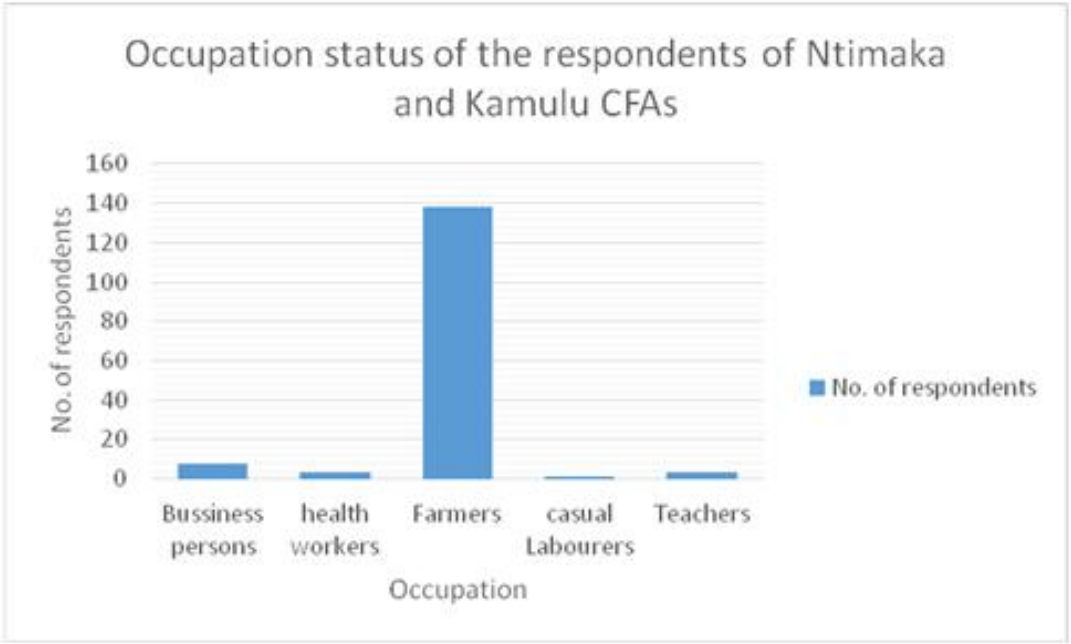


Figure 16: Show occupation status of the respondents around the proposed sanctuary

An evaluation on the negative impact that the proposed project would have on the people was investigated and the results revealed that 88% of the respondents had no negative impacts from the project, 10% did not respond while 2% of the respondents had no response.

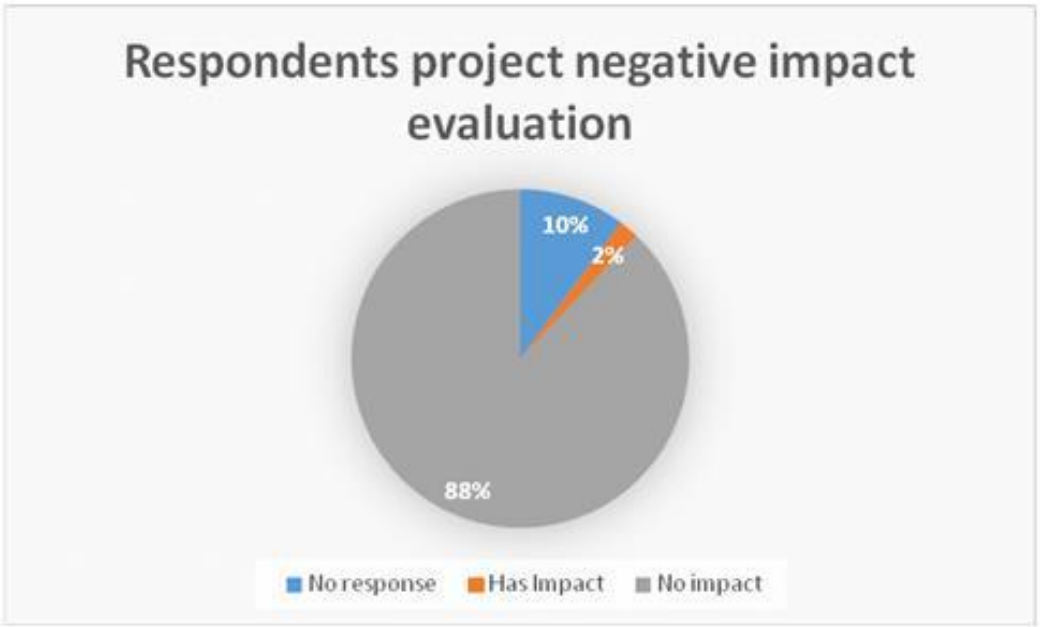


Figure 17: Proposed project overall negative impact by respondents

The survey conducted revealed a few respondents anticipated that there would be some negative impacts of the project such as crop destruction that would emanate from the animals in case they

move out of the fenced area. This would also cause human threat to the residence particularly poaching might be a common threat in the area which could pose a threat to the residence. Increase in repatriated species would cause competition for forage with the resident wildlife and livestock hence emergence of zoonotic diseases amongst the population. Finally, the project was thought to cause some restriction to the locals in accessing the water intake points in the forest.

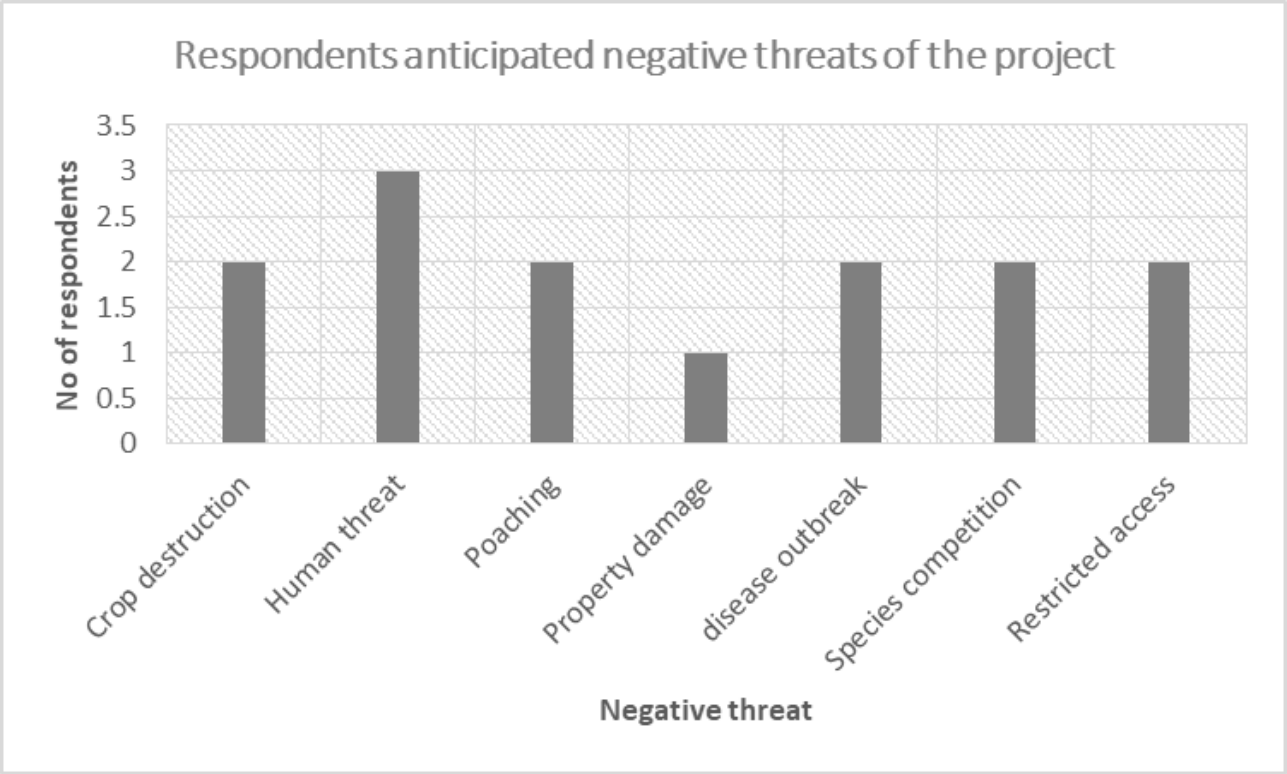


Figure 18: Some of respondents anticipated negative threats

5.4 Views, Issues and Concerns Raised by the CFAs Members

Some of the major issues and concerns that were aired in the public meetings are as summarised below while the full list of participants and full Minutes are attached as appendix 2 and 3.

One participant said that one of the main concerns from the community is the safeguarding of their access to their water projects intakes and pipelines in the forest.

The area has no recorded cases of major diseases for humans and livestock therefore most members do not anticipate disease as a major issue for the repatriation of bongos and reintroduction of rhinos

The project is of importance for education and awareness purposes since it would offer opportunities for practical study and sightings of the bongos and Black rhinos as well as create knowledge of wildlife conservation to the current and future generations.

Concern was raised whether the project would be sited in the plantation area where the community practises crops growing on PELIS programme.

Members emphasised that during the project implementation, all unskilled labor must be sourced from the residents of the local area save for only very specialised skills that are not found in the area that should be sourced out of the area.

There was a concern that the project may interfere with the livestock grazing management.

The Meetings clearly pinpointed that poaching is a long-gone activity that the community has dared not to go back to. It outlined various job opportunities that would be created and the associated community benefits.

Participants gave their expectations of high development such as hotels and local youths would get employment in the hotels, and several get to intermarry with foreigners, hence opening international linkages.

There was concern on Issues of bush fire which have been happening in the forest.

With the bongo and rhino reintroduction, the area could attract international tourists and can offer the opportunity to Meru County to continue with the inaugurated mountain marathon which will be complimented on the implementation of the bongo project.

The project is expected to raise the people's livelihood through employment and provision of goods and services.

Would the sanctuary be only for bongos and rhinos and exclude other animals?

The community requested for a consideration of leaving an elephant corridor from Lewa to the mountain moorlands so that elephants do not cause human wildlife conflict in the community land while they are migrating from the lowlands to the moorland.

The issue of local content was raised particularly in regard to employment of community scouts from the local community for the security of the proposed sanctuary.

Responses by EIA team

- It was clarified that the bongo and rhino project site will be located further up the forest blocks in the indigenous forest area not near or in the plantation area.
- It was clarified that the project will retain the rules and regulations within the forest Act but with some tighter control but will not deny the communities their user rights. It was also clarified that a lot of awareness had been intensified and the community is now satisfied with these commitments to safeguarding their user rights.

- The zoonotic diseases will be easier to monitor when the project is implemented since the project will have para-vets on standby to undertake regular diseases surveillance
- That the community would continue access to their water intake points and pipeline repairs but in a more organised way to deter illegal entry to others with ulterior motives,
- The sanctuary will have the two flagship species, bongo and rhino but will not exclude the other species that are already residents in the area but will exist in harmony with all other diverse species.

5.5 Leaders and Stakeholders Consultation Workshop highlights

The meeting was held in Meru Slopes Hotel on 2nd February 2022 and attended by among others stakeholders from County Government, KFS, KWS, Lewa Conservancy. CFAs, WRA, Kenya Water Towers, Mt. Kenya Trust, Mt Kenya Wildlife conservancy and National Bongo Task Force (The Complete List is as attached in appendix 2). The detailed deliberations and minutes of the meeting is attached in appendix 3 of the report but the the major issues that arose from the meeting are as highlighted below:

Preliminaries

The workshop was attended by representatives from the main partners of The Meru Mountain Bongo and Black Rhino Conservation Trust – Lewa Wildlife Conservancy, Kenya Forest Service (KFS), Kenya Wildlife Service (KWS) and the Community (Kamulu and Ntimaka Community Forest Users Associations (CFAs); NGOs, learning Institutions - Kenya School of Adventures; County Government of Meru; National Environment Management Authority (NEMA), Wildlife Research and Training Institute (WRTI), Kenya Water Towers Agency (KWTA), Water Resources Authority, Mt. Kenya Trust, Mt. Kenya Wildlife Conservancy, Rhino Ark, Bongo Surveillance Program and the County Commissioner– Meru County. The full list of participants is as attached in appendix 2.

The workshop started at 9:45 am by a word of prayer from the day Master of Ceremony (MC) Madam Zainabu, the KWS Senior Warden Meru County, followed by self-introduction of the participants. Referring 2022 as a year of restoration, she linked Bongo and Black Rhino conservation as a restoration activity given that the two species natively inhabited the Mt. Kenya Forest. However due to anthropogenic activities, the species were wiped out and therefore the efforts underway were to restore them in their hitherto habitat. She further added the target bongo founder population will be a donation from U.S.A where rescue breeding has been taking place and the black rhinos will be sourced from existing stocks in the Kenyan sanctuaries. It is therefore important that environmental conservation activities are enhanced as we “bring back home what belonged to us”. She then invited Governor Meru County for official opening remarks.

Official Opening and Leaders remarks:

County Executive Committee Member: Tourism, Trade and Cooperatives Development Mr. Maingi Mugambi

The minister welcomed the participants and stated this as an important day in the governance of Meru County. He conveyed greetings and apologies from the Governor; Honorable Kiraitu Murungi and his Deputy who were engaged elsewhere. Mr. Mugambi reminded participants that in the year 2017, when Hon. Kiraitu took leadership of the County he promised to promote tourism. To achieve this, he identified the Mountain as a key feature to implement several activities and projects related to ecotourism. He emphasised that the County has flagged out some major tourism related activities as follows:

1. identification of mountaineering as a tourism product and the county has opened hiking and driving routes/ roads from Meru town to Lake Ellis; Potential for a mountain climbing route through Marania Forest up to the tundra forest through the KeSAL area which offers better hiking altitudes of 800 – 1400 M a.s.l
2. Restoration of Mountain Bongo and Black Rhino project. The Governor reached to like-minded organisations and partners – KWS, KFS and Lewa conservancy to a make it a reality. It was through this partnership that the Mountain Bongo and Black Rhino Conservation Trust was born. He stated that it is for this reason that the days' meeting was convened, and the county government was eager to hear the preliminary findings from the KWS ESIA experts on the progress the ESIA process of the project implementation.

C.E.C.M Environment, Natural Resources and Climate Change - Prof. Karwitha Kiugu

In her remarks the CEC stated that the county government is undertaking rehabilitation programs including planting of indigenous tree species as well Giant bamboo in the bongo habitat to make the environment conducive. She disclosed that her ministry would be distributing the bamboo seedlings to the community soon. She encouraged the adjacent community to have a wider focus on the benefits of the project including eco- and agro-tourism, cultural tourism in terms of food, dances, carvings and dressing. She informed members that it was time to prepare and organize on how they would be economically harvesting from the project for improved livelihoods.

Chairman of the Meru Bongo and Rhino Conservation Trust- Mr. John Kinoti

Mr. Kinoti appreciated each of the participants for sparing their time to attend the meeting and the invitation committee whose selection of participants was relevant and of good attendance noting the meeting had about 100% attendance.

He confirmed that this project was initiated by the County Government of Meru through the CFAs and recognized that all participants had a role to play to ensure its success. He stated that although the Trust was a convergence of primary key stakeholders, it was open to incorporate others as need be. He affirmed that this being a high magnitude project being guided by several regulatory frameworks; it's' a journey to be walked. The journey started and a feasibility study was conducted by KWS experts. The results indicated the area is feasible and the project viable. An ESIA was commissioned by the experts and all attendees were eager to hear its outcome from the

ESIA experts. He then welcomed Mr. Peter Mwangi, ESIA expert to present the ESIA team's preliminary findings.

Presentation by Mr. Peter Mwangi the ESIA KWS/WRTI Lead Expert

Project background

He gave the project background as detailed in the proposal. The project site is within KFS managed indigenous forest of Marania and Mucheene forest blocks on the Eastern slopes of Mt. Kenya. The project scope is to target 1900 Hectares of land but with a possibility for expansion. The Bongo and Rhino conservation trust has already applied for a special user rights lease from KFS and is awaiting favourable consideration.

Project purpose

The nurturing and reintroduction site for the bongos is a Community Based Conservation Initiative by the local CFAs for the species restoration and accruing tourism promotion and enterprises. It is therefore a species reintroduction and rewilding program. He then took the participants through the ESIA process and the preliminary results. It was noted that the project had been classified under Medium Risk in terms of impacts.

Mr. John Obel Ojwang – Deputy County Commissioner Imenti North (Representing the County Commissioner) Remarks

He thanked all participants for attending the meeting and the ESIA team for the informative presentation. He noted that tourism is recognized as the county's second economy driver after agriculture, and he affirmed the National government support. He encouraged the trust to foster stronger partnership with the National government to ensure that the project is implemented along with improving other areas where conservation efforts are required. He termed the destruction of the environment and wildlife habitat by humans as selfish and driving factors to the local extinction of species. Therefore, there is a need for humans to coexist with wildlife and avoid destruction of its habitat to promote tourism economic growth.

Ecosystem Conservator, KFS – Mr. John Njoroge Remarks

Mr. Njoroge introduced Foresters; Mucheene and Marania Forest Blocks.

He reiterated the process of repatriation as a journey that needs to be walked together. He acknowledged that the Trust had applied for a special use lease to KFS, and he identified the ESIA process and approval as a milestone leading to issuance of 'Special Users Licence' by the KFS Board of management. He recalled that the journey had been walked through several documentations including Prior Informed Consent (PIC) developed by key stakeholders and signed by CFAs. He encouraged stakeholders to continue with the same efforts to see a realisation of the project.

Plenary discussion on Issues and concerns on:

a. Positive impacts

b. Negative impacts

c. Challenges of implementation

d. Suggest mitigation measures

e. General comments.

(i) The Kamulu/ Ntimaka CFAs have a membership of over 45000 members. Realising their past mistakes, the CFAs have put strategies to ensure right protection and conservation for the success of the project. The CFAs promised to work even better if the **project was provided by security scouts** to enhance enforcement as well as **a source of employment**. The project **does not affect in any way the livelihood activities** such as bee keeping, grazing and water collection. Having benefited from earlier conservation projects, the community is positive of the project.

(ii)The Area MCA confirmed that the project had a lot of public goodwill because it is geared towards **improving the livelihood of people**. The project to **prioritise the local communities for non-expert jobs and employment opportunities.**

(iii) The local Chiefs present agreed that although conservation education and awareness has been done, there is need for **continuous awareness given the continued community dynamics**.

(iv) The NEMA Meru County representative observed that the community involvement in the ESIA process was commendable and NEMA is awaiting submission so as to follow up with review and decision making.

(v) The project to advocate for the 4 Rs principle of Reduce, Reuse, Recycle and Recover in waste management early enough in the project cycle.

(vi) The project is a positive venture to the Water Tower Agency since forest will be restored and increase catchment protection. It was recommended that the Kenya Water Tower Agency (KWTA) and WRUAS be consulted on issues of the water catchment and water resource source for the project.

(vii) There is need for continued food chain studies on predation as this may upset the food chain.

(viii)It was important for continued research to understand how these efforts will cater for other extinct species within the area. There is a need for comprehensive disease surveillance and management depending on stock source. This should cover; Pre-translocation, on-site and post release and measures put in place to avoid losses.

(ix) The proposed project was an opportunity for research and education on species and genetic diversity; enrichment of the Kenyan genes and a chance for Public Private Partnership (PPP) synergy to resolve conflicts.

(x) Impacts on the forest fires and their management should be considered by the EIA Team.

(xi) The Marania Forest Block presents an ideal (flat) grazing ground for livestock not for Meru only but livestock from as far as Laikipia. The area experiences an increase in livestock as the human population continuously increases. There remains competition between livestock and wildlife for pasture which increases year in year out. There is a need to find a solution to this problem.

(xii) Issues of conflicts for Access to water intake points and pipeline repairs, access to grazing in the forest, access to honey harvesting areas need to be incorporated.

(xiii) There is need to put in measures to mitigate the negative impacts on socio-cultural impacts at community, national and inter-national levels including intermarriage of the foreign with the locals, positively it's an entrepreneur venture and the locals should be prepared to do business - local artefacts' such as souvenirs, entertainment groups and development of hotels around the area of the project.

(xiv) Community projects around conservation sites through value addition to the community raw products or use of experts such as modern beekeeping, tree nursery should be encouraged but challenge has been that these projects have never been sustainable. It is important that a solution is found for sustainability of conservation

(xv) Question was raised on whether the ESIA process and implementation would cover both Bongo and Black Rhino or there will be another ESIA process for the rhino.

Response by ESIA Expert

1. Number of ESIAs – the project under review includes both Bongo and Rhino. The feasibility study carried out considered both species. The study found the project feasible and viable. It's only the implementation that will be staggered into phases. The Bongo will start but a rapid assessment will be carried out by implementing agencies and community awareness done before Rhino inclusion.
2. Implementation time – this will be dictated by when the report is submitted and approved by NEMA. This will also be affected by several other issues, for example Agreed Terms for Special User Licence from KFS to answer the question of "Whose land" by NEMA. This should be availed before approval. However the KFS Ecosystem Conservator assured

participants that there exists an MoU between KFS and the county government. In that case, a mutual trust agreement is required but this needs a lot of goodwill.

3. Access to essential goods and services by communities – gates will be provided as identified by the PIC for such access. Major water intake will be fenced out.
4. Long term impacts of Predation - larger carnivores will be excluded from the area by use of a solar powered electric fence. However, studies are still ongoing on the issue.
5. Increased human population and livestock grazing pressure – the solution here lies in mitigation measures.
6. The MBRT is in process of developing a management plan for the sanctuary and awaits the approval of the ESIA and granting of the special use licence by KFS.

Closing Remarks Dr. Gakuya Francis representing General Director WRTI

He was impressed by the positive attitude showing acceptance and ownership of the project by the stakeholders. He assured the participants that the project had already taken off – after the Proposal approval, PIC signing, feasibility study and now ESIA report. He added that the project fits well in the Bongo Recovery Strategy and Rhino Action Plan and the threats noted of poaching, predation, habitat loss and diseases calls for good partnership among Partners in the PPPs. About Mt. Bongo genetics, he informed participants that Kenya has about 100 individuals in the wild. All re-introduced populations are under captivity as their genetic trees are well kept. A careful selection of the population to be re-introduced will be done to increase project viability. He thanked all participants and their useful contribution adding that these will improve the report.

The workshop was called to a closure by a word of prayer from Madam Zainabu at 13:47Hrs.

Plate 3: Stakeholders consultation meeting at Meru Slopes Hotel

Plate 4: Public consultation meetings held at Ntimaka and Kamulu

6.0 ENVIRONMENTAL AND SOCIAL IMPACTS IDENTIFICATION AND ANALYSIS

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6.1 General background

EIA is a tool used to guide environmentally sustainable decisions. The proposed project is envisaged to generate undesirable environmental impacts and hence the need to subject the proposed project to an EIA.

This Chapter analyses the potential impacts of the proposed project activities starting from the planning, construction, operation and decommissioning phase. Throughout the project lifecycle both positive and negative impacts will be identified and mitigation measures to minimise the negative impacts suggested. The potential impacts are derived from the project activities discussed in Chapter 2, the baseline information in Chapter 3 and in addition issues identified from field reconnaissance surveys and focused group discussions in the public consultations.

6.2 Impacts identification

The EIA study team consulted those involved in the planning of this project at different levels. The proposed project documents were also studied to enhance understanding of the project. To understand the environmental issues arising from the proposed development, the team visited the project site, and held extensive consultations with stakeholders interested and affected by the proposed project. Potential impacts both positive and negative were identified and listed by also

Through brainstorming sessions and use of the wildlife management and tourism sector checklists potential impacts were identified;

In order to accurately identify the environmental impacts the following environmental aspects were taken into consideration:

1) *Physical Environment*

Water quality aspects for both surface water sources like piped water, storm water, and other related aspects

a) Soil conditions, soil contamination and landscape alterations/degradation (based on aesthetic aspects) associated with the proposed project.
b) Drainage patterns especially in relation to wastewater effluents
c) Air quality aspects especially atmospheric emissions, dust and related discharges from machinery like diesel run equipment etc.
d) Noise and vibrations

2) *Biological Environment*

a) Flora and fauna from the adjacent ecosystem (i.e. effects to natural plants and animals where applicable).
b) Interaction of the animal species in the facility
c) Introduction of nuisances, such as pests and related multiplication breeding sites
d) Introduction of diseases

3) *Social Welfare, Economic and Cultural Environment*

a) Implications on the employees, visitors and public health, safety and related hazards/risks such as HIV/AIDS, consumption of contaminated intravenous infusions products due to disease outbreaks, sanitary facilities, etc.
b) Aesthetic, landscape alterations and changes to infrastructural facilities, among others.
c) Effects associated with the construction and operation activities and related handling and disposal of wastes generated during the operations.
d) Effects associated with income generation opportunities created by the project due to the upcoming operations.

6.3 Positive impact

Table 7: Identified Positive impacts of the project

ANTICIPATED IMPACT	DESCRIPTION
Prevention of species extinction	Bongo antelope is critically endangered and prevention of its extinction is a global concern and one of the Aichi biodiversity targets under CBD. This project is working towards achievement of this target

Employment Opportunities	Enhanced livelihoods through employment opportunities for the local communities from construction works and subsequent ecotourism enterprises.
Community empowerment	Capacity building through knowledge transfer as the locals will be trained as animal keepers and attendants amongst other skills.
Enhanced wildlife conservation	The sanctuary will complement Mt. Kenya ecosystem Conservation actors in promotion of conservation education albeit in a small way. Protection and conservation of the endangered Bongo antelope and Black rhinoceros will be a key activity in the project, and this will create more awareness to save the two species. The facility will also provide an opportunity to undertake research that will enhance conservation of wild living populations and adding to the body of knowledge on rewilding and eventual release of Bongos from captive breeding to free ranging.
Enhancement of animal welfare	The veterinary care unit will greatly reduce response time for animals in need of special care through provision of prompt veterinary diagnostic services for the animals in the sanctuary and even other animals in the vicinity of the sanctuary . The surveillance team base and the sanctuary will also improve the health of the community livestock through monitoring of zoonotic diseases and forestall or combat any disease outbreaks.

6.4 Negative Impacts

Table 8: identified negative impacts of the project

POTENTIAL IMPACT	MITIGATION
Construction Phase	
Soil erosion and compaction	▪ Human labour to be used for all vegetation clearance and digging of holes post for the holding pens and the sanctuary fence ▪ Excavation will be done only when and where necessary. ▪ Controlling movements of vehicles to prevent unnecessary compaction outside access roads and paths.
Vegetation loss	▪ Cutting of trees will only be restricted to the fence alignment to a maximum of 10 metres wide clearance to allow construction of the perimeter fence. ▪ Fence alignment to follow the moat line where vegetation had been cleared as much as possible ▪ Alignment to meander through big trees to avoid their cutting ▪ Animal enclosures to be designed around the existing indigenous trees and shrubs to reduce vegetation clearance. ▪ The project site will be enriched through habitat modification with appropriate trees, grass and shrubs. While other areas will be left

	for natural regeneration following reduced grazing and browsing pressure after fencing off
Solid waste generation	▪ Employing waste minimization techniques such as the 4Rs (Reduce, Reuse, Recycle, Recover) principle ▪ Daily collection, segregation and disposal of waste at designated areas ▪ Provide litter bins at the operation base for temporary holding before disposal ▪ Sensitization and awareness creation amongst the workers
Air pollution	▪ Ensuring proper maintenance and frequent servicing of engines for operation vehicles ▪ Cover all trucks hauling soil, sand and other loose materials
Increased water demand	▪ Employing sustainable use measures that reduce demand on water resources and using the available water conservatively. ▪ Control usage by installation of monitoring metered gauges.
Human Wildlife conflict	▪ Maintain a corridor between the Lewa conservancy and the Sanctuary to allow elephant movement between Mt. Kenya Forest and Lewa Conservancy and Ngare Ndare forest to avoid funnelling them into the neighbouring farms ▪ Increase security patrols during construction and on sanctuary operations ▪ Ensure fencing workers are accompanied by armed KWS/KFS rangers to avoid possible attack by elephants ▪ Sensitise workers on the presence of dangerous animals like the elephants and buffaloes ▪ Inform stakeholders mainly farmers under PELIS the inception of construction works and associated activities.
Occupational health and safety (OHS)	▪ Employ authorised and competent contractors who comply with relevant regulations ▪ Sensitization of construction workers and staff on safe use of equipment and substances. ▪ Providing construction workers with PPEs and replacing them as necessary. ▪ Notifying neighbours and communities about construction activities to raise awareness and enable them to adjust. ▪ Securing the site and controlling movement in and out during construction. ▪ Controlling movement of workers at the campsite during night hours ▪ Putting the necessary signs to warn or alert people of the eminent risks such as works in progress.

	▪ Provide and maintain fire-fighting and first aid equipment.
Operational Phase	
Increased Water consumption	▪ Employing sustainable use measures that reduce demand ▪ Use water tight taps and recycling wherever applicable ▪ Install roof catchment and storm water collection to supplement existing supplies at the holding facility and staff camp ▪ Installing monitoring metered gauges
Increased energy consumption	▪ Adopt green technology in all the buildings (solar power, energy saving bulbs, use of natural lighting, etc). ▪ Installing monitoring metered gauges
Noise generation	▪ Ensuring noises generated are within acceptable limits and ensuring most noisy activities are carried out during the day. ▪ As much as possible materials to be supplied in large quantities at once to avoid frequent and unpredictable traffic ▪ Prepare and display clear rules and regulations at strategic visitor areas ▪ Use of buffers between human settlements and animal enclosures ▪ Constructing animal enclosures away from settled areas ▪ Prepare and display facility rules and regulations against excessive noise that may disturb the animals
Solid waste generation	▪ Ensuring the movement of waste from source to dumpsite is safe and controlled to prevent spillages and pollution. ▪ Employing waste minimization techniques such as the 4Rs (Reduce, Reuse, Recycle, Recover) principle ▪ Daily collection, segregation and disposal of waste at designated areas ▪ Provide litter bins at the operation camp for temporary holding before disposal ▪ Sensitization and awareness creation amongst the workers ▪ Prepare and display sanctuary rules and regulations against littering ▪ Adhere to integrated solid waste management regulations
Wastewater	▪ Wastewater from the washrooms will be handled through a septic tank. Services of licensed waste handlers will be employed to empty the waste as is necessary.
Disease epidemic	▪ Undertake pre and post translocation disease screening for the animals to be repatriated ▪ Undertake regular disease surveillance for the bongos and rhinos ▪ Liaise with CFAs to restrict livestock grazing within a kilometre radius of the sanctuary to minimise contacts that can lead to disease transmission from livestock to the bongo an rhinos and vise versa ▪ Regular screen the animals in the area for rinderpest outbreaks

	early detection ▪ Vaccinate the bongos against rinderpest ▪ Recruit a veterinary doctor and paramedics or have a veterinarian on call whenever signs of illness are detected ▪ Train animal keepers on early detection of sick animals
Predation of the bongos	▪ Undertake carnivore survey inside the sanctuary and relocate hyenas and leopards outside the sanctuary if necessary, on recommendations of the carnivore study ▪ Ensure the perimeter fence is predator proof as much as possible ▪ Monitor the sanctuary for incidences of predator intrusion
Competition for browse with other species	▪ Exclude mega herbivores to minimize competition ▪ Extend the sanctuary in future to include all the area envisaged in the Sanctuary management plan that will accommodate intra and interspecies interaction as described in the Mt. Kenya ecosystem management plan
Illegal hunting of the bongos and rhinos in the sanctuary	▪ Ensure 24 hrs security surveillance along the fence and entire sanctuary when it is operationalised ▪ Install sensors along the fence and a monitoring system ▪ Maintain a robust post release monitoring including collaring of the animals ▪ Undertake Conservation education awareness and community sensitization programme
OHS Risks o Human injury and accidents o Fire incidences	▪ Workers sensitization and awareness creation on safety and risk management ▪ Routine vaccination of staff and animals ▪ Training of facility workers on safe use of equipment and substances. ▪ Providing workers with adequate and quality PPEs and replacing them as necessary. ▪ Provision of emergency gates in the facility ▪ Ensuring there is adequate security within and around the facility ▪ Putting the necessary signs to warn or alert people of the eminent risks ▪ Ensuring hazardous/flammable chemicals such as detergents and fuels are stored safely and appropriately according to Controlled Substances and Regulations Act ▪ Providing and maintaining fire-fighting and first aid equipment(side buckets, hydrants, fire extinguishers) ▪ Designate and clearly label fire assembly points in the facility. ▪ Regular training of facility workers on emergency preparedness ▪ Maintain a fire break around the sanctuary ▪ Plant fire resistant species near the sanctuary

	▪ CFAs to have elaborate fire monitoring and early warning reporting system
Socio-cultural impacts (Cultural erosion, Crime , HIV/AIDs spread)	▪ Awareness creation on HIV and AIDs ▪ HIV/AIDS preventive and management initiatives ▪ Awareness creation on importance and preservation of the Ameru culture ▪ Employing local content for most of the project activities ▪ source all unskilled labour from the local community
Security	▪ Install fence sensor systems ▪ Prepare a security management plan ▪ Collaborate with KWS, KFS and County Government to enhance the security of the sanctuary ▪ Ensure day and night onsite security surveillance Ensure animal enclosures are regularly maintained to avoid escapes ▪ Controlling movement of facility workers during night hours ▪ Ensure main access gates are manned at all times
Decommissioning Phase	
Generation of demolition wastes	▪ Ensuring the materials after demolition are in a form that allows recycling and reusing. ▪ Disposing waste through appropriate disposal methods and employing best available practices in the Area. Training of staff on safety procedures, handling and controlling movement of wastes.
Air pollution and Noise Generation	▪ Putting up dust screens around the building to trap dust and particulates. ▪ Carrying out demolition activities during the day when permissible noise levels are higher. ▪ Acquiring a NEMA licence for activities beyond the allowable thresholds e.g. if explosives are used.
Occupation Health and Safety	▪ Putting up clear and visible signs around the site and notifying neighbours in advance about the demolition activities to enable them to adjust and cope. ▪ Ensuring there is adequate security around the site and zoning or cordoning off the site during demolition. ▪ Providing workers involved with quality PPEs ▪ Sensitising workers and supervisors on safe handling and use of equipment and materials. ▪ Providing and maintaining firefighting equipment & putting in place an emergency response plan.
Security of the animals	▪ Identify a suitable facility for relocation of the animals before decommissioning

6.5 Impact Significance Analysis

The significance of impacts is normally based on its probability of occurrence, the duration, severity, its area of influence and perception by affected stakeholders. Environmental impacts occur either directly or indirectly from the project activities. Subsequently, impacts emanating directly from the activities in this project that have a prolonged period of time and are deemed also irreversible are categorized as major. Further, all short term indirect impacts as well as those that could be reversed are categorized as minor. Where an impact is negative, appropriate mitigation measures have been suggested to minimize the impacts to ensure environmental sustainability. This is illustrated in the table below.

6.5.1 Positive Impact Analysis

Table 9: Positive impacts analysis

No.	Impacts	Direct/ Indirect/	Short term/ Long term	Major/ Minor	Significance (high/medium/ low)
1.	Employment Opportunities	Both	Both	Major	High
2.	Community empowerment	Indirect	Both	Minor	Medium
3.	Prevention of species extinction	Direct	Long term	Major	High
4.	Enhancement of animal welfare	Direct	Long term	Major	High
5.	Enhanced wildlife conservation	indirect	long-term	Major	high
6.	Social cohesion and interactions	Indirect	Long term	Minor	Low

6.5.2 Negative Impact Analysis

Table 10: Negative impacts analysis

No.	Impacts	Direct/ Indirect/	Short term/ Long term	Major/ Minor	Significance (high/medium/low)
1.	Soil erosion and compaction	Direct	Short term	Minor	Low
2.	Vegetation loss	Direct	Short term	Minor	Low
3.	Human Wildlife conflict	Indirect	Short term	Minor	Low
4.	Predation of the bongos and rhinos in the sanctuary	Direct	Long term	Minor	Low
5.	Illegal hunting of the Bongos and rhinos in the sanctuary	Direct	Short term	Major	Medium

6.	Solid waste generation	Direct	Long term	Minor	Medium
7.	Air pollution	Direct	Short term	Minor	Low
8.	Noise pollution	Direct	Short term	Minor	Low
9.	Increased water demand	Indirect	Short term	Major	Medium
10.	Occupational health and safety (OHS)	Both	Short term	Minor	medium
11.	Increased Water consumption	Direct	Short term	Minor	Medium
12.	Increased energy consumption	Indirect Direct	Long term	Minor	Low
13.	Noise generation	Indirect	Short term	Minor	Low
14.	Waste water	Indirect	Long term	Minor	Low
15.	Insecurity	Direct	Short term	Minor	Low
16.	Generation of demolition wastes	Direct	Short term	Minor	Low

Six positive impacts were identified out of which 4 were of high impact, 2 were medium and 1 was low. On the other hand, 16 negative impacts were identified out of which11 were of low impact and 5 were medium. Thus, the positive impacts outweigh the negative impacts and therefore the project is environmentally sustainable.

7.0 PROJECT ALTERNATIVES

Establishment of a critically endangered species Sanctuary is a noble initiative that requires exploration of many alternatives to secure their conservation fulfilment. Cost benefit analysis on the project alternatives ensures that the best project option is adopted. This consideration was undertaken during the feasibility study of the project and the suitability of the project site ascertained using a broad spectrum of factors used in the site suitability assessment criteria.

7.1 Site alternatives

The Meru Bongo and Rhino Conservation Trust considered several sites suitable for the project based on food availability, water and other infrastructure and land ownership and compatible land uses. The project site was selected because of habitat suitability, being in a natural vegetation and proximity to Mucheene and Marania Forest stations.

7.2 Technological Alternatives

Advancements in the building technology like the green architecture which strives to conserve energy and reduce heat emissions that lead to global warming should be promoted as alternatives to the project development especially in the facility management area of the proposed Sanctuary. The use of renewable energy like solar and wind power promotes a green environment. Thermo-dynamic materials that prevent the release of carbon to the environment should be applied.

Conservation of building materials through waste reduction, re-use, recovering and recycling should be adopted as an alternative to the project development, during and after the construction of the associated infrastructure. Separation of wastes e.g. the bio-degradable from the non-degradable like plastics, metals and glasses should be encouraged.

Mechanical and biological techniques to the management of waste, solid waste and sanitation should be adopted to ensure a quality environment for both humans and wildlife .e.g. Drainage channels to collect stormwater, bio-digesters/eco-toilets and waste receptacles. Installation of sensory gadgets on the fence line can greatly reduce response time in case of any breach of the perimeter fence either by humans or animals. To promote security, motion sensitive lights and cameras will be installed to monitor activities within the proposed sanctuary for immediate action and response.

7.3 Do nothing alternative

This implies that the project is not implemented and the status quo is maintained. This is the best alternative from an environmental perspective. However, this was not considered a viable alternative because all the objectives and the associated benefits of the project will be lost. This will go against the gains of increasing the number of critically endangered Bongo and black rhinos and setback to the prevention of extinction of species. A conservation initiative to increase the individuals of the species on the verge of extinction would be lost.

7.4 With the Project Alternative

The proposed establishment of the Bongo and Rhino sanctuary aims at conserving and increasing the number of Bongos and Rhinos in the wild in the world and especially in the Mt. Kenya forest. As a multiplier effect, the proposed project has potential to create job opportunities and other economic benefits for the people that live adjacent to the sanctuary. The project would also enhance security through the increased patrol and security of the animals thereby minimizing incidences of encroachment into the part of the forest for illegal activities. The project is in line with one of the key strategies for wildlife conservation spearheaded by KWS that is winning more space for wildlife and Mt Kenya forest is one of the few areas with high potential to support a vibrant Bongo and black rhino sub- population. The project has potential for a number of biodiversity conservation benefits including gene diversification and habitat restoration. The project has also potential to promote economic growth of the area through tourism visitation and tourism related enterprises.

8.0 ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

8.1 EMP Implementation Arrangement

The Environmental Management Plan (EMP) seeks to prescribe mitigation measures to reduce negative impacts to acceptable or insignificant levels. Towards this endeavour, both the cost and the project negative impacts will be considerably minimised when implementation is carried out early in the project cycle.

Implementation of the project EMP including environmental monitoring will commence following the securing of licence from National Environment Management Authority (NEMA). The sanctuary manager is expected to implement an environmental management plan during all phases and any modifications that may be deemed to be necessary by the project implementation committee. The proponent will be responsible for implementation of the mitigation measures for the entire lifecycle of the project. The sanctuary manager is expected to keep a copy of the EMP on site for any planned or impromptu inspection or audit by NEMA inspectors.
The key actors in the implementation of the project are described below.

8.2 Monitoring of EMP Implementation

A proper monitoring programme is vital for a successful implementation of impact mitigation measures. Monitoring activities will commence immediately construction starts in order to ensure that recommended environmental conservation, safety aspects and social welfare issues are addressed. Environmental monitoring of the project will include the following activities:

- *Site meetings and monthly environmental inspections:* These will be intended to verify compliance with the EMP and EIA License conditions.
- *Monthly PIC meetings:* These will be held to address issues emerging from the project implementation.

Important records including reports and minutes with recommendations for corrective actions will be maintained for verification.

Important environmental and social aspects that require to be monitored during the operational phase are outlined in the table below.

Environmental and social aspect	Monitoring indicator	Monitoring method	Monitoring frequency
Security of animals	Reported incidences of injury or loss of animals	Cage inspections	Monthly
Visitor security	Reported incidences of attack	Visitor survey forms	Quarterly
Waste generation	Strategically placed bins Visitor warnings signage on no dumping of waste	Facility inspection	Quarterly

Environmental and social aspect	Monitoring indicator	Monitoring method	Monitoring frequency
Health and safety aspects of animals	Reported incidents of death and veterinary reports	Physical observation of animal Health/Vet inspection reports Auditing of records	Monthly
Health and safety of workers	Vaccination and injury reports Records of zoonoses among staff	Animal keepers medical examination reports Audit interviews	Monthly
Fire	Serviceable Extinguishers	Calibration and servicing record	Quarterly
Conflicts	Reported cases	Visitor survey forms	Quarterly
Safety of animal enclosures	Adherence to facility maintenance protocol	Maintenance records	Annually

8.3 Summary of the Environmental and Social Management Plan Framework

Table 11: EMP summary

NO.	ACTIVITY	ENVIRONMENTAL IMPACT	MITIGATION MEASURES	RESPONSIBILITY	Time Frame	Cost of Mitigation	MONITORING INDICATORS
CONSTRUCTION PHASE							
	Construction of the operation base and bongo holding bomas	Soil erosion and compaction	● Excavation will be done only when and where necessary ● Minimise and limit movements of vehicles and other machinery to designated roads and paths	MB&RCT KFS	Construction phase	10,000	Inspection Reports Project design document
		Visual intrusion	● Design structures compatible with the environment ● Use locally available materials for construction ● Blend the operation base structures with the natural environment as much as possible	MB&RCT, KFS	Construction phase	5,000	inspection reports

	Clearing of vegetation along the fence line	Loss of Vegetation cover and iconic trees	Restrict clearing only to fence alignment section Sanctuary Fence boundary to meander around big indigenous trees to avoid cutting them down	MB&RCT, KFS	During construction phase	100,000 annually	changes in fence design number of iconic trees identified and saved
			Human labour to be used during fence clearance	MB&RCT, KFS	Constructio n phase		contractors report
			Replant degraded parts of the sanctuary with indigenous trees, grass and shrubs.	MB&RCT, KFS	Operation phase		Number of degraded sites planted with trees and shrubs identified
	Operation base infrastructur e construction	Solid waste generation	Employing waste minimization techniques such as the 4Rs (Reduce ,Reuse, Recycle, Recover) principle	MB&RCT, KFS	in construction and operation phase		Occupational health and safety reports
			Daily collection, segregation and disposal of waste at designated areas	MB&RCT, KFS	During operation phase		Waste management reports
			Provide litter bins at strategic points for temporary holding before disposal	MB&RCT, KFS	during operation phase	20000	Waste management reports
			Sensitization and awareness creation amongst the workers	MB&RCT	during operation phase	30000	Number of workers sensitized reports
	Transportati on of	Air pollution from vehicle emissions	Ensuring proper maintenance and frequent servicing of	MB&RCT		200,000 annually	Reports on regular

	materials		engines and other locomotives				locomotive services
		Noise pollution	Ensuring proper maintenance and frequent servicing of engines use machines only where applicable	MB&RCT			Reports on vehicle engine services
			Restrict activities to diurnal when permissible limits are high	KFS, MB&RCT			Reports on daily situations
			Use of noise suppressors (silencers) to machinery with potential to exceed permissible limits	MB&RCT	during construction phase	100,000	Reports on machines fitted with silencers.
	Construction of operation base	Increased water demand	Embracing sustainable use measures that reduce demand on water resources and using the available water sparingly	MB&RCT, KFS			Daily water use report
			Control usage by installation of monitoring metered gauges.	MB&RCT	operation phase	30000	report on the number of metered gauges
	Fence construction & buildings construction	Occupational health and safety (OHS)	Employ qualified and competent contractors who comply with relevant regulations	MB&RCT		10,000	validity of contractual documents
			Sensitization of construction workers on safe use of equipment and substances.	MB&RCT	during construction and operation phases		Reports on the number of sensitised workers

			Providing construction workers with PPEs and replacing them as soon as they are needed..	MB&RCT		100,000	No. of PPEs provided
			Securing the site and controlling movement in and out during construction.	MB&RCT		50,000	Report on the number of security guards deployed during the construction phase
			Controlling movement of workers at the site during night hours	MB&RCT, KFS	During construction		report on the allowed movements at late hours
			Provide emergency gates	MB&RCT	during construction phase		Number of legal emergency gates
		Fire incidences	Provide and maintain fire-fighting and first aid equipment.	MB&RCT	during operation phase	100,000	reports on the number of equipment (extinguishers, hydrants & sand buckets)

		Forest Fires	Designate and clearly labelled fire assembly points Demarcate fire breaks around the sanctuary Plant fire resistant species Develop a fire management plan	MB&RCT	during operation phase	50,000	No. of labelled fire assembling points Number of demarcated fire breaks in the forest
	Interaction between project workers and resident community	Socio-cultural impacts	Awareness creation on HIV and AIDs HIV/AIDS preventive and management initiatives Awareness creation on importance and preservation of culture	MB&RCT	During entire project lifecycle		report on the number of meetings
	Induction to weaning from milk and supplementation	Stress to the animals Loss of body condition if done abruptly Change in Behaviour	Separation from main group and training Gradual decline of amount of feed supplement and frequency of feeding as per the Standard Operation Procedures Reduced human dependence through training on weaning and reducing human contact	MB&RCT, KWS	during operation phase		No of successfully weaned animals released in the open sanctuary
	Bongo rewilding training	Change in Behaviour	Limit human dependence through training and reducing human contact Feed with twigs and leaves from the wild	MBRCT, KWS	during Operation phase		report on the number of animal rewilded successfully

	Crating and Transportation	Vehicle break down Potential fights/ fright Animal Stress	Separation into various compartment/ Slow drive	MB&RCT, KWS	during operation phase		report on the number of the animals transported safely
	Weaning management and release	Health deterioration Animal Stress Change in Behaviour	Reduce period of confinement within enclosures Reduced human dependence through training and reducing human contact	MB&RCT, KWS	During operation phase		number of animals weaned successfully
	Post release monitoring	Stress to the Bongos Lack of resilience to cope with new environment Change in Behaviour	Supplementation, Veterinary intervention with Return to enclosure care when needed Reduced human dependence through training and reducing human contact	MB&RCT, KWS	During operation phase		number of animals intervened successfully
		Increased Water consumption	Employing water sustainable use	MB&RCT, WRA	During operation phase	Nil	report on daily water consumption
			Rncourage measures that reduce demand	MBRCT			
			Use water tight taps and recycling wherever applicable	MB&RCT	During operation phase	Nil	water system maintenance records reports
			maintain roof catchment and storm water collection to supplement existing supplies	MB&RCT	During operation phase	Nil	Roof water maintenance records
		Increased energy consumption	Adopt green technology in all the buildings (solar power, energy saving bulbs, use of	MB&RCT	During operation phase	Nil	Maintenance records

			natural lighting, etc).				
		Noise generation	Ensuring noises generated are within acceptable limits and ensuring most noisy activities are carried out during the day.	MB&RCT	Operation phase	Nil	Audit reports on the noise management
			Prepare and display clear rules and regulations at strategic areas	MB&RCT	During operation	50,000	Number of signages on the rules and regulations placed
			Maintain buffers between human settlements and animal enclosures Locate sanctuary far from PELIS area	MB&RCT, KFS, KWS	during operation		size of the area planted with trees grasses and shrubs
		Solid waste generation	Ensuring the movement of waste from source to dumpsite is safe and controlled to prevent spillages and pollution.	MB&RCT	During operation		Audit reports on the solid waste disposal
			Employing waste minimization techniques such as the 4Rs (Reduce ,Reuse, Recycle, Recover) principle	MB&RCT	During operation		development of SOPs on solid waste material disposal
			Daily collection, segregation and disposal of waste at designated areas	MB&RCT	During operation phase		Audit reports
			Provide litter bins at strategic points for temporary holding before disposal	MB&RCT	During operation	30,000	Number of bins placed at designated points and

							audit reports
			Sensitization and awareness creation amongst the workers	MB&RCT	During operation	20,000	Report on the number of sensitization meeting held and number of workers/visitors sensitised
		Occupation health and safety (OHS) Risks	Installation of an incinerator for disposal of biomedical waste	MB&RCT	during operation	1,000,000	serviceable Incinerator installed and maintained
			Adhere to hazardous waste regulations	MB&RCT	During operation	Nil	Audit reports on the hazardous waste regulation
			Install a bio-digester for sewage treatment	MB&RCT	During operation	500,000	active bio-digester installed
			Workers sensitization and awareness creation on safety and risk management	MB&RCT	During operation	Nil	number of sensitisation meeting held
			Routine vaccination of staff and animals against various zoonotic diseases	MB&RCT	During project life cycle	500,000	Number of staff vaccinated
			Training of facility workers on safe use of equipment and substances.	MB&RCT	During operation		Number of workers trained on the equipment

							handling/ safety audit reports
			Providing workers with adequate and quality PPEs and replacing them as necessary.	MB&RCT	During operation		Number of PPEs provided as required
			Ensuring there is adequate security within and around the Sanctuary	MB&RCT	during operation phase		number of trained security personel deployed /Incident reports
			Putting the necessary signs to warn or alert people of the eminent risks	MB&RCT	operation phase	20,000	Number of signages placed at strategic points
			Ensuring hazardous/flammable chemicals such as detergents and fuels are stored safely and appropriately according to Controlled Substances and Regulations Act	MB&RCT	During operation phase		Safety audit reports
			Providing and maintaining fire-fighting and first aid equipment.	MB&RCT			Safety audit reports
			Regular training of facility workers on emergency preparedness	MB&RCT			Number. of training meeting held
		Security	Reinforce perimeter wall with electric wire strands and razor wire	MB&RCT	During operation		Maintenance reports

			Ensure day and night onsite security surveillance	MB&RCT	During operation		Incident reports
			Install sensors along the fence that will be electronically monitored	MB&RCT	During operation		Safety audit reports
			Ensure animal enclosures are regularly maintained to avoid escapes	MB&RCT	During operation		Enclosure maintenance reports
			Controlling movement of facility workers during night hours	MB&RCT	During operation		Incident reports
Decommissioning							
		Generation of demolition wastes	Ensuring the materials after demolition are in a form that allows recycling and reusing.	MB&RCT	During decommissioning phase		Inspection reports
			Disposing waste through appropriate disposal methods and employing best available practices in the Area. Training of staff on safety procedures, handling and controlling movement of wastes.	MB&RCT	During decommissioning phase	1,000.000	Inspection reports
		Air pollution and Noise Generation	Putting up dust screens around the building to trap dusts	MB&RCT	During decommissioning phase		Inspection reports

			and particulates.				
			Carrying out demolition activities during the day when permissible noise levels are higher.	MB&RCT	During decommissioning phase		Inspection reports
			Acquiring a NEMA license for activities beyond the allowable thresholds e.g. if explosives are used.	MB&RCT	During decommissioning phase		NEMA approval
		OHS risks	Putting up clear and visible signs around the site and notifying neighbours in advance about the demolition activities to enable them to adjust and cope.	MB&RCT	During decommissioning phase		Inspection reports
			Ensuring there is adequate security around the site and zoning or cordoning off the site during demolition.	MB&RCT	During decommissioning phase		Incident reports
			Providing workers involved with quality PPEs	MB&RCT	During decommissioning phase		Inspection reports

			Sensitising workers and supervisors on safe handling and use of equipment and materials.	MB&RCT	During decommissioning phase		No. of meetings
			Providing and maintaining firefighting equipment & putting in place an emergency response plan.	MB&RCT	During decommissioning phase	100,000	Inspection reports
		Security of the animals	Identify a suitable facility for relocation of the animals before decommissioning	MB&RCT	During decommissioning phase		Report

8.4.Project Implementation Structure

The key actors in the implementation of the project are described below.

8.4.1 MB&RS implementation committee

The Project Implementation Committee will be constituted to oversee establishment and operation of the MBRS. This may consist of the MBRS Manager, MBRS security manager, KWS MCA representative, KWS captive wildlife management representative, Veterinary officer, WRTI ESIA office and KWS species officer. The responsibility of establishing a PIC is left to the proponent who may seek guidance from the National Bongo Tusk Force (NBTF). The committee will hold consecutive monthly meetings to oversee the project implementation and address any emerging issues. *Ad hoc* meetings will be convened on a need basis. The sanctuary Manager will be responsible for coordination of project activities and logistics while working with KWS captive wildlife management department to ensure animal welfare standards are not compromised during construction of enclosures and operation. Sanctuary management will be responsible for ensuring adherence to environmental regulations and provide an oversight role on the EMP implementation including conditions that may be attached to the ESIA approval licence.

8.4.2 Implementation Feedback

In order to avoid noncompliance and possible conflicts of interests, the stakeholders in the project are encouraged to consult and communicate regularly. Environmental reporting is a major agenda in the project progress and should take place during site meetings. In the case of potential “fatal flaws”/crises developing due to implementation of the project, reporting should be done immediately, and the potentially adverse activities immediately halted in order to take corrective action. Reporting on the status and details of implementation of the EMP and the results of the environmental monitoring program must be recorded.

8.4.3 Training, Awareness and Competence

The facility is required to train workers and ensure that they are equipped with basic environmental awareness to safely perform all designated duties in harmony with best industrial practises and legislation. Such training should be all encompassing basic ecological studies, animal keeping, weaning and re-wilding, animal handling safety training, storage and handling of animal feeds and drugs, task specific training and project orientation.

As part of the training and to ensure the facility meets international standards, the PIC team will undertake a benchmarking visit to internationally renowned facilities in other parts of the world that have similar objectives as this project.

During the operation MB&RCT will ensure that all employees working in the facility are equipped with necessary skills ranging from simple, tour guiding animal keeping and handling to specialised veterinary and laboratory skills.

The training will incorporate the local community CFAs members for capacity building their organisational and financial management skills.

8.4. 4 Monitoring of EMP Implementation-

A proper monitoring programme is vital for a successful implementation of impact mitigation measures. Monitoring activities will commence immediately construction starts in order to ensure that recommended environmental conservation, safety aspects and social welfare issues are addressed. Environmental monitoring of the project will include the following activities:

- *Site meetings and monthly environmental inspections:* These will be intended to verify compliance with the EMP and EIA Licence conditions.
- *Monthly PIC meetings:* These will be held to address issues emerging from the project implementation.

Important records including reports and minutes with recommendations for corrective actions will be maintained for verification.

Important environmental and social aspects that require to be monitored during the operational phase are outlined in the table below.

Table 12: Environmental and social aspects to be monitored

Environmental and social aspect	Monitoring indicator	Monitoring method	Monitoring frequency
Security of animals	Reported incidences of injury or loss of animals	Enclosures inspections	Monthly
Security	Reported incidences of attack	Recordings in OB	Quarterly
Successful breeding	Natality	Birth records and recruitment	annually
Reintroduction into native habitat.	No. of bongos successfully weaned and released for free ranging	No of healthy bongos released in the open sanctuary and surviving without food supplementation	Yearly
Waste generation	Strategically placed bins warnings signage on no dumping of waste	Facility inspection	Quarterly
Health and safety aspects of animals	Reported incidents of death and veterinary reports	Physical observation of animal Health/Vet inspection reports Auditing of records	Monthly
Health and safety of workers	Vaccination and injury reports Records of zoonoses among staff	Animal keepers' medical examination reports Audit interviews	Monthly

Fire prevention	Serviceable Extinguishers Fire break maintenance Emergency preparedness	Calibration and servicing record	Quarterly
Conflicts	Reported cases	Visitor survey forms	Quarterly
Safety of animal enclosures	Adherence to facility maintenance protocol	Maintenance records	Annually

9.0 CONCLUSION AND RECOMMENDATIONS

The proposed development will have significant positive conservation impacts for the critically endangered mountain bongo and black rhino. It will improve livelihoods of the local community through creation of business and employment opportunities as well as other multiple benefits accruing from enhanced tourism and research. It will also have significant positive impacts on conservation of wildlife and their habitats through enhancement of animal welfare and creation of education and awareness. This is particularly so because it is the only other facility apart from MKWC that has a Bongo breeding and reintroduction programme. The EIA assessment has identified several negative impacts which are of low magnitude and can be adequately mitigated as provided for in the EMP. Generally, the positive impacts far outweigh the negative impacts. Therefore, the assessment found the project environmentally sustainable and recommends its approval. Upon completion, the facility shall prepare a management plan and conduct annual environmental audits in accordance with the Wildlife Conservation and Management Act, 2013 and EMCA.

In conclusion, the project must not lose focus of the goal to release bongos into the wild upon successful breeding from which multiple wild-population recovery strategies could evolve. The principal objective of this project is to establish an in-situ captive breeding program, in a natural setting, as the first phase of several conservation steps required to reintroduce mountain bongos to the wild. The project aims to re-establish a viable and self-sustaining population in the bongo's native habitat. The success of the sanctuary will depend on collaborative efforts between the proponent, government, the relevant stakeholders, and conservation agencies. The project has signed a prior informed consent with the community and a memorandum of understanding with the trust partners indicating goodwill amongst stakeholders.

Noting that the threats faced by the two species are relatively different where bongos are threatened by subsistence bushmeat poaching and rhinos by commercial trophy poaching, this ESIA is in concurrence with the feasibility assessment recommendation that the sanctuary be established in phases. Phase1 begins with the bongo and upon successful re-introduction and re-wilding then phase2 of the project that involves the translocation of the black rhinoceros into the sanctuary will be carried out and the sanctuary shall be extended to cover approximately 4000 ha as had initially been proposed. A security assessment will need to be carried out during the This will exhibit a true free ranging environment with adequate browse for the bongos and rhinos. One of the potential negative impacts upon expansion of the sanctuary area is reduced communal grazing area in the forest. Fencing off large expansive area of the natural forest may face resistance from livestock herders who currently bring their livestock in large numbers to the forest for pasture. A lot of livestock extension services and sensitization to reduce number of stocks and adopt zero grazing with improved breeds is required before the phase2 of the project is implemented.

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APPENDICES

Appendix 1: Sample Completed Questionnaires

Appendix 2: List of stakeholder meetings participants

Appendix 3: Minutes of Community meetings

Appendix 4; Minutes of Community meetings

Appendix 5: Copy of Lead experts NEMA practising Licence

Appendix 6: Prior Informed consent Ntimaka CFA

Appendix 7: Prior Informed Consent Kamulu CFA

Appendix 8: Joint Resolution for partnership

Appendix 1:Sample Questionnaires

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PUBLIC PARTICIPATION QUESTIONNAIRE FOR THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED MOUNTAIN BONGO & RHINO SANCTUARY IN MARANIA& MUCHIENE FOREST BLOCKS MT.KENYA

The Meru County working with Muchiene and Marania Community Forest associations in collaboration with stakeholders under the Meru Bongo and Rhino Conservation Trust (MBRCT) propose to establish a sanctuary for two critically endangered species, the Mountain Bongo and the Black rhinoceros. The proposed sanctuary will be located inside Muchiene and Marania forest blocks of Mt. Kenya Ecosystem. The sanctuary will cover a holding area of 500 acres within a bigger re-wilding forest area of about 39km².

Consequently, and in compliance with EMCA cap 387 and EIA Regulations 2003 and NEMA guidelines a team of experts comprising Wildlife Research and Training Institute, KWS & KFS is undertaking an Environmental and Social Impact Assessment of the proposed Sanctuary.

It is in this regard that your comments are sought regarding potential environmental and socio-economic impacts from the proposed project activities. These will be incorporated in the ESIA Report.

A. General Information

Name..... EDITH KARWITHA .....Gender Male [ ] Female[✓]

Age group (Tick one) [ ] 18-35 [✓]36-50 [ ] Above 51

Contacts (Phone or Postal address) ..0710899999.....ID No..24011673

Location.....Occupation..COMMUNITY HEALTH VOLUNTEER

Part B: Specific Questions

1) How far is your home from the project site? [✓] Less than 3Km [ ] 3-10Km [ ] More than 10Km

2) How long have you lived here? [ ] Less than 5 years [ ] 5-10 years [✓] More than 10 years
3) Have you ever seen a bongo "Dongoro" in Mt. Kenya forest? [ ] Yes [✓]No
4) Are you a member of a CFA? (Tick if applicable)✓

[ ] if yes, give the name .....KAMULU CFA.....

5) What activities do you undertake in Marania & Muchiene forest?

[ ] Farming (PELIS program)
[ ] Livestock grazing
[ ] Source of water
[ ] Firewood collection
[ ] Source of building materials

[ ] Medicinal herbs

[ ] Bee keeping ✓

[ ] Ecotourism

State any other.....

6) Will the proposed project affect your activities? [ ] Yes [✓] No

If yes, please explain how?

.....

.

.....

.

7) What are some of the impacts that you anticipate from the development of this sanctuary?

a) Negative impacts

.....

..... NIL .....

.....

.....

.....

...

b) Positive impacts

.....

..... - JOB OPPOCUNITIES .....

.....

.....

.....

.....

8) Are there any of the impact(s) identified that will affect you directly as a person?

.....

..... NO .....

.....

.....

9) What mitigation measures would you recommend for the negative impacts identified above?

.....

.....

.....

.....

10) Are there unique or specific considerations that you wish were met before the project work commences?

DATE: 16/1/2022

Signature _____

Thank you for taking your time to respond

(14) of

PUBLIC PARTICIPATION QUESTIONNAIRE FOR THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED MOUNTAIN BONGO & RHINO SANCTUARY IN MARANIA& MUCHIENE FOREST BLOCKS MT.KENYA

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A. General Information

Name... Lucy ..... karamba ....Gender Male [ ] Female[✓]

Age group (Tick one) [ ] 18-35 [✓] 36-50 [ ] Above 51

Contacts (Phone or Postal address) .0726721449.....ID No..21096911.....

Location.....Occupation.....farmer.....

Part B: Specific Questions

1) How far is your home from the project site? [✓] Less than 3Km [ ] 3-10Km [ ] More than 10Km

2) How long have you lived here? [ ] Less than 5 years [ ] 5-10 years [✓] More than 10 years
3) Have you ever seen a bongo "Dongoro" in Mt. Kenya forest? [ ] Yes [✓] No
4) Are you a member of a CFA? (Tick if applicable)✓

[ ] if yes, give the name ...kamulu ..... C.F.A .....

5) What activities do you undertake in Marania & Muchiene forest?

[ ] Farming (PELIS program)
[✓] Livestock grazing
[ ] Source of water
[ ] Firewood collection
[ ] Source of building materials

[ ] Medicinal herbs

[ ] Bee keeping

[ ] Ecotourism

State any other.....

6) Will the proposed project affect your activities? [ ] Yes [ ] No

If yes, please explain how?

.....

.....

.....

7) What are some of the impacts that you anticipate from the development of this sanctuary?

a) Negative impacts

.....

.....

.....

.....

.....

...

b) Positive impacts

Tourism ..... Employment ..... Improved roads .....

.....

Electricity .....

.....

.....

.....

8) Are there any of the impact(s) identified that will affect you directly as a person?

.....

.....

NO .....

.....

9) What mitigation measures would you recommend for the negative impacts identified above?

.....

.....

.....

.....

10) Are there unique or specific considerations that you wish were met before the project work commences?

DATE: 22/1/22

Signature _____

Thank you for taking your time to respond

9 of

PUBLIC PARTICIPATION QUESTIONNAIRE FOR THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED MOUNTAIN BONGO & RHINO SANCTUARY IN MARANIA& MUCHIENE FOREST BLOCKS MT.KENYA

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A. General Information

Name....BENJAMIN MUTHOMI.....Gender Male [✓] Female[ ]

Age group (Tick one) [ ] 18-35 [ ] 36-50 [✓] Above 51

Contacts (Phone or Postal address) .....0725439763.....ID No....8857247.....

Location...MAARA.....Occupation..FARMER.....

Part B: Specific Questions

1) How far is your home from the project site? [ ] Less than 3Km [ ] 3-10Km [ ] More than 10Km

2) How long have you lived here? [ ] Less than 5 years [ ] 5-10 years [ ] More than 10 years

3) Have you ever seen a bongo "Dongoro" in Mt. Kenya forest? [ ] Yes [✓] No

4) Are you a member of a CFA? (Tick if applicable)

[ ] if yes, give the name ....KAMULU.....

5) What activities do you undertake in Marania & Muchiene forest?

[ ] Farming (PELIS program)

[ ] Livestock grazing

[ ] Source of water

[✓] Firewood collection

[ ] Source of building materials

[ ] Medicinal herbs

[ ] Bee keeping

[ ] Ecotourism

State any other.....

6) Will the proposed project affect your activities? [ ] Yes [✓] No

If yes, please explain how?

.....

.....

7) What are some of the impacts that you anticipate from the development of this sanctuary?

a) Negative impacts

.....

..... NIL .....

.....

.....

.....

...

b) Positive impacts

.....

..... TOURISM ..... ROAD IMPROVEMENT

..... EMPLOYMENT .....

.....

..... ELECTRICITY .....

.....

8) Are there any of the impact(s) identified that will affect you directly as a person?

.....

.....

.....

.....

9) What mitigation measures would you recommend for the negative impacts identified above?

.....

.....

.....

.....

10) Are there unique or specific considerations that you wish were met before the project work commences?

DATE: 22/01/22

Signature_____

Thank you for taking your time to respond

3 of

PUBLIC PARTICIPATION QUESTIONNAIRE FOR THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED MOUNTAIN BONGO & RHINO SANCTUARY IN MARANIA& MUCHIENE FOREST BLOCKS MT.KENYA

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It is in this regard that your comments are sought regarding potential environmental and socio-economic impacts from the proposed project activities. These will be incorporated in the ESIA Report.

A. General Information

Name Patrick Kaaran ..... Gender Male [ ] Female[ ]

Age group (Tick one) [ ] 18-35 [ ] 36-50 [ ] Above 51

Contacts (Phone or Postal address) 0720302004 ID No.....

Location Kibirichia ..... Occupation teacher .....

Part B: Specific Questions

1) How far is your home from the project site? [ ] Less than 3Km [ ] 3-10Km [ ] More than 10Km
2) How long have you lived here?[ ] Less than 5 years [ ] 5-10 years [ ] More than 10 years
3) Have you ever seen a bongo "Dongoro" in Mt.Kenya forest?[ ] Yes [ ] No
4) Are you a member of a CFA? (Tick if applicable)

[ ] if yes, give the name Kamuthi CFA (Ncooro)

5) What activities do you undertake in Marania&Muchiene forest?

[ ] Farming (PELIS program)
[ ] Livestock grazing
[ ] Source of water
[ ]Firewood collection

[ ] Source of building materials

[ ] Medicinal herbs

[ ]Bee keeping

[ ] Ecotourism ✓

State any other... water

6) Will the proposed project affect your activities? [ ] Yes [ ] No

If yes, please explain how?

.....

.....

7) What are some of the impacts that you anticipate from the development of this sanctuary?

a) Negative impacts

.....

.....

.....

.....

b) Positive impacts

Good roads, tourism

security

.....

.....

8) Are there any of the impact(s) identified that will affect you directly as a person?

.....

.....

.....

.....

9) What mitigation measures would you recommend for the negative impacts identified above?

.....

.....

.....

10) Are there unique or specific considerations that you wish were met before the project work commences? Good security

DATE: 25-11-2022 Signature Kuran

Thank you for taking your time to respond

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PUBLIC PARTICIPATION QUESTIONNAIRE FOR THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED MOUNTAIN BONGO & RHINO SANCTUARY IN MARANIA& MUCHIENE FOREST BLOCKS MT.KENYA

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A. General Information

Name..Judas Mutugi.....Gender Male [ ] Female[ ]

Age group (Tick one) [ ] 18-35 [ ] 36-50 [ ] Above 51

Contacts (Phone or Postal address) ..0710929616.....ID No...12497820

Location....NTIRIMITI.....Occupation....FARMER.....

Part B: Specific Questions

1) How far is your home from the project site? [ ] Less than 3Km [ ] 3-10Km [ ] More than 10Km
2) How long have you lived here? [ ] Less than 5 years [ ] 5-10 years [ ] More than 10 years
3) Have you ever seen a bongo "Dongoro" in Mt. Kenya forest? [ ] Yes [ ] No
4) Are you a member of a CFA? (Tick if applicable)

[ ] if yes, give the name .....NTIMAKA C.F.A.....

5) What activities do you undertake in Marania & Muchiene forest?

[ ] Farming (PELIS program)
[ ] Livestock grazing
[ ] Source of water
[ ] Firewood collection
[ ] Source of building materials

[ ] Medicinal herbs ✓
[ ] Bee keeping ✓
[ ] Ecotourism ✓
State any other.....

6) Will the proposed project affect your activities? [ ] Yes [ ] No
If yes, please explain how?
..... N/A .....
.....
.....

7) What are some of the impacts that you anticipate from the development of this sanctuary?
a) Negative impacts
..... N/A .....
.....
.....
.....
.....
...
b) Positive impacts
(i.) Creation of Jobs.....
(ii.) Improved livelihood.....
(iii.) Better roads infrastructure.....
.....
(iv.) Health Care.....
.....

8) Are there any of the impact(s) identified that will affect you directly as a person?
..... YES .....
.....
.....
.....

9) What mitigation measures would you recommend for the negative impacts identified above?
..... N/A .....
.....
.....
.....

10) Are there unique or specific considerations that you wish were met before the project work commences? N/O

DATE: 10/01/2022
Signature _____
Thank you for taking your time to respond

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PUBLIC PARTICIPATION QUESTIONNAIRE FOR THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED MOUNTAIN BONGO & RHINO SANCTUARY IN MARANIA& MUCHIENE FOREST BLOCKS MT.KENYA

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A. General Information

Name. MOREEN ..... NTINYARI ..... Gender Male [ ] Female[✓]

Age group (Tick one) [ ] 18-35 [✓] 36-50 [ ] Above 51

Contacts (Phone or Postal address) ... 0719706832 ..... ID No. 28540080 .....

Location..... NTIRIMITI ..... Occupation..... FARMER .....

Part B: Specific Questions

1) How far is your home from the project site? [ ] Less than 3Km [ ] 3-10Km ✓ [ ] More than 10Km
2) How long have you lived here? [ ] Less than 5 years [ ] 5-10 years [✓] More than 10 years
3) Have you ever seen a bongo "Dongoro" in Mt. Kenya forest? [ ] Yes [✓] No
4) Are you a member of a CFA? (Tick if applicable) ✓

[ ] if yes, give the name NTIMAKA C.F.A .....

5) What activities do you undertake in Marania & Muchiene forest?

[ ] Farming (PELIS program) ✓
[ ] Livestock grazing ✓
[ ] Source of water ✓
[ ] Firewood collection ✓
[ ] Source of building materials ✓

[ ] Medicinal herbs ✓
[ ] Bee keeping ✓
[ ] Ecotourism ✓
State any other..... PLANTING TREES .....

6) Will the proposed project affect your activities? [ ] Yes [ ] No ✓
If yes, please explain how?
.....
.....
.....

7) What are some of the impacts that you anticipate from the development of this sanctuary?
a) Negative impacts
.....
.....
.....
.....
.....
...
b) Positive impacts Jobs ERECTION
..... HEALTH care
..... BETTER roads INFRASTRUCTURE
.....
.....
.....

8) Are there any of the impact(s) identified that will affect you directly as a person?
..... No YES
.....
.....
.....

9) What mitigation measures would you recommend for the negative impacts identified above?
..... NA
.....
.....
.....

10) Are there unique or specific considerations that you wish were met before the project work commences? No

DATE: 6/1/2022
Signature _____
Thank you for taking your time to respond

98

PUBLIC PARTICIPATION QUESTIONNAIRE FOR THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED MOUNTAIN BONGO & RHINO SANCTUARY IN MARANIA& MUCHIENE FOREST BLOCKS MT.KENYA

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A. General Information

Name..AYUB MWENDA.....Gender Male [✓] Female[ ]

Age group (Tick one) [ ] 18-35 [✓] 36-50 [ ] Above 51✓

Contacts (Phone or Postal address) ...0720981972.....ID No.9355557.....

Location..NTIRIMITI.....Occupation..FARMER.....

Part B: Specific Questions

1) How far is your home from the project site? [ ] Less than 3Km [ ] 3-10Km [✓] More than 10Km

2) How long have you lived here? [ ] Less than 5 years [ ] 5-10 years [✓] More than 10 years
3) Have you ever seen a bongo "Dongoro" in Mt. Kenya forest? [ ] Yes [✓] No
4) Are you a member of a CFA? (Tick if applicable) ✓

[ ] if yes, give the name NTIMAKA CFA.....

5) What activities do you undertake in Marania & Muchiene forest?

[ ] Farming (PELIS program) ✓
[ ] Livestock grazing ✓
[ ] Source of water ✓
[ ] Firewood collection ✓
[ ] Source of building materials ✓

[ ] Medicinal herbs ✓
[ ] Bee keeping ✓
[ ] Ecotourism ✓
State any other.....

6) Will the proposed project affect your activities? [ ] Yes [✓] No
If yes, please explain how?
N/A

7) What are some of the impacts that you anticipate from the development of this sanctuary?
a) Negative impacts
N/A

b) Positive impacts
Job opportunities
Better roads
Better healthcentres

8) Are there any of the impact(s) identified that will affect you directly as a person?
yes

9) What mitigation measures would you recommend for the negative impacts identified above?
N/A

10) Are there unique or specific considerations that you wish were met before the project work commences? NO

DATE: 6-1-2022
Signature _____
Thank you for taking your time to respond

99

PUBLIC PARTICIPATION QUESTIONNAIRE FOR THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED MOUNTAIN BONGO & RHINO SANCTUARY IN MARANIA& MUCHIENE FOREST BLOCKS MT.KENYA

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A. General Information

Name.....LUCY GAKII.....Gender Male [ ] Female[✓]

Age group (Tick one) [ ] 18-35 [✓] 36-50 [ ] Above 51

Contacts (Phone or Postal address) ...0724938141.....ID No.10970780...

Location.NTIRIMITI.....Occupation...FARMER.....

Part B: Specific Questions

1) How far is your home from the project site? [ ] Less than 3Km [ ] 3-10Km [✓] More than 10Km

2) How long have you lived here? [ ] Less than 5 years [ ] 5-10 years [✓] More than 10 years

3) Have you ever seen a bongo "Dongoro" in Mt. Kenya forest? [ ] Yes [✓] No

4) Are you a member of a CFA? (Tick if applicable) ✓

[ ] if yes, give the name .....NTIMAKA CFA.....

5) What activities do you undertake in Marania & Muchiene forest?

[ ] Farming (PELIS program) ✓

[ ] Livestock grazing ✓

[ ] Source of water ✓

[ ] Firewood collection ✓

[ ] Source of building materials ✓

[ ] Medicinal herbs ✓
[ ] Bee keeping ✓
[ ] Ecotourism ✓
State any other.....

6) Will the proposed project affect your activities? [ ] Yes [✓] No
If yes, please explain how?
..... N/A .....
.....
.....

7) What are some of the impacts that you anticipate from the development of this sanctuary?
a) Negative impacts
..... N/A .....
.....
.....
.....
.....
...
b) Positive impacts
.....
..... Job opportunities .....
..... Better health centres .....
..... Better roads. .....
.....

8) Are there any of the impact(s) identified that will affect you directly as a person?
..... Yes .....
.....
.....
.....

9) What mitigation measures would you recommend for the negative impacts identified above?
..... N/A .....
.....
.....
.....

10) Are there unique or specific considerations that you wish were met before the project work commences? NO

DATE: 6-1-2022
Signature _____
Thank you for taking your time to respond

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PUBLIC PARTICIPATION QUESTIONNAIRE FOR THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) FOR THE PROPOSED MOUNTAIN BONGO & RHINO SANCTUARY IN MARANIA& MUCHIENE FOREST BLOCKS MT.KENYA

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A. General Information

Name. PERCY KARWITHA ..... Gender Male [ ] Female [✓]

Age group (Tick one) [✓] 18-35 [ ] 36-50 [ ] Above 51

Contacts (Phone or Postal address) ... 0707512651 ..... ID No. 39527533

Location... NTIRIMITI ..... Occupation.. FARMER .....

Part B: Specific Questions

1) How far is your home from the project site? [ ] Less than 3Km [✓] 3-10Km [ ] More than 10Km
2) How long have you lived here? [ ] Less than 5 years [ ] 5-10 years [✓] More than 10 years
3) Have you ever seen a bongo "Dongoro" in Mt. Kenya forest? [ ] Yes [✓] No
4) Are you a member of a CFA? (Tick if applicable) ✓

[ ] if yes, give the name NTIMAKA CFA .....

5) What activities do you undertake in Marania & Muchiene forest?

[ ] Farming (PELIS program) ✓
[ ] Livestock grazing ✓
[ ] Source of water ✓
[ ] Firewood collection ✓
[ ] Source of building materials ✓

[ ] Medicinal herbs ✓
[ ] Bee keeping ✓
[ ] Ecotourism ✓
State any other.....

6) Will the proposed project affect your activities? [ ] Yes [✓] No
If yes, please explain how?
N/A

7) What are some of the impacts that you anticipate from the development of this sanctuary?
a) Negative impacts
N/A

b) Positive impacts
Creation of Jobs
Better roads
Better Health Centres

8) Are there any of the impact(s) identified that will affect you directly as a person?
Yes

9) What mitigation measures would you recommend for the negative impacts identified above?
N/A

10) Are there unique or specific considerations that you wish were met before the project work commences? NO

DATE: 6-1-2022
Signature
Thank you for taking your time to respond

Appendix 2 Sample list of stakeholders

Pg 1 of

ESIA FOR THE PROPOSED ESTABLISHMENT OF A BONGO AND BLACK RHINO SANCTUARY IN MARANIA AND MUCHEENE FOREST BLOCK S OF MT KENYA FOREST: COMMUNITY CONSULTATION MEETING AT Mucheene ON 25th JANUARY 2022

S/N	Name	Occupation	Area of residence	Contacts	Signature
1	John Mbaabu M'Muritu	Kamulu CFA	95 Kibirichia	072133522	
2	Nancy Karana Mugambi	Kamulu CFA	c/o Kibirichia	0728448610	
3	Sakina Katiture	Kamulu CFA	c/o Kibirichia	0741170068	
4	Stanley Gatobu	Kamulu	Kibirichia	072313124	
5	Dancan Murenda Kiambi	Kamulu CFA	Kibirichia	0729209760	
6.	John Mbaabu	Kamulu CFA	Kibirichia	0737691200	
7.	Moses Kirunya Murungi	Kamulu CFA	Kibirichia	0718434797	
8.	Isaac Matiri	Kamulu CFA	Kimbo	0725042873	
9	Joel Mwirigi	Kamuuru	Muruguma	0720739849	
10	Jacob Murithi	Kamulu	Kimbo	0723128391	
11	Francis Muthinja	Kamuru	Kamuruguma	0726502828	
12	Justus Riungah	Kamulu	Gathuine	0723966717	
13	Fredrick Murithi	Kamuru CFA	Katheri	0700574812	
14	Silas Bondi	Kamulu CFA	Muruguma	0727975390	
15	Nkoroi Matiri Kioga	Kamulu	Mucheene	0710196304	
16	Joseph Murithi Magambo	Kamulu	Kimbo	0725606547	
17	Gerald Kaburu Mwkarichia	Kamulu	Katheri	0704206595	
18	Samuel Mwirigi	Kamulu	Katheri	0727237887	
19	John Mbaya Kamunde	[illegible] Kamulu	Gathuine	0737529227	
20	Isabella Mbura Gn	Trustee	Muruguma	0726883237	
21	Geoffrey Bundotich	PI Scientist	MCA	0721995964	
22	Paul Gwantai Rugongo	Kamulu	Kirukuku	0725665357	
23	John Kariuki	Researcher	WRTI	0720831513	
26	Zainabu Salim	KWS meru	Eastern Cons. Areas	0722992619	
27	Mukeru W. Wanjiru	KWS MCA	Aberdares	0713412414	
28	Vasco Nyaga	KWS/WRTI	Nyeri	0726724932	
28	Jared Lumbasi	KWS/WRTI	Nyeri	0722 982 903	

pg 2 of 2

ESIA FOR THE PROPOSED ESTABLISHMENT OF A BONGO AND BLACK RHINO SANCTUARY IN MARANIA AND MUCHEENE FOREST BLOCK S OF MT KENYA FOREST: COMMUNITY CONSULTATION MEETING AT mucheene **ON** 25/01 **JANUARY 2022**

S/N	Name	Occupation	Area of residence	Contacts	Signature
1.	Cornelius Mbutugu	Farmer	Muruguma	0726542573	[illegible]
2.	Jerusha Kanana	Farmer	Kathari	0713195382	[illegible]
3	Zacheaus Karuntimi	Farmer	Katheri	0710111933	[illegible]
4	ALICE KENDI RUKARIA	Farmer	Kimukuru	0703222794	[illegible]
5	Caroline ngugi gitonga	farmer	Kirukuru	0710811958	[illegible]
6	SUSAN KANYUA MURIUKI	Farmer	Katheri	0720599953	[illegible]
7	Alice Karuki Nyaga	Farmer	Katheri	0700132950	[illegible]
8	FRIDAH KAJUJU MWITI	Farmer	KIMBO	0712679452	[illegible]
9.	SABELLA KATHAMBI GICHURU	Farmer	MURUGUMA	0713004846	[illegible]
10	ALICE CHAKU NJIRU	farmer	NCHOORO	0712198635	[illegible]
11	CHARITY NCABIRA	Farmer	Mucheene	0714926610	[illegible]
12	Marcella Makena	farmer	Kirukuru	0780717067	[illegible]
13	Doreen Gacheri Kinoti	farmer	mucheene	0703 450 832	[illegible]
14	DOROTHY KAIMURI KIARA	FARMER	mucheene	0713618502	[illegible]
15	KARAMBU NANCY	FARMER	mucheene	0748213058	[illegible]
16	Edah Gitonga	student	Meru	0768439418	[illegible]
17	Mr. John Kirithi	Chairman MSECT	LWC	[illegible] 0721661, 072	[illegible]

Appendix 3 Minutes of community baraza meeting

MINUTES OF THEPUBLIC PARTICIPATION BARAZA MEETING ON THE PROPOSED MERU BONGO AND RHINO SANCTUARY ENVIRONMENTAL &SOCIAL IMPACT ASSESSMENT HELD AT KAMULU COMMUNITY FOREST ASSOCIATION IN MERU COUNTY ON 25/01/2022 AT 10.00 AM

Opening remarks by chairman and a word of prayers by a member

Members present

1. Zainabu Salim KWS Warden- Meru County
2. Mr Mutero Njauni- representing Senior Assistant Director , KWS Mountain Conservation Area
3. Bundotich Geoffrey- Principal Scientist Wildlife Research & Training Institute -Nyeri Centre
4. Vasco Nyaga – Scientist, WRTI Nyeri
5. Kariuki John- Scientist – EIA WRTI/KWS Nairobi
6. John Kinoti -Chairperson, Meru Bongo and Rhino Conservation Trust
7. Nancy Magambo
8. Safina Kathuure
9. Stanely Gathungui
10. Jahn Mbabu
11. Mwenda Kiambi
12. MoseKirinya
13. Jacob Murithi
14. Joel Mwirigi
15. Isaac Muteri
16. Fredrick Murithi
17. Justus Riunga
18. Francis Muthinja
19. Paul Guantai
20. Nkoroi Materi
21. Cyrus bundi
22. Joseph mabango
23. Jared Kaburu
24. Samuel Mwirigi
25. Dorothy
26. Nancy Karambu
27. Lyn Gacheri
28. Maricera Makena
29. Charity Nchabira
30. Sabella ngutu
31. Alice Njiru
32. Fridah Kajuju
33. Sabera Kathambi
34. Alice Kaaria
35. Susan Kanyua
36. Caro Kirirmi
37. Alice Kendi
38. Zacchaeus
39. Jerusa Kanana

40. Cornelius

Agenda

1. Opening Remarks And Introduction
2. Project Overview To Kamulu Community
3. Need And Benefit Of Bongo Repatriation And Conservation
4. The ESIA Process And Why Public Participation
5. Community Views And Concerns

1. **Opening Remarks And Introduction**

The meeting was opened with a word of prayer from k

Kamulu CFA member and later followed by the self-introduction of all the participants.

Remarks from chairman of Meru Bongo and Rhino Conservation Trust Mr John Kinoti

He noted that the meeting was part of the process to realize the actualization of the project as stipulated by the laws of Kenya. He informed the meeting that the Meru bongo and rhino conservation trust is focused on the providing all the necessary infrastructure to facilitate the process of Bongo repatriationfrom USA and and reintroduction of the Black Rhinoin the area that was hitherto a hacbitat and range of the two species. He Urged the community to be free and provide all relevant information on the issues that would create synergy or limit the implementation of the bongo repatriation process. He informed the participants that other partners in in the trust include Kamulu CFA, Ntimaka CFA, KFS, KWS, Meru County government, Lewa Wildlife Conservancy, Mt. Kenya Trust among others. He said the Trust had already for a special user rights lease from KFS as per the Forest Conservation and Management Act and is being considered favourably.

2. **Overview Of The Project**

Project overview was well explained to the Baraza by the chairman Kamulu CFA who outlined the process through which the project has so far attained. Some of the activities that were carried out were habitat suitability assessment, feasibility study and social impact assessment, security assessment, disease surveillance study and currently on the community participation as part of public participation in the EIA process. He informed the participants that project has a component of Ecotourism enterprise development that will benefit the community and improve thire livelihoods. He said the project have support from the locals community and even the village elders, Nyamba kumi, are part of the CFAS.

3. **Need And Benefit Of Bongo Repatriation And Conservation**

The bongo species was extirpated by the local communities through hunting and bush meat consumption.

The meeting was informed that Some of the bongo were moved to Florida in the USA and bred , hence the population replicated to a large number. Through KWS, the Trust has put a request has to repatriate some of the bongo from Florida to Kenya in Mt.Kenya forest in Marania and Mucheene forest blocks

Remarks from Madam Isabella Mburugu trustee Kamulu CFA

She informed the meeting that the Trust 's Composition include KWS ,KFS, Lewa, Mt Kenya trust, Meru county government and is chaired by Mr. Kinoti.

She said the community is supportive in the repatriation process of the bongo from Florida. They are optimistic on the benefitsthat would accrue from the project such as tourism, employment, economic development, good health care, local and international tourism.

Remarks From Madam Zainabu-KWS Warden Meru

She informed the meeting that after continued bush meat consumption, bongo is nearly undergoing local extinction and therefore KWS is in forefront in leading the repatriation and conservation process to restock Mount Kenya with bongo as has been there before.

Bongo is being repatriated to boost local economy and well-being of the people as well as facilitating conservation of the critically endangered bongo in their natural habitat. Loss of biodiversity leads to loss of species and critical ecosystem services such as rain, air, carbon sink and micro climate.

4. **ESIA Process**

The EIA Scientist/Expert informed meeting that the Constitution of Kenya outline that any projects inception should be a gradual process that requires public participation on the views of the local community and other stakeholders affected and or interested in the project.. This public participation process is important in getting the local / indigenous knowledge that would bridge build on the known facts on the project to strengthen its realization and inform formulation of mitigation measures that may be required for the identified negative impacts

The meeting should capture all the views of the CFA and non-members who are major stakeholders and have interest in the project but may not be CFA members in order to bring broad array of views for analysis and compilation and report writing process. The process of public participation should further be part of ESIA and should come out clearly and documented with documentary evidence for the NEMA to approve the project report for implementation process. All issues need to be addressed not only limited to animal welfare but also to socio-economic concerns of people living around the area of interest.

5. **Community views and Concerns**

a) There has been a representative from even the Kibirichia Market community secretary whose concerns were; will the bongo be roaming freely in the farms? The answer was that consultation process is still ongoing and there has not been no alarming issues with the repatriation process. Also the animals would be held in holding areas that are fenced and gradulaat released to the wild in the natural habitat.

b) Youth representative from medicinal group- said she is optimistic in that youth will get employment, community growth and economic growth is expected to be in-place.

c) One participant indicated that there were no negative perceptions from the local community since the earlier concerns on probability of human wildlife conflicts have been dispelled through the many awareness meeting that have been held by the trustee and CFA members .

d) Most participants requested that the unskilled labour should be sourced fro the local communities and should be all inclusive to include gender, youth and people living with

disabilities. The Trust Chairman assured the participants that all these would be considered and equal opportunities given to all groups.

e) There before there was not knowledge on the bush meat consumption, honey harvesting and wood harvesting but currently there is plenty knowledge on conservation and environmental protection. With the continued conservation campaigns by the Trust and KFS and KWS, the threat to the bongo on this aspect would be minimal.

f) Will the sanctuary be more alike the Lewa conservancy? The trust Chairman said that eventually the sanctuary will progressive attract international tourists and help in global marketing of the sanctuary

g) Concerns were raised whether the sanctuary fence would limit their access to their water intake points. Answer was that the community would continue access to their water intake points and pipeline repairs but in a more organised way to deter illegal entry to others with ulterior motives,

h) Would the sanctuary be only for baongos and rhinos and exclude other animals? Answer: The sanctuary will have the two flagship species bongo and rhino but will not exclude the other species but will exist in harmony with all other diverse species

i) The CFA chairman requested that the Trust and KWS to look into possibilities of getting community scouts employed from the local community for the security of the proposed sanctuary. He also requested fro tree seedlings to assist in replanting and rehabilitation the degraded parches of the Mucheene forest block.

j) The community members requested for a consideration of leaving an elephant corridor from Lewa to The mountain moorlands so that they do not cause human wildlife conflict in the community land while they are migrating from the lowlands to the moorland.

k) CFA member raised concern that the temperatures in the mountain have changed to a warmer condition and that if the same could affect the survival of Bongo in the selected area.

l) One of the CFA member sought to know whether the sanctuary would only be meant for bongo and rhino alone or other animals will be included as well?

Chairman Kamulu CFA....................................

Date..25/01/22....................................

Signature....................................

CORNELIUS MBURUGU S INVESTMENT
Date: 25/01/2022
P.O. Box .... MERU

Appendix 4 Minutes of Community Baraza

MINUTES OF THE PUBLIC PARTICIPATION BARAZA MEETING ON THE PROPOSED MERU BONGO AND RHINO SANCTUARY ENVIRONMENTAL &SOCIAL IMPACT ASSESSMENT HELD AT NTIMAKA COMMUNITY FOREST ASSOCIATION IN MERU COUNTY ON 26/01/2022 AT 10.00 AM

Members Present

Zainabu Salim –KWS Senior Warden- Meru County

John Kariuki- Scientist, EIA Section- WRTI/KWS

Geoffrey Bundotich- Principal Scientist- WRTI, Nyeri Centre

Muteru Njauni -KWS Senior Warden, Representing Mountain Conservation Area

Vasco Nyaga – Scientist, WRTI Nyeri Centre

Julius Mugaa- Chairman Ntimaka CFA

Jadiel Ikiara- Pastor Ntimiri Full Gospel Church and CFA member

Lukas Kirigi – CFA Member

Henry Kinyua- CFA Member

Pet Muriki - CFA Member

Andrew Kiruja – Vice Chairman CFA

Daniel Ndatho- CFA Member

Silas Mukundi- CFA Member

Luka Ngojera- CFA Member

Kennedy Gitonga- CFA Board Member

Edward Kaberia- CFA Member

Mwenda Manyara- CFA Member

George Kirimi-CFA Member

James Kirera- CFA Member

Joseph Marete- CFA Member

Henry Mutwiri – CFA Board Member

Joyce kendi- treasurer CFA Member

Penina Karimi- CFA Board member

Doreen Kathambi- Vice Secretary CFA

Kelvin Mutuma- CFA Member

Mwenda John- CFA Member

Penina Karimi- CFA Member

Lucy Mbugua - CFA Member

Faith Murithi- CFA Member

Mercy Kinya - CFA Member

Jane kimathi- CFA Member

Susan Kinanu- CFA Member

Grace Kaimenyi- CFA Member

Joyce Kawiria- CFA Member

Mutwiri Keneth- CFA Member

Agenda

1) Opening remarks and introductions
2) Overview and Benefits of the Bongo and Rhino Project
3) ESIA process
4) Public views and concerns about the project
5) AOB

1. Opening remarks and introduction

The Chairman of Ntimaka CFA Mr Julius invited the CFA secretary to give an overview of the bongo and rhino sanctuary project. He clarified that the CFA started in the year 2007 with a core mandate and objective of management and protection of forest resources. It started with 800 members and currently member numbers stands at 1600 members. The Main activities undertaken by the CFA are bee keeping, grazing management, herbal medicinal extraction, tree planting, and water resource use and conservation.

Two years ago, the the community mooted the idea of re-introducing the Mountain Bongo which had its original home in the forest area adjacent to the Ntimaka- Marania Aarea. The CFA sought Assistance from the County Governemnt of Meru to actualize their idea into a feasible project. The CFA got ready and through the County Government, engaged other agencies such as KWS, Lewa Wildlife Conservancy and KFS on several meetings which culminated formulation of a project proposal and later a feasibility study. The

awaited document is the license to operate the project so realize its actualization.

The public consultation meeting was attended by CFA members.

2. Overview and Benefits of bongo project

The participants enumerated a number of benefits that they perceived would accrue from the project as

a) the project would result in creation of jobs

b) Local tourism would be improved that would result in uplifting the local economy and livelihoods of the local community

c) The infrastructure such as roads and water network system would improve thereby helping in opening up the area and ease of access to amenities and ease of doing business

d) Forest improvement through afforestation by seed dispersal by the bongo population.

The members enumerated the anticipated challenges that may arise as, poaching, diseases, insecurity to the local community due to urbanization and financial challenges.

3. Process of ESIA

In the Kenyan Constitution, 2010, public participation and consultation is identified a critical component in inception and implementation of any project. Similarly , The Environmental Management and coordination Act identifies public participation as a core area that must ve undertaken in order that the concern and views of affected and interested parties and stakeholders are taken into consideration in formulation and implementation of projects. Therefore the EIA experts are obligated to hear and document the public views and incorporate in the Environmental and Social Impact Assessment process. Several activities have been carried to ascertain the feasibility of the project before assessing the environmental and social impacts the project may have on the project area. This included feasibility study, ecological, socioeconomic studies as well as disease surveillance study ascertains the sustainability of the project. The final ESIA document will be submitted to NEMA for approval and project licensing approved to give way for the project implementation. The Bongo and rhino have been proposed as species for restocking by Meru Bongo MB&RCT as a flagship species in their natural habitat that they have been existing. Feasibility study, habitat assessment, disease surveillance and currently conducting public participation as part of the legal procedure to include in the ESIA report for approval by NEMA

would create knowledge of the wildlife conservation to the current and future generations. The participants anticipate the project would bring in several CSR projects such as schools and hospital. The bongo project in expect to yield more CSR project than the current fence project.

10. A member confirmed she hasn't seen a bongo yet and one of the main benefit would be local tourist especially targeting the bongo and rhino flagship species. She clearly pinpointed that poaching is a long gone activity that community has dared not to go back to it. She outlined various job opportunities that would be created and the community would benefit.

11. Participants gave their expectations of high development such as hotels and local youths would get employment in the hotels and several get to intermarry with foreigners hence opening international linkages.

12. There was concern on Issues of bush fire which have been happening in the forest and the CFA members for strict and practical measures to be put in place to deter or forestall likelihood of fire occurrences in the two forest blocks in particular and the entire forest generally. Occurrences.

13. With the bongo and rhino reintroduction, the area could attract international tourists and can offer opportunity to Meru County to continue with inaugurated mountain marathon which will be complemented on the implementation of the bongo project.

14. The project is expected to raise the people's livelihood through employment and provision of services.

5. Remarks from the chairperson of the Meru Bongo and Rhino Conservation Trust

He introduced some visitors from Lewa international are spearheading the project fundraising in the different countries for this project, who had briefly checked in to listen into the deliberation and views being raised by communities. He introduced his team both from Lewa Conservancy and Lewa international. The Visitors retaliated that were fully supportive and ready to continue with fundraising for the project.

Closing remarks by senior assistant Director of Mountain conservation area

He thanked the participants for the attendance and their inputs and views in thed public participants. He emphasized that the KWS/WRTI EIA team will fast

track the ESIA process so that the next steps of the project progress can be achived and. He also advised the project implementers and stakeholders to consider the projects future sustainability so that more benefits can accrue from the project.

6. AOB

There having no any other business, the meeting ended with a word of prayer at 1400hrs

ChairmanNtimaka
CFA.....JULIUS MWIRIGI MUGAA.....

Signature
.....

Date.....27/1/2022.....

Secretarytakingminutes
.....HENRY KINYUA RUGUARA.....

Signature.....

Date .....27/1/2022.....

NTIMAKA COMMUNITY FOREST ASSOCIATION
P.O. BOX 154-KIBIRICHIA
DATE.....

Appendix 5

FORM 7 (r.15(2))

nema

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/16528

Application Reference No: NEMA/EIA/EL/21865

M/S **Peter Njiiri Mwangi**
(individual or firm) of address

P.O. Box 3513-00200 Nairobi

is licensed to practice in the

capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert**
registration number **0710**

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

Issued Date: **2/9/2022** Expiry Date: **12/31/2022**

Signature…..

(Seal)
Director General
The National Environment Management Authority

P.T.O.