



**Environmental Impact Assessment Study Report  
for the Proposed Loisaba Rhino Sanctuary Project**

**Submitted to:**

**THE NATIONAL ENVIRONMENTAL MANAGEMENT AUTHORITY,  
NAIROBI**

**Conducted by:**

**Natural Resources Management and Development Agency  
(NAREDA Consultants)**

**Mathai House 1st Floor,**

**TEL NO.; 0722312508/ 079539869**

**P.O. Box 1001-10400 Nanyuki,**

**Email: [naredacons99@yahoo.com](mailto:naredacons99@yahoo.com)**



**For:**

**LOISABA CONSERVANCY, P.O. BOX 1348-10400 NANYUKI,**

**Contact Person: Tom Silvester, CEO**

**Mobile: +254 722 776164**

**Email: [tom@loisaba.com](mailto:tom@loisaba.com)**

**MARCH 2021**

## **EXECUTIVE SUMMARY**

### ***Introduction***

This Environmental Impact Assessment (EIA) Study Report presents the outcome of an EIA study, commissioned in February 2020 by the Conservancy, for the Proposed Loisaba Rhino Sanctuary and all its attendant processes, components and activities. The report had been submitted to NEMA by the closing of last year as a EIA project Report but on review, the Authority recommended for a wider public consultation and an in-depth coverage of the foreseen impacts and mitigation measures. This EIA Study Report, therefore, is the culmination of the entire EIA process documenting in details all the information captured along the way. NAREDA Consultants were appointed to undertake the EIA on behalf of Loisaba Conservancy.

The proposed Rhino Sanctuary will be established at the expansive Loisaba Conservancy, located in Laikipia North Sub-county, Laikipia County. Loisaba Conservancy's commitment to environmental conservation and sustainability are prominently manifested through meeting its legislative environmental obligations, most prominent being the obligation of undertaking and submitting environmental reports for all its respective conservancy's activities since 2004 when submission of Environmental Impact Assessment and Audit Reports became mandatory. While the Initial Environmental Audit Reports, 2004 'were comprehensive and covered all the aspects of Conservancy's operations, all new activities within Loisaba have been similarly subjected to EIAs while EA Annual Reports have been undertaken annually as prescribed in Kenya's overriding environmental law, EMCA 1999 and submitted to the National Environment Management Authority.

The aim of this EIA study has been to assess the environmental and social impacts associated with all the components and activities that will be undertaken in the establishment of the proposed Rhino Sanctuary, prominent among these being the construction and operationalization of the envisaged fence line on one hand and safe and ecologically sound establishment of a thriving rhino population at Loisaba Rhino Sanctuary, on the other. This EIA Study Report has carefully evaluated and analysed the foreseen impacts and has proposed practical and effective mitigation measures to prevent or reduce any potential adverse directly or indirectly associated with the envisaged development. An Environmental Mitigation and Monitoring Plan (EMMP) has been developed to ensure best environmental and social performance of the project. In



addition, the EMMP, alongside the then prevailing environmental legislation and statutes, will be a fundamental reference point (Audit Criteria) for the Initial Environmental Audit, which will be undertaken after one year of commissioning of the project, and subsequent annual self-audits which will be undertaken yearly.

### ***EIA Approach and Methodology***

The EIA techniques and methodologies applied for this study have been adapted and refined from various methodologies and case studies used for projects elsewhere without losing sight and focus on the unique conditions and settings of the project area. Desk study formed an important part of the assessment with this EIA Report having been substantially enriched by the findings, insights and recommendations documented in two critical pre-implementation studies undertaken by a multi-disciplinary team of experts drawn from the Kenya Wildlife Service (KWS) Mountain Region and the Rhino Office. These documents are: “*Black Rhino Ecological Carrying Capacity and Habitat Suitability Assessment for the Proposed Loisaba Rhino Sanctuary*” and “*Proposed Loisaba Rhino Sanctuary Water Quality Assessment Report*”. Management and security assessment report for the proposed Loisaba Rhino Sanctuary was undertaken from 19<sup>th</sup> - 21<sup>st</sup> May 2020.

Stakeholders’ comments and input in the implementation of the project were sought from the Loisaba Conservancy Chief Executive Officer (CEO) and the top management team (including the Security Manager, Community Conservation Officer and the resident conservationist), lead agencies including KWS, Laikipia and the County Government of Laikipia, local leaders and the affected parties which comprise of neighboring Conservancies and Lodges (Ol Malo, Sabuk Lodge, Tango Maos, Suyian Ranch, Mugie Conservancy, Kamogi Ranch) and the pastoral community residing in Kirimun-transitional neighbourhood between Samburu and Laikipia Counties, Lodokojek-Isiolo County and Ewaso Group Ranch-Laikipia County. Others consulted were Laikipia Wildlife Forum, (LWF). Environmental and biodiversity data was obtained through environmental site visits, transect walks, direct observation and review of relevant available literature.

### ***Project Background-Description (Bio-physical Environment), Justification and Objectives***

The proposed Loisaba Rhino Sanctuary will be located inside Loisaba Conservancy located in north-west Laikipia plateau at an altitude of 1700-1800 m



above sea level, immediately north of the Equator. The project area's topography is dominated by a dramatic escarpment that cuts roughly through the middle of the property from north to south. To the west of this escarpment is a high flat plateau (1,800 m a.s.l) encompassing a large area of open grassland. Loisaba Conservancy covers an area of 56,849 acres of land (about 230 Km<sup>2</sup>) and hosts a diverse variety of wildlife species and other biodiversity, with its principal activities being two fold (i) wildlife and ecological conservation and (ii) sustainable wildlife and scenery based eco-tourism. These two chief activities are complemented to a certain extent by livestock production. Returns from these activities are systematically and structurally used to enhance wildlife and biodiversity conservation within Loisaba and the larger Laikipia-Samburu Ecosystem and similarly support community projects through initiating and sustaining crucial Corporate Social Responsibility (CSR) projects and initiatives among Loisaba's neighbours, predominantly the Samburu and communities living on the fringes of Laikipia, Isiolo and Samburu Counties.

Previously a working livestock Ranch and a host of a wide variety of wildlife species, Loisaba was converted into a Conservancy in 1994 when wildlife conservation was deliberately encouraged and supported alongside livestock ranching. In December 2014, The Nature Conservancy (TNC) facilitated the purchase of Loisaba Ranch in order to help protect functioning ecosystems in Africa. After raising the funds, TNC granted the facility to the Loisaba Community Trust (LCT), a Kenyan Trust incorporated in 2002 under the Perpetual Succession of Trustees Act and committed to wildlife and ecological conservation. LCT now owns and manages Loisaba Conservancy. Today Loisaba can be classified as one of the trail blazers in wildlife conservation in the Laikipia-Samburu Ecosystem and reference point for promotion and sustaining of co-existence between livestock and wildlife. It also promotes and supports wildlife research. The Conservancy provides important habitat for more than 270 bird species and 57 mammal species, including endangered Grevy's zebra, wild dogs, lions, leopards, cheetahs and elephants among other wildlife. It also provides an important wildlife migratory corridor and sustains wildlife interactions in the extensive Laikipia-Samburu Ecosystem with not less than ten active migratory corridors/routes existing within the Conservancy. Indeed, Loisaba sits on the western edge of one of Kenya's most important elephant movement corridors.



The black rhino (*Diceros bicornis*) is listed as critically endangered by the International Union for the Conservation of Nature, with fewer than 5,000 remaining worldwide. Kenya had a thriving rhino population of about 20,000 black rhinos in the early 1970s which fell drastically to less than 400 in a space of 20 years, occasioned by widespread poaching of the animal to meet the then growing global demand for its horn. The Kenyan Wildlife Management and Conservation Act 2013 also lists the rhino along with other six animal species as “critically endangered” in the Act’s Sixth Schedule. Loisaba Conservancy, and the larger ecosystem in which it sits, was once an important habitat for the black rhino with the last black rhinos having been sighted in the early 70s. Since then, not a single black rhino exists in the landscape. The Proposed Loisaba Rhino Sanctuary Project therefore aims at re-establishing a healthy and thriving population of black rhinos within the Conservancy in line with KWS’s Kenya Rhinos Action Plan which aims at achieving a population of at least 2,000 eastern black rhinos (*Diceros bicornis michaeli*) in Kenya, and a meta-population of 830 black rhinos by the end of 2021. Further, the proposed project seeks to build on the successes of Kenya’s conservation efforts which have seen the black rhino population increase steadily to the current 750 over the last three decades or so due to policy, legal and institutional actions and involvement of multiple players including private land owners, communities and international agencies.

Reduction in poaching and implementation of breeding programmes and consequent increase in the rhino population means that the current rhino sanctuaries are approaching a saturation in their carrying capacities to hold rhino populations which calls for the establishment of other suitable and rhinos-appropriate sanctuaries to meet the desired population growth of 5%. Having been a habitat for rhinos in the past, and the fact that Loisaba Conservancy possesses superior technical, institutional, human and ecological capacities and abilities, Loisaba stands out as one of the most ideal areas for establishing a rhino sanctuary. It is also spatially well-endowed and suited, besides its continued successful implementation of wildlife conservation programmes and activities. The Conservancy also enjoys good reputation and rapport with local and international conservation bodies. Further, the Conservancy is located within Laikipia County which is already a stronghold for the eastern black rhino (*Diceros bicornis michaeli*). There are a number of facilities with successful breeding programmes within close proximity and they include Ol Jogi, Ol Pejeta and Lewa.



The Proposed Loisaba Rhino Sanctuary Project will principally involve the re-introduction of a founder population of eastern black rhino (*Diceros bicornis michaeli*) into a 24,440 acres fenced of (52km perimeter fence) and well secured sanctuary straddling Loisaba and Ol Malo conservancies. This will be managed as an Intensive Protection Zone (IPZ). While a founder population of 20 rhinos is envisaged, the final decision of the number of rhinos to be translocated will be dictated by a survey to deduce the ecological carrying capacity (ECC), maximum productivity carrying capacity (MPCC) and minimum viable population (MVP) of the identified area, with a careful and calculated skew on age and gender. The rhinos will eventually be released from the original rhino sanctuary area into the wider conservancy as their population increases beyond the ecological carrying capacity of the original sanctuary. The rhinos will be translocated into Loisaba Rhino Sanctuary from Ol Pejeta Conservancy and Lewa-Borana Rhino Sanctuaries and Lake Nakuru and Nairobi National Parks.

The step-wise and systematic process of establishing the Loisaba Rhino Sanctuary is split into seven interrelated broad components, each with its specific activities. These components include:

1. *Formal Application to KWS;*
2. *KWS Ecological, Water, Security, Veterinary/Disease Risk Assessments and Approval*
3. *Other Assessments and Audits (including this EIA);*
4. *Construction of the Fenceline;*
5. *Staff Recruitment and Training;*
6. *Rhinos Translocation and Release and;*
7. *Management and Operation of the Sanctuary including ensuring the Safety and Security of the Rhinos.*

Among these a Formal Application has been submitted to KWS while some of the Assessments have been undertaken and reports submitted to Loisaba Conservancy and the relevant agencies. A provisional approval for the proposed establishment of the Loisaba Rhino Sanctuary has been given by the KWS. A Draft Rhino Management Plan has also been prepared and is being finalised. The Proposed Project, whose preliminary cost is estimated at USD 500,000 is being implemented in partnership with globally renowned and acclaimed international conservation outfits which are: The Nature Conservancy (TNC); Space for Giants (SFG); Northern Rangelands Trust (NRT);



Elewana Collection; San Diego Zoo Global (SDZG); Lion Landscapes (LL); Ewaso Enterprise Partnership (EEP); Land & Life Foundation (LLF) and Loisaba Community Conservation Foundation (LCCF). KWS is heavily involved in providing technical guidance and backstopping to the Project.

### ***Legal Background***

The Environment Management and Co-ordination Act (EMCA), 1999 (Amended in 2015), is the legislation that governs EIA studies in Kenya. The second schedule of the Act lists the projects that are supposed to undergo EIA studies in accordance with section 58 (1-4) of the Act. The proposed project falls under dams, rivers and water resources as listed in the Second Schedule Part 4. EMCA 1999 makes it mandatory for any proponent of a project, “to, before financing, commencing, proceeding with, carrying out, executing or conducting or causing to be financed, commenced, proceeded with, carried out, executed or conducted by another person any undertaking specified in the second schedule in the Act, submit a project report to the National Environment Management Authority (NEMA), in the prescribed form, giving the prescribed information, accompanied by the prescribed fee”.

The Wildlife Management and Conservation Act 2013 allows for the establishment of wildlife conservancies or sanctuaries either individually or collectively provided that proposers own land on which wildlife inhabits. Part 39 of the Act contains the provisions for establishment of a wildlife conservancy or sanctuary. The Wildlife Management and Conservation Act 2013 defines a Sanctuary as “an area of land or of land and water set aside and maintained by government, community, individual or private entity for the conservation and protection of one or more species of wildlife’. The Act further defines a wildlife conservancy as “land set aside by an individual landowner, body corporate, group of owners or a community for purposes of wildlife conservation in accordance with the provisions of this Act”. The Act requires that an application to the KWS Director General for the establishment of a wildlife conservancy or sanctuary be ‘submitted in the prescribed form”. Part 26 (1) of the Act also requires that conservation and management of wildlife should be undertaken in compliance with EMCA 1999.

### ***Environmental Issues***



The EIA Study assessed and evaluated the environmental issues likely to occur with the implementation of the project. The assessment considered all the phases of the project including siting and designing, construction, operation and decommissioning.

**Mitigation/ Monitoring Plan and Alternatives to Development**

*Positive and Negative Impacts of the Proposed Project*

An environmental analysis of the proposed project revealed several likely positive and negative impacts of the Proposed Loisaba Rhino Sanctuary. A standard checklist was used to guide the EIA team in the identification of possible impacts accruing from the proposed project. A Leopold’s Matrix generated through subjecting the various project activities to a checklist that listed the impacts in terms of biophysical and human environments was used to complement the checklists. The identified impacts were then subjected to a criterion that was used to determine their characteristics and significance, among others.

The tables below present the potential positive and negative impacts of the proposed project divided into the planning and design, construction, operation and decommissioning phases.

**Anticipated Positive Impacts**

<b>Project Component</b>	<b>Project Activities</b>	<b>Positive Impacts</b>
<i>Siting and Designing Phase</i>		
Formal Application to KWS	Submission of Application Letter to KWS for Establishment of the Sanctuary	-Approval and technical support from KWS will ensure and enhance the sustainability and success of the Sanctuary  -Approval for establishment of the Sanctuary from KWS is a mandatory legal requirement.
KWS Ecological and Water Assessment	Assessments at the proposed sanctuary to determine Ecological Carrying Capacity (ECC), Maximum Productivity Carrying Capacity (MPCC) and Minimum Viable Population (MVP) for the proposed area (including	-Establishment and documentation of Black Rhino ECC within the proposed Sanctuary -Assessment of plant species composition and plant species composition will ensure that the Sanctuary meets rhinos’ browser needs and palatability -Initiation of fire management regimes within the Conservancy to manage the rhinos’ browser needs



	browse condition, water suitability etc.)	-Water assessment will ensure that Loisaba meets the threshold of rhinos' water needs <sup>1</sup>
Rhino Sanctuary Fence Survey	Consultations with neighbouring Lodges, Conservancies, Ranches and the community and lead agencies such as KWS and LWF	-Awareness creation on proposed project activities -Conflicts mitigation -Incorporation of pertinent concerns from the affected parties in fence design and implementation -Incorporation of technical inputs from experts enhancing the performance of the fenceline
	Mobilization of resources, surveying and designing works and other preparatory tasks for the erection of the fenceline	-Operations and sustainability of the fence line enhanced through the hiring of a qualified and competent contractor
Environmental Impact Assessment	-Public consultations and disclosure on the project components and activities -Consultations with project proponent and relevant key stakeholders during EIA	-Prevention of unnecessary contradictions with relevant Government Authorities and institutions -Integration of environmental considerations in project implementation and management -Incorporation of stakeholders views in project formulation and implementation -Enhanced support for the project by the affected parties -Adequate measures undertaken to respond to and manage possible risks
<i>Construction Phase</i>		
Actual construction works of the Rhino Sanctuary Fence line	Site preparations i.e. fence line clearance	-Creation of employment opportunities for area residents -Boost to local economy as a result of increased incomes due to employment of locals

---

<sup>1</sup> The Water Assessment Report (by KWS) concluded that the quality, quantity and distribution of water resources within Loisaba is favourable for establishment of a Rhino Sanctuary.



	Pitting and sinking of fence line posts	<ul style="list-style-type: none"> <li>-Creation of employment opportunities for area residents</li> <li>-Building on job local skills for casual workers recruited from the local community</li> <li>-Boost to local economy as a result of increased incomes due to employment of locals</li> </ul>
	Installation of wires and solar panels	<ul style="list-style-type: none"> <li>-Creation of employment opportunities for area residents</li> <li>-Boost to local economy as a result of increased incomes due to employment of locals</li> <li>-Improved environmental aspects of the site after removal of debris and other wastes at the end of construction</li> </ul>
Staff recruitment and training	<ul style="list-style-type: none"> <li>-Hiring and training of the Rhino Officer and other competent and skilled staff</li> <li>-On job training for the recruited staff</li> <li>-Preparation and adoption of Rhino Management Plan</li> <li>-Pre-translocation planning</li> </ul>	<ul style="list-style-type: none"> <li>-Improved performance and sustainability of the project</li> <li>-Realization of project goal and objectives realized/enhanced/assured</li> <li>-Adequate skills and techniques imparted for ensuring smooth translocation and eventual wild release in line with global best practices and eventual management of the rhino sanctuary</li> </ul>
Translocation and Release of the Rhinos	<ul style="list-style-type: none"> <li>-Infrastructure assessment</li> <li>-Actual translocation of rhinos to Loisaba</li> <li>-Wild release of the rhinos</li> </ul>	<ul style="list-style-type: none"> <li>-Adequate and requisite infrastructure for rhinos put in place ensuring technically and scientifically sound translocation process and settlement of the rhinos in their new habitat</li> <li>-Due diligence undertaken</li> </ul>
<i>Operational Phase</i>		
Operation and Management of the Rhino Sanctuary	<ul style="list-style-type: none"> <li>-Provision, maintenance and expansion of habitat for rhinos in the Sanctuary and the larger Conservancy</li> <li>-Scientific management and adoption of best practices in maintaining and increasing the rhino</li> </ul>	<ul style="list-style-type: none"> <li>-Provision of prime rhino habitat will greatly contribute towards realization of the desired black rhinos' growth rate of 5% per annum and eventual attainment of Kenya's rhino population target of 2000 individuals in 20 years and a meta population of 830 by 2021</li> <li>-Additional space created for rhinos outside the existing sanctuaries and therefore contribute to</li> </ul>



	population within the Sanctuary	<p>the desired growth of global rhino population</p> <ul style="list-style-type: none"> <li>-Creation of the opportunity for widening the rhino gene pool, by selecting individuals from different areas.</li> <li>-Boost to tourism and therefore increased revenues which will be ploughed back to conservation efforts and community projects</li> <li>-Increased tourism activities will also lead the generation of additional employment opportunities</li> <li>-The neighbouring privately owned and community conservancies and lodges will be expected to leverage on the Sanctuary and increased flow of both local and foreign tourists to improve their own revenue streams</li> <li>-The Rhino Sanctuary (rhinos being a flagship species) will contribute to the conservation of other wildlife species and preservation of biodiversity</li> <li>-Preservation and enhancement of Kenya's wildlife as a national heritage for the benefit of the present and future generations</li> </ul>
	Routine monitoring and maintenance of the fence line	-Early detection of fence line defects and inefficiencies ensuring/improving its effectiveness and efficiency as a security tool

**Possible Negative Impacts and their Proposed Mitigation Measures**

<b>Project Component</b>	<b>Project Activities</b>	<b>Possible Negative Impacts</b>	<b>Proposed Mitigation Measures</b>
<i>Siting and Designing Phase</i>			
Rhino Sanctuary Fence line Survey	Public consultations with affected parties and the relevant key stakeholders during EIA	-Unclear understanding among some of the affected parties and stakeholders on the fence design, alignment and its pathway	-Initiate and expand community outreach and awareness programmes to enlist the good will of the local community in order to mitigate potential conflicts and misunderstanding



			<ul style="list-style-type: none"> <li>-Provide technical and socio-economic facts about the fence design, alignment and pathway</li> <li>-Consult widely and adequately with the neighbouring communities, large scale ranchers and conservancies and lead agencies and other stakeholders</li> </ul>
<i>Construction Phase</i>			
Construction of the Rhino Sanctuary Fence line and other facilities	<ul style="list-style-type: none"> <li>-Sites clearing and opening up of the fence's path way</li> <li>-Pitting and sinking of posts and compacting</li> <li>-Installation of the fence wire, and installation and supply of power.</li> </ul>	<ul style="list-style-type: none"> <li>Clearing and loss of vegetation along the path of the fence line which could lead to loss of biodiversity and externalities such as soil erosion</li> </ul>	<ul style="list-style-type: none"> <li>-Minimize clearing of vegetation by re-routing the fence line and re-siting infrastructure to less vegetated areas.</li> <li>-Where it cannot be avoided re-vegetate as much as possible and allow and induce natural regeneration</li> </ul>
		<ul style="list-style-type: none"> <li>-Generation of solid wastes such as debris, pieces of plastic, metals, wires etc.in the wilderness/pristine areas</li> </ul>	<ul style="list-style-type: none"> <li>-Ensure separation of biodegradable and non-biodegradable wastes</li> <li>-Encourage use of recyclable materials</li> <li>-Provide adequate waste collection bins and ensure disposal of wastes to designated dump sites.</li> <li>-Sell wastes to NEMA licensed recyclers and fabricators</li> <li>-Preserve reusable wastes such as pieces of metal/steel for future use in maintenance works.</li> <li>-Spread the soil carefully to eliminate unsightly and unstable spoil heaps</li> </ul>
		<ul style="list-style-type: none"> <li>Injuries to construction workers as a result of handling construction and installation tools, machinery and equipment</li> </ul>	<ul style="list-style-type: none"> <li>-Appoint and train health and safety supervisor and committee</li> <li>-Provide and enforce use of protective clothing and equipment workers-PPE</li> <li>-Appropriate health and safety measures shall be implemented as</li> </ul>



			<p>per the OSHA Act 2007</p> <ul style="list-style-type: none"> <li>-Keep a general accident inventory at the site</li> <li>-Provide adequate First Aid boxes</li> </ul>
		<p>Possible attacks to workers by wildlife leading to serious injuries and deaths and snake or scorpion bites in the bush.</p>	<ul style="list-style-type: none"> <li>-Ensure strategic deployment of trained wildlife scouts and security along the construction sites</li> <li>-Wildlife safety education and training of the construction workers should be undertaken.</li> <li>-Ensure that all construction work is planned and choreographed in response to wildlife movement in the construction sites</li> <li>-Unattended public access (unauthorized non-construction workers) should be strictly prohibited</li> <li>-Provide workmen compensation insurance to take care of major injuries</li> </ul>
		<p>Disturbance to animal serenity during construction works</p>	<p>Plan construction time in response to movement of wildlife within the Conservancy to avoid or minimize disturbance and conflict</p>
<p>Translocation and Release of the Rhinos</p>	<p>Transportation and eventual release of the rhinos</p>	<p>Inconsistence removal of rhinos from the donor population to the release site (loisaba Conservancy)</p>	<ul style="list-style-type: none"> <li>-It is desirable that all founder rhinos should be translocated at once or over a short period to minimise the increased chances of fighting mortalities that can occur when (as a result of staggered reintroductions over time) additional rhinos are released into areas with established resident rhinos</li> <li>- Determining suitable release sites and specific areas for release based on screening and assessing habitat</li> </ul>



			<p>quality, estimated medium-term ecological carrying capacity (ECC), security and management capacity in potential recipient areas;</p> <p>-Translocation process should consider not only the desirable composition of the founder group to be introduced but also how best to harvest to avoid negatively affecting the sex and age structure and subsequent performance of the source population</p>
		<p>Poor selection of breeders compromising realization of the desired population growth of 5% per annum and sometimes higher (Kenya strategy 2007 ~ 6% in selected target populations)</p>	<p>-Ensure that once the number of rhinos to be translocated, it should be determined concisely which specific animals are to be removed, or at least the desirable age and sex structure of animals to be removed.</p> <p>- Removals with a 50:50 sex ratio are usually preferred</p>
		<p>Poor logistical coordination and planning hampering effectiveness in operations of the sanctuary</p>	<p>Proponent to ensure that sufficient budgets, skilled manpower (with rhino capture experience using specialist rhino veterinarians/rhino capture officers and dedicated rhino capture teams), capture vehicles and crates, helicopters, transponders, radio-transmitters, bomas, etc. are all in place in the short term for the capture, transport, boma and immediate post-release phases, but are also in place for the necessary protection, monitoring and biological management which will be required well into the future</p>



		<p>-Possible deaths of rhinos and other undesirable and unintended effects such as increased stress levels due to movement unfamiliar habitat</p>	<p>-Strictly adhere to KWS Rhino Translocation and Release Guidelines and Protocol and global best practices</p> <p>-Ensure full involvement of KWS Rhino Office during identification of individuals to be introduced and their translocation and release</p> <p>-Ensure as much as it is practically and technically feasible that rhinos are selected from Sanctuaries within the Laikipia-Samburu Ecosystem to reduce the risks associated with moving long distances into different habitats.</p> <p>-Internalize and implement the recommendations contained in the different report and assessments undertaken prior to operationalization of the Project</p> <p>-Implement the localized Rhino Management Plan and ensure it is in line with KWS practices</p> <p>-Undertake multi-agency pre-translocation planning and implement the recommendations</p> <p>-Ensure adequate and appropriate training of staff</p>
<p>Construction of the Rhino Sanctuary Fence line and other facilities</p>	<p>-Sites clearing and opening up of the fence's path way</p> <p>-Pitting and sinking of posts and compacting</p> <p>-Installation of the fence wire, and installation and supply of power.</p>	<p>Clearing and loss of vegetation along the path of the fence line which could lead to loss of biodiversity and externalities such as soil erosion</p> <p>-Generation of solid</p>	<p>-Minimize clearing of vegetation by re-routing the fence line and re-siting infrastructure to less vegetated areas.</p> <p>-Where it cannot be avoided re-vegetate as much as possible and allow and induce natural regeneration</p> <p>-Ensure separation of biodegradable</p>



		<p>wastes such as debris, pieces of plastic, metals, wires etc.in the wilderness/pristine areas</p>	<p>and non-biodegradable wastes</p> <ul style="list-style-type: none"> <li>-Encourage use of recyclable materials</li> <li>-Provide adequate waste collection bins and ensure disposal of wastes to designated dump sites.</li> <li>-Sell wastes to NEMA licensed recyclers and fabricators</li> <li>-Preserve reusable wastes such as pieces of metal/steel for future use in maintenance works.</li> <li>-Spread the soil carefully to eliminate unsightly and unstable spoil heaps</li> </ul>
		<p>Injuries to construction workers as a result of handling construction and installation tools, machinery and equipment</p>	<ul style="list-style-type: none"> <li>-Appoint and train health and safety supervisor and committee</li> <li>-Provide and enforce use of protective clothing and equipment workers-PPE</li> <li>-Appropriate health and safety measures shall be implemented as per the OSHA Act 2007</li> <li>-Keep a general accident inventory at the site</li> <li>-Provide adequate First Aid boxes</li> </ul>
		<p>Possible attacks to workers by wildlife leading to serious injuries and deaths and snake or scorpion bites in the bush.</p>	<ul style="list-style-type: none"> <li>-Ensure strategic deployment of trained wildlife scouts and security along the construction sites</li> <li>-Wildlife safety education and training of the construction workers should be undertaken.</li> <li>-Ensure that all construction work is planned and choreographed in response to wildlife movement in the construction sites</li> <li>-Unattended public access (unauthorized non-construction workers) should be strictly prohibited</li> </ul>



			-Provide workmen compensation insurance to take care of major injuries
		Disturbance to animal serenity during construction works	Plan construction time in response to movement of wildlife within the Conservancy to avoid or minimize disturbance and conflict
Translocation and Release of the Rhinos	Transportation and eventual release of the rhinos	Inconsistency in the removal of rhinos from the donor population to the release site (loisaba Conservancy)	<p>-It is desirable that all founder rhinos should be translocated at once or over a short period to minimise the increased chances of fighting mortalities that can occur when (as a result of staggered reintroductions over time) additional rhinos are released into areas with established resident rhinos</p> <p>- Determining suitable release sites and specific areas for release based on screening and assessing habitat quality, estimated medium-term ecological carrying capacity (ECC), security and management capacity in potential recipient areas;</p> <p>-Translocation process should consider not only the desirable composition of the founder group to be introduced but also how best to harvest to avoid negatively affecting the sex and age structure and subsequent performance of the source population</p>
<i>Operational Phase</i>			
Operation and Management of the Rhino Sanctuary	-Provision of habitat for rhinos in the Sanctuary and the larger Conservancy	-Safety and security of the rhinos-possible exposure of rhinos to security threats and	<p>-Ensure implementation of the rhino security management and strategies</p> <p>-Establish an extensive yet intensive intelligence network which could also</p>



		<p>risks which may lead to poaching incidences</p>	<p>involve the local communities</p> <ul style="list-style-type: none"> <li>-Liaise with the government security network and lead agencies in crafting and implementing security strategies and tactics including conducting background checks when recruiting staff especially the security personnel</li> <li>-Conduct the Security Assessment spearheaded by KWS as envisaged and implement its recommendations and strategies</li> <li>-Maintain and consistently improve the proposed project area's security team's preparedness, response and equipment</li> <li>-Continue with the random and impromptu checks</li> <li>-Loisaba Conservancy has put up a formidable ranger force of over 70 well-resourced, trained and disciplined individuals</li> <li>-The team including armed NPR unit, rapid response teams, a canine unit comprising four tracker dogs and a Lion Ranger team will be maintained and their skills and capacity upgraded/improved in response to emerging security threats and situations</li> <li>-Continue and strengthen the 24/7 round the clock patrolling of the Conservancy</li> <li>-Use of SMART (Species Monitoring and Reporting Tool) software will be maintained/improved while emerging and contemporary security software</li> </ul>
--	--	--	--



			will be explored  -Continue and strengthen the systematic morning and evening patrols using the Piper Super-cub and constantly seek upgrading of the technology
	-Provision, maintenance and expansion of habitat for rhinos in the Sanctuary and the larger Conservancy	Competition with the high population of elephants and other wildlife in the proposed project area for browse material, salt licks and water	-Craft and implement an aggressive elephant monitoring programme based on the ECC with the aim of reducing their impacts  -Design medium to long term expansion plan beyond the current sanctuary area as well as plan to create corridor among existing rhino sanctuaries
		Continued colonization of the Sanctuary (and the Conservancy) by the invasive opuntia reducing browse availability and habitat quality	-Explore a multifaceted approach to control of opuntia through a holistic approach involving mechanical, manual, biological, and chemical means  -Monitor spread of opuntia across the Conservancy
		Possible risks of disease outbreak among the rhinos threatening their population	-Conduct a comprehensive veterinary assessment on disease risks and adopt the recommendations  -Recruit a resident veterinarian to oversee disease monitoring and management
		Possible exceeding of the Sanctuary's ECC as the rhino and other wildlife population increase inside the Sanctuary	-Review the ECC and habitat assessment based on an evaluation after sanctuary establishment and before rhino translocation
		Possible water supply,	- The proposed project area has



		<p>accessibility, availability and quality challenges</p>	<p>adequate distribution of good quality water that is suitable for wildlife consumption and establishment of a Rhino Sanctuary</p> <p>-The conservancy also has a proper water management plan including spring protection initiatives. This should be maintained and constantly improved</p> <p>-The water quality from the various sources within the proposed project area a meets the basic threshold for meeting water requirements for the establishment of the Rhino sanctuary. The water quality should be monitored and corrective measures put in place as appropriate</p> <p>-The design of the fence should ensure enclosure of adequate springs as they are the most stable source of good quality water.</p> <p>-Redesign some of the water troughs to avoid obstruction of Rhinos when visiting the watering points</p>
		<p>Possible misuse and abuse of the community grazing system arrangements between exposing the rhinos to threats and dangers</p>	<p>-Create well-coordinated intelligence networks and information sharing mechanisms between the community and the proposed project area</p> <p>-Realign the community outreach programme including the grazing arrangements in line with the establishment of the Sanctuary and its related security threats</p>



	Operation of the Rhino Sanctuary's fence line	Concerns about interference with wildlife migratory corridors and free wildlife movement around and within the ecosystem	<ul style="list-style-type: none"> <li>-Align the fence to ensure that the nine already identified nine migratory corridors remain to allow free movement of wildlife within and outside the proposed project area and the surrounding conservancies and the larger Laikipia-Samburu Ecosystem</li> <li>-The fence design will allow free movement of all other wildlife within and outside the Sanctuary apart from the rhinos</li> <li>-Observe game management principles</li> </ul>
		-Inefficient/ineffective fence due to lack of proper fence maintenance	<ul style="list-style-type: none"> <li>-The Loisaba Fence Maintenance Team shall provide consistent monitoring and maintenance of the sanctuary's fence</li> <li>-Put in place a fence performance monitoring system</li> <li>-Ensure adequate resources and required equipment are available for fence –maintenance</li> </ul>

*Analysis of Project Alternatives*

Analysis of alternatives in EIA is designed to bring environmental, economic and social considerations into the “up-stream” stages of development planning-project identification and earlier-as well as the later stages of site selection, design and implementation. The development of scenarios involved the analysis of the current situation, discerning the relations and links to the environment, influencing factors, existing and potential strengths, opportunity and threats. In the assessment of the project alternatives, this study considered three scenarios namely: (i) status quo or “no action” scenario; (ii) alternative site for establishment of the Sanctuary and (iii) Alternatives to the Fence Design and Alignment.



## **Conclusion**

The future of the black rhino is of critical importance to the Government of Kenya for several reasons. First, rhinos are a species of conservation concern following a dramatic reduction in their population in the 1970s and early 1980s as a result of the illegal trade in their horn. Kenya's black rhino population declined from approximately 20,000 animals in 1970 to fewer than 400 animals in 1987. Second, rhinos are a flagship species, a highly charismatic animal that can serve as a rallying point for conservation, capturing the attention of people from all over the world and generating significant returns from wildlife-based tourism. Third, rhinos are an umbrella species as their conservation depends on large areas of ecosystems being conserved and protected. Therefore, they serve the objective of wider biodiversity conservation. Kenya remains the stronghold of the eastern black rhino subspecies (*Diceros bicornis michaeli*), conserving just over three quarters (77%) of the wild population at the end of 2015. The long-term vision of the KWS Rhino Action Plan (2017-2021) is to have a meta-population of at least 2,000 black rhinos of the eastern African subspecies in Kenya, and in suitable habitats as a global heritage. Its overall objective is to use the established populations as a 'breeding bank' for the provision of a continuous supply of rhinos to build up other populations and to expand into new secure areas with suitable habitats.

The Proposed Rhino Sanctuary at Loisaba Conservancy will directly and immensely contribute towards supporting the implementation of KWS's Kenya Rhinos Action Plan whose vision and objective are described above. This EIA Study Report for the establishment of the Sanctuary concludes that besides the Project NOT compromising the right to a safe and clean environment, it will contribute substantially towards overall conservation of biodiversity and preservation of national heritage. The Environmental Mitigation and Monitoring Plan, which is the main output of this EIA, provides the benchmark to be used in countering the negative impacts and forms the basis for monitoring and evaluating the overall environmental performance of the Sanctuary. It is strongly recommended that top management of Loisaba Conservancy and Rhino Sanctuary plays the lead role in adopting and implementing in full the Environmental Mitigation and Monitoring Plan. Based on the results of this EIA, it is apparent that with the adoption and implementation of the Environmental Mitigation and Monitoring Plan, the adverse impacts will be adequately mitigated. In addition, foreseeable potential impacts will be forestalled before they occur thereby considerably limiting future



environmental damage and ensuring the existence of a clean and healthy environment. Accordingly, as per Section 58 of EMCA and Part II, 10(2) of Environmental (Impact Assessment and Audit) Regulations, 2003, we recommend that the Loisaba Conservancy be issued with an **Environmental Impact Assessment License** for the **Proposed Loisaba Rhino Sanctuary, Laikipia County.**

---



## DECLARATION

### **LOISABA CONSERVANCY, EIA STUDY REPORT FOR THE PROPOSED LOISABA RHINO SANCTUARY Firm of Experts**

I **Martin Kamau Gitau (EIA Lead Expert, Reg. No. 7283)** of **NAREDA Consultants, P.O. Box 1001 10400 Nanyuki**, confirm that we have prepared the EIA Study Report for the Proposed Loisaba Rhino Sanctuary, Loisaba Conservancy, Laikipia County. I confirm that NAREDA Consultants (License No. 0005) is a registered Firm of Experts with the National Environment Management Authority. The Environmental Impact Assessment Study has been carried out according to the Environmental Management and Coordination Act, 1999 and Environmental (Impact Assessment and Audit) Regulations, 2003.

Signature:  \_\_\_\_\_

Date: 08/04/2021

### **Proponent Approval**

I, **Tom Silvester, CEO, Loisaba Conservancy, of P.O. Box 1348-10400 Nanyuki** has read this Environmental Impact Assessment Study Report and accept the findings and recommendations of the report. I accept the Environmental Mitigation and Monitoring Plan and will strive to fulfill its obligations.

Signature:  \_\_\_\_\_

Date: 08/04/2021



# TABLE OF CONTENT

EXECUTIVE SUMMARY .....	ii
DECLARATION .....	xxiv
LIST OF FIGURES AND TABLES.....	xxix
List of Figures .....	xxix
List of Tables .....	xxx
1    1 INTRODUCTION .....	31
1.1    Background to Loisaba Conservancy and the Proposed Loisaba Rhino Sanctuary .....	31
1.2    Project Background, Objectives and Justification.....	34
1.2    This Environmental Impact Assessment .....	35
1.2.1    Purpose of the EIA.....	35
1.2.2    Scope of Work .....	36
1.2.3    Purpose and Contents of this EIA Project Report.....	37
1.2.3.1    Introduction .....	37
1.2.3.1    Description of the Project Area .....	37
1.1.1.2    Policy, Legal and Administrative Framework.....	37
1.2.3.2    Description of the Project Activities .....	38
1.2.3.3    Public Consultations and Public Disclosure .....	38
1.2.3.4    Analysis of Alternatives to the Proposed Project .....	38
1.2.3.5    Identification, Evaluation and Analysis of Impacts and Proposed Mitigation Enhancement Measures.....	38
1.2.3.6    Mitigation Measures for the Negative Impacts .....	38
1.2.3.7    The Mitigation and Monitoring Plan (MMP) .....	39
1.2.3.8    Decommissioning Plan .....	39
1.2.3.9    Conclusion.....	39
1.3    The EIA Approach and Methodology.....	39
1.3.1    EIA Approach .....	39
1.3.1.1    Desk Study and Preparatory Tasks.....	40
1.3.1.2    Field and Site Visits.....	40
1.3.1.3    Key Stakeholders Consultations and Interviews .....	41
1.3.2    The EIA Process .....	42
2    2. PROJECT DESCRIPTION AND PHYSICAL ENVIRONMENT .....	44
2.1    Project Description and Location.....	44
2.1.1    Project Location in the Context of Laikipia County.....	44
2.1.2    Project Area, Description, Justification and the Layout .....	46
2.1.2.1    Project Area .....	46
2.1.2.2    Description and Justification .....	47
2.1.2.3    The Project Layout (Key Considerations before Establishment of the Sanctuary) and Activities.....	50
2.1.3    Review of Pre-Implementation Studies/Assessments.....	57
2.1.3.1    Background.....	57
2.1.4    Security Assessment .....	60
2.1.5    Construction of the Loisaba Rhino Sanctuary Fence.....	67



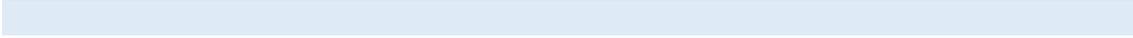
2.1.5.1	Background.....	67
2.1.5.2	Wildlife Corridors Considerations in the Fence Design, Alignment and Structure	68
2.1.5.3	The Fence Design, Alignment and Structure.....	69
2.1.5.4	The Fencing Materials and Equipment.....	71
2.1.5.5	The Fencing Activities.....	72
2.1.5.6	4.6.6 Fence Maintenance and Monitoring-to include Rhino Action Plan .....	73
2.1.5.7	Commissioning and Operation of the Loisaba Rhino Sanctuary .....	73
2.2	Physical Environment: Laikipia County and the Project Area .....	74
2.2.1	A Summary Description of Laikipia’s Physical Environment .....	74
2.2.2	Physical Environment of the Project Area.....	80
2.2.2.1	Topography.....	80
2.2.2.2	Climate.....	81
2.2.2.3	Soils .....	86
2.2.2.4	Geology .....	86
2.2.3	Vegetation .....	87
2.2.4	Land Use .....	89
2.3	Biological Environment: Laikipia County and the Project Area .....	89
2.3.1	A Summary Description of Laikipia’s Biological Environment .....	89
2.3.1.1	Flora.....	89
2.3.1.2	Fauna .....	90
2.3.2	Biological Environment of the Project Area.....	91
2.3.2.1	Flora.....	91
2.3.2.2	Fauna: Wildlife Presence, Distribution and Trends.....	91
2.4	Demographic Pattern, Projections and Public Consultation .....	94
2.4.1	Demographic Pattern, Projections .....	94
2.4.2	Public and Community Consultation and Disclosure .....	96
2.4.2.1	Introduction .....	96
2.4.2.2	Aims and Objectives of Public Consultation.....	96
2.4.2.3	Objectives of Public Consultations for Loisaba Rhino Sanctuary .....	97
2.4.2.4	Stakeholders and Communities Contacted for this EIA.....	97
2.4.2.5	Stakeholders’ and Community Members’ Perceptions on the Project .....	101
3	POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK .....	104
3.1	Background .....	104
3.2	Legal Framework .....	105
3.2.1	The Environmental Management and Co-ordination Act, 1999.....	105
3.2.2	Wildlife Conservation and Management Act, 2013 .....	106
3.2.3	Environmental Management and Coordination (Waste Management) Regulations 2006 .....	107
3.2.4	Water Act 2002.....	108
3.2.5	Environmental Management and Coordination, (Water Quality) Regulations 2006. ....	108
3.2.6	Environmental Management and Coordination (Air Quality) Regulations, 2008 .....	109



3.2.7	Occupational Health and Safety Act, 2007 .....	109
3.2.8	Employment Act No 11 and the Work Injury Benefit Act No.13 of 2007	110
3.2.9	Way Leaves Act (Cap. 292).....	110
3.2.10	Physical Planning Act (Cap 286).....	111
3.2.11	Public Health Act (Cap. 242).....	111
3.2.12	Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 .....	111
3.2.13	Occupiers Liability Act (Cap 34).....	112
3.2.14	Penal Code (Cap 63).....	112
3.3	National Policy.....	113
3.3.1	Sessional Paper No. 6 of 1999 on Environment and Development.....	113
3.3.2	The National Environment Action Plan (NEAP).....	113
3.3.3	Kenya’s Vision 2030.....	114
3.4	International Environmental Policies and Agreements.....	114
3.4.1	African Convention on the Conservation of Nature and Natural Resources .. .....	114
3.4.2	The World Commission on Environment (the Brundtland commission of 1987) .....	115
4	ENVIRONMENTAL ISSUES .....	116
4.1	Siting and Operational Phases.....	116
4.1.1	Impact Identification.....	116
4.1.2	Impact Prediction.....	116
4.1.3	Types of Impacts.....	117
4.1.4	Analysis of Impacts.....	118
4.1.5	Results of the Impacts Analysis.....	123
4.1.5.1	Positive Impacts.....	123
4.1.5.2	Possible Negative Impacts.....	127
4.2	Summary of Impacts .....	129
5	MITIGATION/ MONITORING PLAN AND ALTERNATIVES TO DEVELOPMENT ALTERNATIVES TO DEVELOPMENT .....	140
5.1	Mitigation/ Monitoring Plan.....	140
5.2	Alternatives to the Project.....	154
5.2.1	Overview .....	154
5.2.2	Assessment of Alternatives.....	154
5.2.2.1	Status Quo or “No action” Scenario .....	154
5.2.2.2	Alternative Game Barriers and Fence Designs.....	156
5.2.2.3	Alternative Location for Establishment of a Rhino Sanctuary Site... ..	158
5.3	Decommissioning Plan.....	159
5.3.1	Transfer of Management or Donation of the Project as a Going Concern	159
5.3.2	Transfer or Donation of the Project for a Different Use.....	159
5.3.3	Abandonment of the Project .....	160
6	TIME SCHEDULE FOR EXECUTING THE EIA.....	161
7	. PROPOSED CONSULTANTS .....	162
8	NON-TECHNICAL SUMMARY OF NEGATIVE IMPACTS AND THEIR MITIGATION MEASURES .....	167
	REFERENCES .....	172



LIST OF APPENDICES .....	174
Appendix 1: Leopold’s Matrix of Impacts Analysis.....	174
Appendix 2: Leasehold .....	177
Appendix 3: Provisional Approval Letter .....	182
Appendix 4: KWS Recommendation Letter .....	183
Appendix 5: Project Fence Design .....	185
Appendix 6: List of Vegetation Species in the Project Area .....	186
Appendix 7: Community Consultation and Disclosure Meetings Items of Agenda...	191
Appendix 8: Deliberations deriving from Community Consultation Meetings.....	193
Appendix 9: Combined Consultative Meeting Report.....	195
Appendix 10: Consultants License .....	205
Appendix 11: Signed Comments from stakeholders During EIA Project Report Preparation .....	206
Appendix 13: CVS of the EIA Study Experts .....	246
Appendix 14: List of All people consulted .....	292
<i>Consultations carried out during Fieldwork (February 2020 to March 2021) .....</i>	<i>292</i>



## LIST OF FIGURES AND TABLES

### List of Figures

Figure 1: Points of the fence physically visited by the study team .....	41
Figure 2: Location of Loisaba Conservancy in the Context of Laikipia County; including neighbouring communities in Samburu and Isiolo counties, and Ranches.....	45
Figure 3: Location of the proposed Rhino Sanctuary within Laikipia County. ....	46
Figure 4: A Map showing the proposed Loisaba Rhino Sanctuary relative to adjacent rhino sanctuaries.....	47
Figure 5: Location of the proposed Rhino Sanctuary and its Accessibility Status. ....	55
Figure 6: A map of Loisaba Patrolling Blocks & Security Stations.....	67
Figure 7: The Proposed Loisaba Rhino Sanctuary Fence .....	70
Figure 8: Groundwater Potential Yield in the ENNDA basin in Northern Kenya ..	76
Figure 9: Laikipia County Drainage System, Source: Nareda Database, 2016... ..	76
Figure 10: Types of Soils dominating Laikipia County .....	78
Figure 11: Land Use in Laikipia County.....	80
Figure 12: Average Rainfall in the project area: Source: Loisaba Conservancy Database .....	81
Figure 13: Proposed Rhino Sanctuary Boundary against Existing Water Resources .....	85
Figure 14: Land Cover Map of Loisaba Conservancy Source: Loisaba Database .....	88
Figure 15: Trend in Wildlife and Livestock number since 1980s.....	91
Figure 16: Results of Large Mammal Survey, June 2019. Source: Loisaba Database .....	92
Figure 17: Map of other herbivore and carnivore population and distribution within the area based on June/ July Aerial census data .....	94
Figure 18: Population Growth Rate and Projection .....	96
Figure 1. Community Awareness and Consultation Meeting .....	195
Figure 2. Community Development Officer presenting community programs .....	197
Figure 3. Dr. Fred Omengo talking to the audience .....	198
Figure 4 KWS Community Warden discussing importance of coexistence.....	199
Figure 5 Head of Olpejeta Rhino Program presenting.....	200
Figure 6. Mr. Martin Kamau from NAREDA Consultants presenting on Environmental Impacts.....	201
Figure 7. Chui Mamas talking on conservation benefits to the Women group .....	201
Figure 8. Youths demonstrating collaboration efforts between Loisaba and neighboring communities.....	203
Figure 9. Loisaba CEO talking to the audience during closing remarks .....	204



## List of Tables

<i>Table 1: Summary of the Implementation Plan for the Proposed Loisaba Rhino Sanctuary</i> .....	55
<i>Table 2: Predicted Black Rhino Carrying Capacity Estimates for the proposed Sanctuary</i> .....	58
<i>Table 3: Security and Management Assessment Results by the KWS</i> .....	61
<i>Table 4: The Fencing Materials and Equipment</i> .....	71
<i>Table 5: Loisaba Rhino Sanctuary Commissioning and Operation</i> .....	73
<i>Table 6: Mean Annual Rainfall in Millimetres from stations in Laikipia County (2013-2018)</i> .....	75
<i>Table 7: Location of Water Sources and Points within Loisaba</i> .....	84
<i>Table 8: Population Pattern in Laikipia County</i> .....	95
<i>Table 9: Impacts Significance Table for Positive Impacts</i> .....	119
<i>Table 10: Impacts Significance table for Negative Impacts</i> .....	122
<i>Table 11: Anticipated Positive Impacts of the Proposed Loisaba Rhino Sanctuary</i> .....	123
<i>Table 12: Possible Negative Impacts of Loisaba Rhino Sanctuary</i> .....	127
<i>Table 13: Mitigation Measure for Specific Potential Adverse Impacts</i> .....	129
<i>Table 14: Summary of the Environmental Management and Monitoring Plan</i> ...	141
<i>Table 15: EIA Study Report Implementation Schedule</i> .....	161
<i>Table 16: Tasks and Responsibilities of the EIA Study Team</i> .....	163
<i>Table 17: Non-Technical Summary of Negative Impacts and Proposed Mitigations</i> .....	168



## **1 1 INTRODUCTION**

This Environmental Impact Assessment (EIA) Study Report presents the outcome of an EIA study, commissioned in February 2020 by the Conservancy, for the Proposed Loisaba Rhino Sanctuary and all its attendant processes, components and activities. The report had been submitted to NEMA by the closing of last year as an EIA project Report but on review, the Authority recommended for a wider public consultation and an in-depth coverage of the foreseen impacts and mitigation measures. This EIA Study Report, therefore, is the culmination of the entire EIA process documenting in detail all the information captured along the way. NAREDA Consultants were appointed to undertake the EIA on behalf of Loisaba Conservancy.

### **1.1 Background to Loisaba Conservancy and the Proposed Loisaba Rhino Sanctuary**

Loisaba Conservancy covers an area of 56,849 acres of land (about 230 Km<sup>2</sup>) and hosts a diverse variety of wildlife species and other biodiversity, with its principal activities being two fold (i) wildlife and ecological conservation and (ii) sustainable wildlife and scenery based eco-tourism. These two chief activities are complemented to a certain extent by livestock production. Returns from these activities are systematically and structurally used to enhance wildlife and biodiversity conservation within Loisaba and the larger Laikipia-Samburu Ecosystem and similarly support community projects through initiating and sustaining crucial Corporate Social Responsibility (CSR) projects and initiatives among Loisaba's neighbours, predominantly the Samburu and Maasai communities living on the fringes of Laikipia, Isiolo and Samburu Counties.

Previously a working livestock Ranch with a wide variety of wildlife species, Loisaba was converted into a Conservancy in 1994 when wildlife conservation was deliberately encouraged and supported alongside livestock ranching. In December 2014, The Nature Conservancy (TNC) facilitated the purchase of Loisaba Ranch in order to help protect functioning ecosystems in Africa. After raising the funds, TNC granted the facility to the Loisaba Community Trust (LCT), a Kenyan Trust incorporated in 2002 under the Perpetual Succession of Trustees Act and committed to wildlife and ecological conservation. LCT now owns and manages Loisaba Conservancy. Today Loisaba can be classified as one of the trail blazers in wildlife conservation in the Laikipia-Samburu Ecosystem and reference point for promotion and sustaining of co-existence between

livestock and wildlife. It also promotes and supports wildlife research. The Conservancy provides an important habitat for more than 270 bird species and 57 mammal species, including endangered Grevy's zebra, wild dogs, lions, leopards, cheetahs and elephants among other wildlife. It also provides an important wildlife migratory corridor and sustains wildlife interactions in the extensive Laikipia-Samburu Ecosystem with not less than ten active migratory corridors/routes existing within the Conservancy. Indeed, Loisaba sits on the western edge of one of Kenya's most important elephant movement corridors.

OI Malo Conservancy, is located high on the Northern Laikipia plateau, about 300 miles north of Nairobi on a 3,064-acre piece of land owned and developed by Anjuan Ltd. OI Malo Conservancy operates under the auspices of Muridjo Game and Ranching Company, which bought the land in 1992. Tourists and other guests at OI Malo are hosted in both the OI Malo Lodge and OI Malo House, the latter comprising of six rooms while the Lodge consists of four rooms, giving rise to ten rooms for OI Malo's operations. The two facilities have been labelled Guest House and Lodge (an in-house arrangement) to differentiate the two. The two facilities are collectively registered as OI Malo Guest House by the County Government of Laikipia's offices, since they do not operate a paying bar or a menued restaurant. They however can be classified as high-class tourism outfits. They are the main source of revenue but complemented to a small extent by limited livestock ranching. Besides the cottages, other tourism based activities and attractions include nature walks, game drives, horse and camel riding, fly camping, ornithological trips, and cultural visits to neighbouring Samburu pastoral community manyattas situated in Kirimon Sub-location, Sosian Location, Rumururti Division, Laikipia district. OI Malo hosts a wide range of wildlife species and birdlife with over 352 species of birds and 50 wildlife species. One rare albino zebra (almost completely white) stands out among the wildlife species found at OI Malo. As indicated above, Anjuan Ltd also runs a medium-scale livestock production enterprise. There are 200 head of beef cattle, 400 sheep, 60 camels and 30 horses.

In efforts aimed at improving the income and consequently the standards of living among the neighboring communities, the Samburu Trust, which is entirely a separate and independent entity of Anjuan Ltd, was formed. While the idea to form an independent entity was to avoid conflict of interest, the Trust still operates out of OI Malo, with OI Malo



hosting the Trust school, Samburu women's beading workshop and a dispensary. The Trust was set up to facilitate the conservation of nature and to contribute towards improving access to medical and other social amenities. The main activity associated with the Trust is the free medical camps that it has organized to operate on patients of trachoma and cataract eye ailments which are rampant in the area. The Trust has also established an art center for children where pieces of art made by children are sold to tourists and has facilitated women groups in their bead work activities and marketing of bead products to visiting tourists.

The proposed Rhino Sanctuary, which will cover an area of 78km<sup>2</sup>, will be located in Loisaba Conservancy on the north bordering Laikipia North Reserve; north-eastern side, bordering Ol Malo and Sabuk; South-west, Mpala Research Centre and Suyian Ranch to the south, Kamogi and TangoMaos Farm; and North West lies Mugie Conservancy. Also, there is the pastoral community residing in Kirimun-transitional neighbourhood between Samburu and Laikipia Counties, Lodokojek-Isiolo County and Ewaso Group Ranch-Laikipia County. The Project will principally involve the re-introduction of a founder population of eastern black rhino (*Diceros bicornis michaeli*) into the fenced off and well secured sanctuary within Loisaba, with the ultimate aim of having a free-ranging population within the conservancy (230km<sup>2</sup>). The sanctuary will encompass all three tourism properties within Loisaba (Loisaba Tented Camp, Loisaba Star Beds and Loisaba Lodo Springs). This zone is heavily monitored and secure for the purposes of the proposed project. This will be managed as an Intensive Protection Zone (IPZ). While a founder population of 20 rhinos is envisaged, the final decision of the number of rhinos to be translocated will be dictated by a survey to deduce the ecological carrying capacity (ECC), maximum productivity carrying capacity (MPCC) and minimum viable population (MVP) of the identified area, with a careful and calculated skew on age and gender. The rhinos will eventually be released from the original rhino sanctuary area into the wider conservancy as their population increases beyond the ecological carrying capacity of the original sanctuary. The step-wise and systematic process of establishing the Loisaba Rhino Sanctuary is split into seven interrelated broad components, each with its specific activities. These components include:

1. Formal Application to KWS;



2. KWS Ecological, Water, Security, Veterinary/Disease Risk Assessments and Approval
3. Other Assessments and Audits (including this EIA);
4. Construction of a 40km Fenceline;
5. Staff Recruitment and Training;
6. Rhinos Translocation and Release and;
7. Management and Operation of the Sanctuary including ensuring the Safety and Security of the Rhinos.

## 1.2 Project Background, Objectives and Justification

The black rhino (*Diceros bicornis*) is listed as critically endangered by the International Union for the Conservation of Nature, with fewer than 5,000 remaining worldwide. Kenya had a thriving rhino population of about 20,000 black rhinos in the early 1970s which fell drastically to less than 400 in a space of 20 years, occasioned by widespread poaching of the animal to meet the then growing global demand for its horn. The Kenyan Wildlife Management and Conservation Act 2013 also lists the rhino along with other six animal species as “critically endangered” in the Act’s Sixth Schedule. Loisaba Conservancy, and the larger ecosystem in which it sits, was once an important habitat for the black rhino with the last black rhinos having been sighted in the early 70s. Since then, not a single black rhino exists in the landscape. The Proposed Loisaba Rhino Sanctuary Project, therefore aims at re-establishing a healthy and thriving population of black rhinos within the Conservancy in line with KWS’s Kenya Rhinos Action Plan which aims at achieving a population of at least 2,000 eastern black rhinos (*Diceros bicornis michaeli*) in Kenya, and a meta-population of 830 black rhinos by the end of 2021. Further, the proposed project seeks to build on the successes of Kenya’s conservation efforts which have seen the black rhino population increase steadily to the current 750 over the last three decades or so due to policy, legal and institutional actions. The involvement of multiple players including Government agencies, private land owners, communities and international agencies have also contributed to the cause.

Reduction in poaching and implementation of breeding programmes and consequent increase in the rhino population means that the current rhino sanctuaries are approaching a saturation in their carrying capacities to hold rhino populations which calls for the establishment of other suitable and rhinos-appropriate sanctuaries to meet the



desired population growth of 5% per year?. Having been a habitat for rhinos in the past, and the fact that the Conservancy possesses superior technical, institutional, human and ecological capacities and abilities, Loisaba Conservancy stands out as one of the most ideal areas for establishing a rhino sanctuary. It is also spatially well-endowed and suited, besides its continued successful implementation of wildlife conservation programmes and activities. The Conservancy also enjoys good reputation and rapport with local and international conservation bodies. Furthermore, the Conservancy is located within Laikipia County which is already a stronghold for the eastern black rhino (*Diceros bicornis michaeli*). There are a number of facilities with successful breeding programmes within close proximity and they include Ol Jogi, Ol Pejeta and Lewa.

## 1.2 This Environmental Impact Assessment

### 1.2.1 Purpose of the EIA

This EIA has provided a better understanding of the positive and negative impacts of the Proposed Loisaba Rhino Sanctuary on the biophysical and human environments of the project area and its environs. It has also proposed an enhanced strategic approach to mitigate negative impacts and has identified opportunities for environmental improvement during planning and design, implementation and operationalization phases. An Environmental and Social Management and Monitoring Plan (ESMMP) has been developed to ensure best environmental and social performance of the project. In addition, the ESMMP, alongside the then prevailing environmental legislation and statutes, will be a fundamental reference point (Audit Criteria) for the Initial Environmental Audit and subsequent annual self-audits by the project proponent. NAREDA Consultants (See **Appendix 10**, Nema License) were appointed to undertake the EIA on behalf of Loisaba Conservancy which is the overall managers of the proposed rhino sanctuary.

More specifically the objectives of the EIA were to;

- Obtain background biophysical and human information of the project areas
- Review the legal and regulatory issues associated with the project.
- Identify and describe the potential impacts during planning and designing, construction and operational phases of the projects.



- Make suggestions of possible alternatives to the proposed projects based on the assessment findings.
  - Propose mitigation measures for the potential significant adverse environmental impacts, occupational safety and health.
  - Facilitate for public participation and disclosure sessions. This should involve gathering and collating of views and perceptions of the public, government department representatives and other key stakeholders;
  - A report of the proposed project for submission to the Implementing Agency, project sponsor and NEMA.
  - Prepare an Environmental Management and Mitigation Plan (EMMP).
  - Provide for an elaborate decommissioning plan for the proposed project.
- Prepare an EIA project report and submit to NEMA for review and subsequently, approval of the project.

### **1.2.2 Scope of Work**

This EIA has undertaken the following:

- Conducted the EIA in accordance with EMCA 1999 and the Environmental (Impact and Audit Regulations) 2003
- Reviewed the relevant national legislation, policy and international conventions related to EIAs and that have a bearing on the proposed project;
- Provided a detailed description of the proposed project design, activities and components;
- Undertook public disclosure and consultation with all the targeted beneficiaries and key stakeholders and other affected and or interested parties.
- Described the nature and location of the location in terms of biophysical characteristics and socio-economic and cultural settings- Baseline data (Soils and geology; Water resources; Drainage; Climate; Vegetation; Land use; Population etc.)
- Identified the potential environmental effects associated with the proposed project, focusing on both negative and positive impacts and their effects on the biophysical, socio-economic and cultural settings. The potential impacts must



- relate to project location, project design, construction works and project operation phases;
- Provided alternatives to the project. The EIA should compare the environmental impacts of three categories of actions: a) the proposed project under consideration; b) the no-action alternative; c) and other alternatives to the proposed projects. Alternative are different means of meeting the general purpose and need of a proposed action, project, or program.
  - Predicted potential Impacts and determined their significance:
  - Prepared an Environmental; Management and Monitoring Plan for implementation of the mitigation measures per impact in terms of the cost, time frame and, responsible parties. Verifiable parameters to be monitored have also been included.

### **1.2.3 Purpose and Contents of this EIA Project Report**

The main purpose of this EIA Project Report is to highlight the significance of the project's potential environmental impacts in order to predict, mitigate, compensate for negative impacts, enhance positive impacts and develop an EMMP for the dam project. The Report is presented under the following Sections.

#### **1.2.3.1 Introduction**

This section has outlined briefly the background information on the proposed project and general purpose, objectives and scope of the EIA. It has also described the approaches and methods that have been used to undertake the EIA.

#### **1.2.3.1 Description of the Project Area**

This Section has presented the baseline information of the project area from a bio-physical and socio-economic point of view. It has briefly described: Project physical site and environmental surroundings noting any areas of ecological significance/sensitivity; Flora and Fauna; Soils and geology; Water resources; Drainage; Climate, and Land use and settlement patterns.

#### **1.1.1.2 Policy, Legal and Administrative Framework**

This chapter has summarized the Kenyan Government policy, legal and administrative framework within which the EIA was carried out, including the relevant environmental



and social requirements. Also, it has highlighted the relevant international environmental/social agreements that may be related to the project.

#### **1.2.3.2 Description of the Project Activities**

This section has given a detailed description of the components and activities. This has included the project design, technologies employed, institutional and management arrangements and the significance of the project to the community.

#### **1.2.3.3 Public Consultations and Public Disclosure**

This section has outlined the actions undertaken to consult the affected groups and other concerned key stakeholders. It has presented the major findings and outcomes of public consultations and specified how these concerns were addressed.

#### **1.2.3.4 Analysis of Alternatives to the Proposed Project**

This section has presented and analyzed the various alternatives considered to reach the project's objectives, including the "no action" option. Alternatives have been compared in terms of their technical, economic, environmental and social feasibility, including public concerns.

#### **1.2.3.5 Identification, Evaluation and Analysis of Impacts and Proposed Mitigation Enhancement Measures**

This section has presented the analysis of anticipated beneficial and adverse impacts of the project on the biophysical and human (social, cultural and economic) environments. Environmentally and socially significant impacts and their importance have been summarized. These impacts have been identified under the various project phases including formulation, construction and operation phases. Their significance has also been determined.

#### **1.2.3.6 Mitigation Measures for the Negative Impacts**

This section has presented the mitigation measures proposed to prevent, minimize and mitigate the adverse impacts.



#### **1.2.3.7 The Mitigation and Monitoring Plan (MMP)**

The MMP is the main outcome of the EIA process and forms basis for the implementation of the mitigation measures. MMP has provided a benchmark for the monitoring of the environmental performance of the project.

#### **1.2.3.8 Decommissioning Plan**

The section has predicted the activities that may result to the decommissioning of the project and has proposed a detailed plan to guide the phase.

#### **1.2.3.9 Conclusion**

The conclusion has indicated the environmental and social acceptability of the project, taking into account the impacts and measures identified during the assessment process.

### **1.3 The EIA Approach and Methodology**

#### **1.3.1 EIA Approach**

The EIA a participatory approach bringing on board all the stakeholders, especially the neighbouring privately owned and community owned Conservancies and other affected population. It is important to point out that the initial project plan was to cover area within Loisaba Conservancy only. However, during public consultations, the issue of inclusion of the neighbouring conservancies came up and in particular, OI Malo Conservancy. After negotiations between the neighbouring conservancies, OI Malo was, eventually brought on board and will be assimilated into Loisaba Conservancy. This may explain the reason why the EIA exercise took long after the study was commissioned in February, 2020. Also, the EIA exercise was caught up with the COVID-19 restrictions imposed by the government, this caused further delay in the finalization of the assignment.

During the public Consultations, lead national and county governments agencies and actors in the wildlife conservation sector were also brought on board. This was deliberately designed to allow forum for engaging the stakeholders to sound out their views and concerns of the project stakeholders. Towards gathering comprehensive data to support credible analysis of the impacts, the study applied a triangulation of methods, which included:

- (i) Desk study
- (ii) Field and site visits
- (iii) Key informants and stakeholders' interviews; and



- (iv) Brainstorming and logical among the multi-disciplinary team of experts that undertook the EIA.

These study methods are discussed below.

#### **1.3.1.1 Desk Study and Preparatory Tasks**

This involved compilation of available data and literature covering bio-physical and socio-economic environments of the project area. It formed an important part of the assessment with this EIA Report having been substantially enriched by the findings, insights and recommendations documented in two critical pre-implementation studies undertaken by a multi-disciplinary team of experts drawn from the Kenya Wildlife Service (KWS) Mountain Region and the Rhino Office. These documents are: “*Black Rhino Ecological Carrying Capacity and Habitat Suitability Assessment for the Proposed Loisaba Rhino Sanctuary*” and “*Proposed Loisaba Rhino Sanctuary Water Quality Assessment Report*”. A Security Assessment was due from 16<sup>th</sup> March 2020.

Other relevant documents and previous works were reviewed to identify the imperative baseline data in the project area. The major information elements of the environment captured included: geology, topography, soils, surface water resources, terrestrial communities (including both flora and fauna), aquatic communities (including both flora and fauna), and environmentally sensitive areas. The socio-economic data included information on land use, demography, livelihoods, and infrastructural services, among others. Review of relevant Kenya environmental legislation and international conventions was also accomplished at this stage. This legislation and its relevance to the proposed project is discussed in **Chapter 3**.

#### **1.3.1.2 Field and Site Visits**

This involved environmental site visits, transect walks and direct observation. **Figure 1** shows the points of the fence that were physically visited by the EIA team. During these visits, the design of the fence was critically evaluated, especially where it passed through a sensitive ecological area, like the valleys, springs, wildlife corridors, etc. The visit was also aimed at giving the study team practical experience on the biophysical conditions of the project area, siting of the dam, how operations will be carried out, where the facilities will be situated, and how the various components are expected to operate.



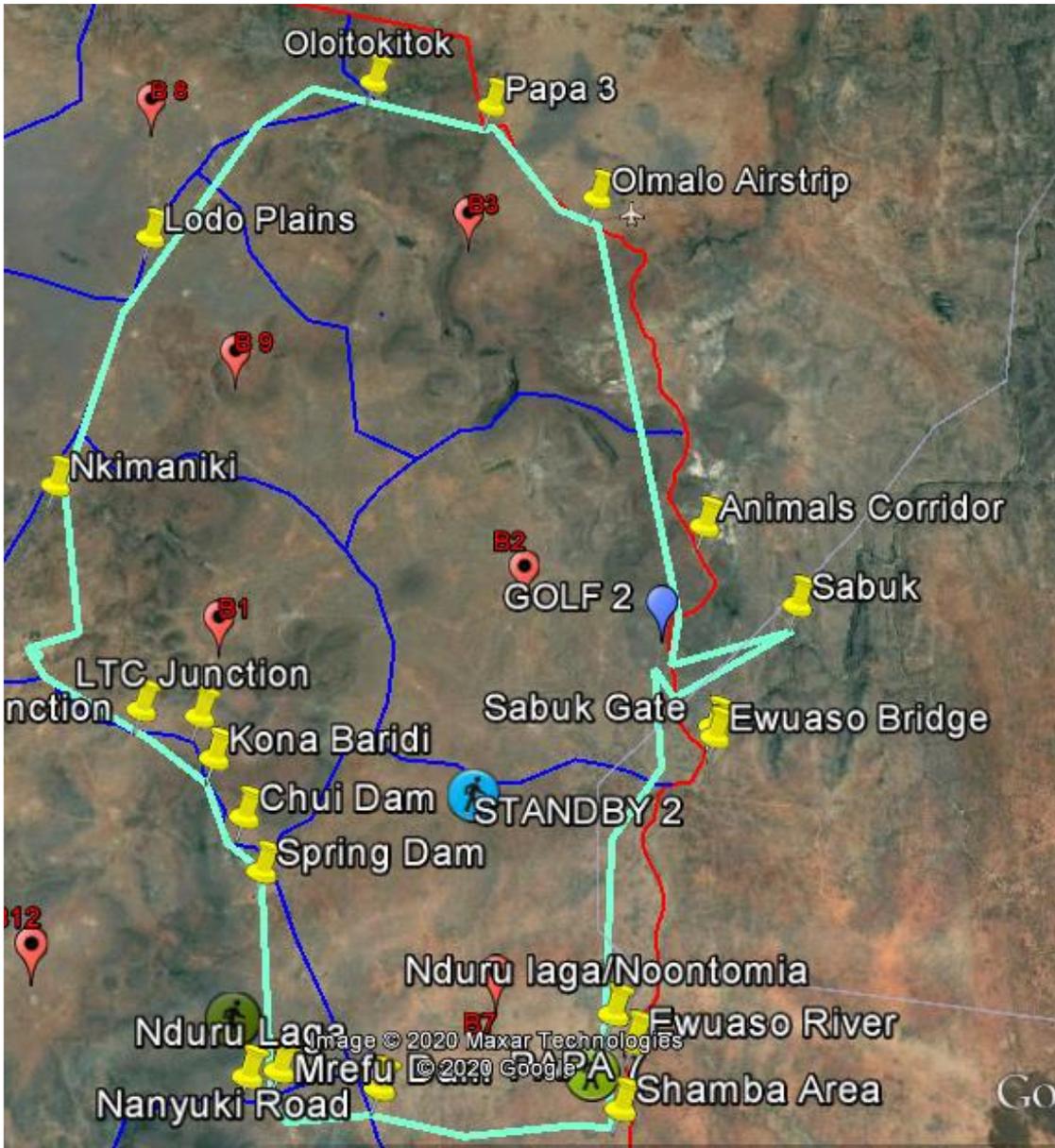


Figure 1: Points of the fence physically visited by the study team

**1.3.1.3 Key Stakeholders Consultations and Interviews**

Stakeholders' comments and input in the implementation of the project were sought from Loisaba Conservancy CEO and their top management team (including the Security Manager, Community Conservation Officer and the resident conservationist), lead agencies including KWS, Laikipia and the County Government of Laikipia, local leaders



and the affected parties which comprise of neighboring Conservancies and Lodges (Sabuk and Ol Malo Lodges, TangoMaos Farm, Suyian Ranch, Mugie Conservancy, Kamogi Ranch, ) and the pastoral community residing in Kirimun-transitional neighbourhood between Samburu and Laikipia Counties, Lodokojek-Isiolo County and Ewaso Group Ranch-Laikipia County. Others consulted were Laikipia Wildlife Forum, (LWF) and the NYS Kirimun Field Station.

### **1.3.2 The EIA Process**

The EIA process involved the following:

#### *Environmental Screening*

The project screening was done in order to generate a description of the problem, the project objectives and activities and the involved parties. This information was important in characterizing what these components and intents are so as to have insights on the effects of project operations on the physical, biological, socio-economic and human environments.

#### *Environmental Scoping*

This involved consultation between the project proponent, project manager and the consultant to identify key issues and key stakeholders to be included during the consultation process.

By determining the scope systematically, the assessment focused on the important environmental issues and risks. Scoping helped to start with actions, and work outwards and enhanced:

- Identification of social significance of the various project impacts
- Establishment of the agenda for the EIA, agreed by all concerned
- Translation of the agenda into a work programme and agreed by all concerned
- Terms of Reference relevant to the study
- Identification of key policy, legal and institutional parameters for the study

#### *Documentary review of basic data*

Basic data collected included that related to biodiversity of the study area; its environmental settings and socio-economic conditions. Collection of this data involved



the review of relevant literature and documents; site visits inside the project area, direct observations, transect and key informant interviews.

#### *Identification of impacts*

The key tool for the identification of existing impacts was the Leopold's Matrix (see **Appendix 1**). This matrix contained a candidate list of key impacts with the 'sources' and 'receptors' of impacts. Brainstorming among the study team members after careful review of the proposed activities also aided in the identification of impacts

#### *Prediction of impacts*

Prediction of impacts involved characterizing the impact causes and effects and their consequences on the physical, biological and the human environment. This was achieved through expert judgments, referencing of necessary literature and brainstorming among the members of the study team.

#### *Evaluation of impacts*

Evaluation of adverse impacts was deemed necessary to determine whether they are significant enough to warrant mitigation. To achieve this, the study team reviewed relevant literature (comparison with laws, regulations and standards, consistency of project objectives with government policy); brainstorming sessions among the study team guided by the collected data. Public consultations and disclosures with key stakeholders were also held.

The main concern here was the influence of the identified impacts on the above parameters. A point scoring system and analysis were used to determine comprehensively the influences and dimensions of the impacts.

#### *Identification of Mitigation options and Preparation of an Environmental Management and Monitoring Plan*

In identifying the mitigation options, the study team explored strategies to prevent, reduce, or compensate the adverse impacts already identified and analysed. The tools applied here included review of literature and similar case studies done elsewhere, value judgments, and brainstorming sessions with both technical and non-technical experts.



## **2. PROJECT DESCRIPTION AND PHYSICAL ENVIRONMENT**

This Chapter is presented under three sub-topics:

- 2.1. Contextualizing the project area from Laikipia County perspective and Detailed Description of the proposed project.
- 2.2. Physical Environment of the project (physical environment of Laikipia County and of the Project Area).
- 2.3. Biological Environment of the project area (biological environment of Laikipia County and of the Project Area).
- 2.4. Demographic Patterns of the project area (demographic patter of Laikipia County and of the Project Area).

A detailed description of Loisaba Conservancy's Bio-physical environment has been extracted from the "*Black Rhino Ecological Carrying Capacity and Habitat Suitability Assessment for the Proposed Loisaba Rhino Sanctuary*" Report and "*Proposed Loisaba Rhino Sanctuary Water Quality Assessment Report*", among other sources. The two assessments were undertaken by a multi-disciplinary team of experts drawn from the KWS Mountain Region and the Rhino Office. Additional information was also extracted from Loisaba Conservancy's database.

Description of the biophysical and human environments have been sourced from NAREDA's extensive database.

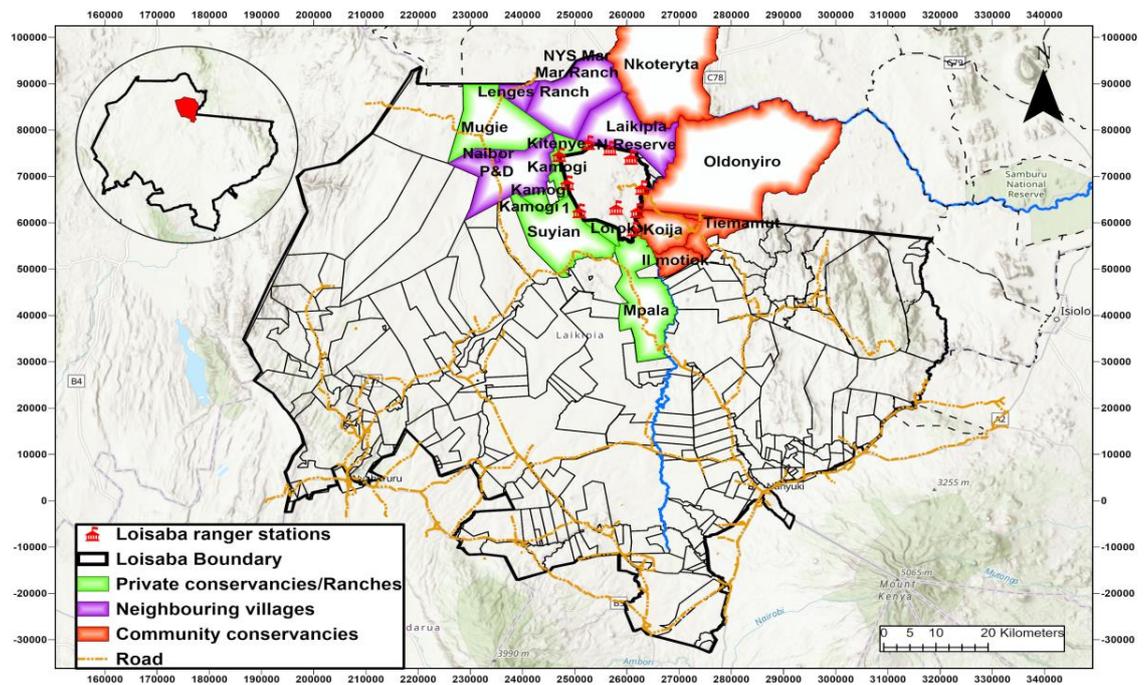
### **2.1 Project Description and Location**

#### **2.1.1 Project Location in the Context of Laikipia County**

The proposed Loisaba Rhino Sanctuary is situated in Laikipia North Sub County, Laikipia County. Laikipia County borders Samburu County to the north, Isiolo County to the north east, Meru County to the south east, Nyeri County to the south, Nyandarua County and Nakuru County to the south west and Baringo County to the West. Laikipia County is one of the 14 counties within the Rift Valley Region and one of the 47 counties in the Republic of Kenya. It lies between longitudes 36 degrees 00 minutes and 37 degrees 45 minutes east and between latitude 0 degrees 30 minutes South and 1 degree 00 minutes north. Occupying a surface area of 9,179 km<sup>2</sup>, Laikipia County



accounts for 1.6% of Kenya and is ranked the 15th largest county in the country by land size. The County lies on the Equator and is bounded to the east by the lower slopes of Mt. Kenya; to the south-west by the Aberdare Ranges; and to west by the Rift Valley escarpment. The Laikipia Plateau is an area of rolling low hills and the altitude varies between 1200-1500 M a.s.l (at the Ewaso Ng'iro Basin in the north) and 2600 M.a.s.l in the south (around the project area). The landform is dominated by the nearly level to gently undulating Laikipia plateau that covers much of the northern and western parts. The plateau is dissected by two main rivers (Ewaso Ngiro and Ewaso Narok) coming out of the Mt. Kenya and Aberdare Ranges respectively. It is the third largest ranch in Laikipia County after the Laikipia Nature Conservancy and Ol Pejeta Conservancies (See **Figure 2**). Loisaba Conservancy is one of the major wildlife conservation areas in Laikipia and aims at protecting and enhancing critical wildlife diversity within the landscape.



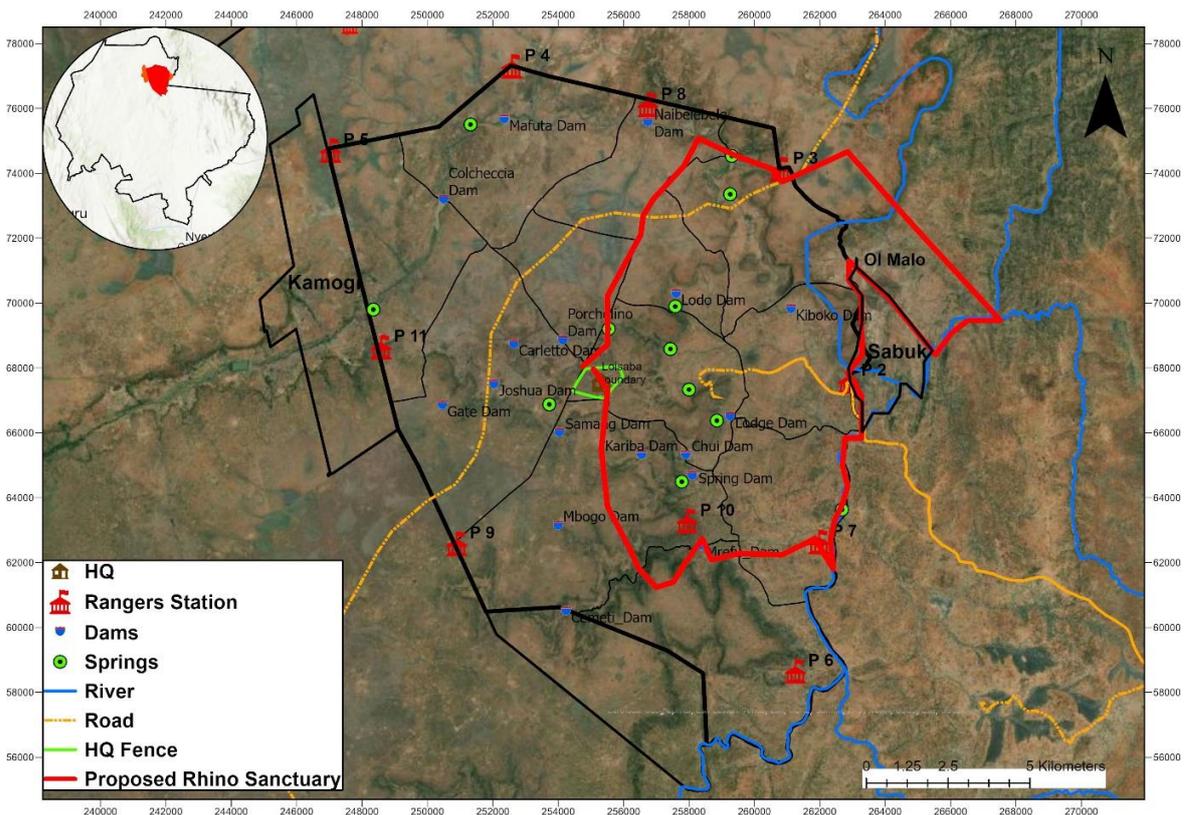
**Figure 2: Location of Loisaba Conservancy in the Context of Laikipia County; including neighbouring communities in Samburu and Isiolo counties, and Ranches.**



## 2.1.2 Project Area, Description, Justification and the Layout

### 2.1.2.1 Project Area

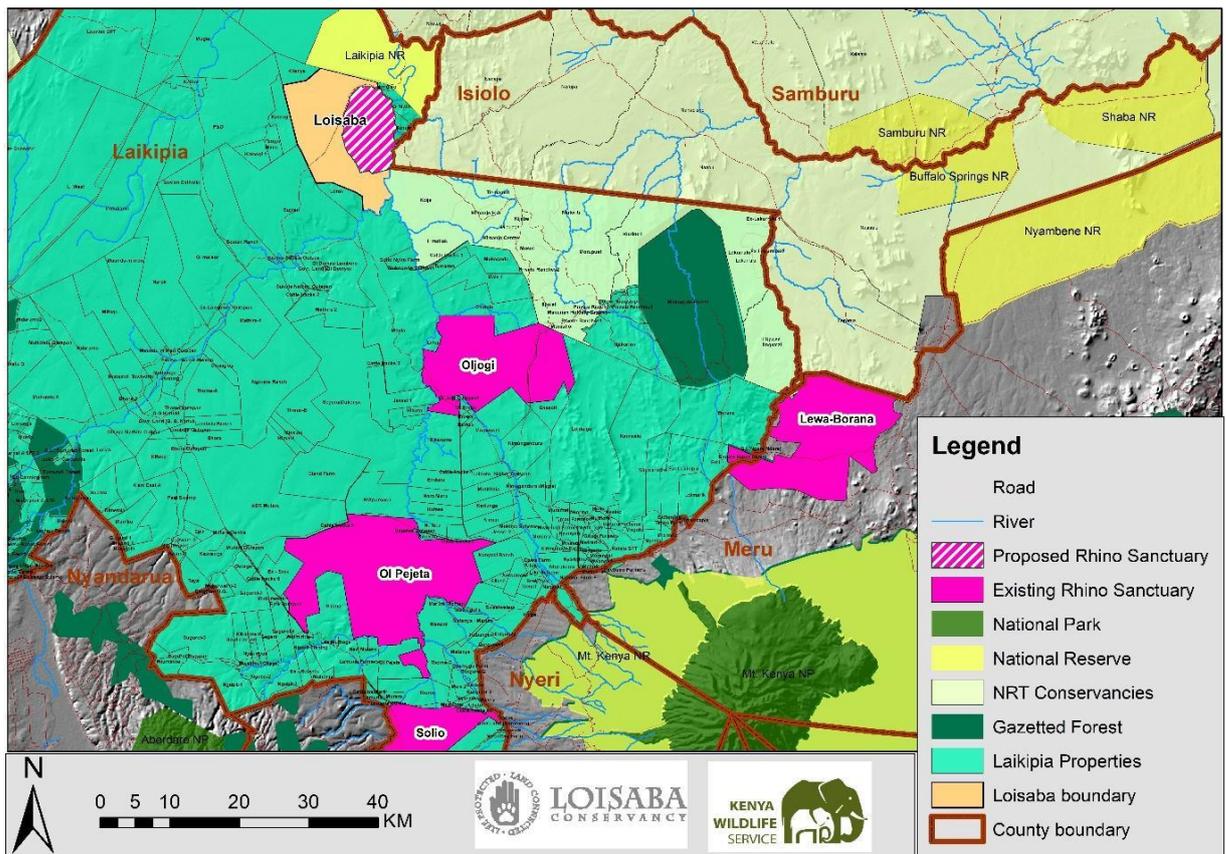
The Loisaba Rhino Sanctuary will be located inside Loisaba Conservancy located in north-west Laikipia plateau at an altitude of 1700-1800 m above sea level, immediately north of the Equator. For Loisaba Conservancy, which has a land size of 56,849 acres (230km<sup>2</sup>), an area of 70 km<sup>2</sup> fenced of (40km perimeter fence) will be curved and form the initial sanctuary area with plan to extend to cover the entire Loisaba Conservancy (See **Appendix 2: Leasehold Title**). The entire Ol Malo Conservancy's area of 3,064 acres will form part of the conservancy. **Figure 3** shows the project area and the neighbouring ranches. The proposed project area is one of the major wildlife conservation areas in Laikipia and aims at protecting and enhancing critical wildlife diversity within the landscape. They undertake both sustainable livestock production and wildlife conservation.



**Figure 3: Location of the proposed Rhino Sanctuary within Laikipia County.**



Geographically, the proposed rhino sanctuary is located within the same geographic location as other successful Rhino Sanctuaries. They include Oi Jogi, Oi Pejeta, Lewa-Borana and the Solio Rhino Sanctuaries (See **Figure 4**). Various other non-rhino conservancies but important wildlife areas surround Loisaba, including Mugie Conservancy, Mpala, Suyian, Laikipia North, Koija Group Ranch, and Sabuk and Oi Malo Lodges. Various other non-rhino conservancies but important wildlife areas surround Loisaba, including Mpala, Suyian, Laikipia NR, Koija and Oi Malo



**Figure 4: A Map showing the proposed Loisaba Rhino Sanctuary relative to adjacent rhino sanctuaries**

### 2.1.2.2 Description and Justification

The black rhino (*Diceros bicornis*) is listed as critically endangered by the International Union for the Conservation of Nature, with fewer than 5,000 remaining worldwide. Kenya had a thriving rhino population of about 20,000 black rhinos in the early 1970s which fell drastically to less than 400 in a space of 20 years, occasioned by widespread



poaching of the animal to meet the then growing global demand for its horn. The Kenyan Wildlife Management and Conservation Act 2013 also lists the rhino along with other six animal species as “critically endangered” in the Act’s Sixth Schedule. Loisaba Conservancy and the larger ecosystem in which it sits, was once an important habitat for the black rhino with the last black rhinos having been sighted in the early 70s. Since then, not a single black rhino exists in the landscape. The Proposed Loisaba Rhino Sanctuary Project therefore aims at re-establishing a healthy and thriving population of black rhinos within the Conservancy in line with KWS’s Kenya Rhinos Action Plan which aims at achieving a population of at least 2,000 eastern black rhinos (*Diceros bicornis michaeli*) in Kenya, and a meta-population of 830 black rhinos by the end of 2021. Further, the proposed project seeks to build on the successes of Kenya’s conservation efforts which have seen the black rhino population increase steadily to the current 750 over the last three decades or so due to policy, legal and institutional actions and involvement of multiple players including private land owners, communities and international agencies.

Reduction in poaching and implementation of breeding programmes and consequent increase in the rhino population means that the current rhino sanctuaries are approaching a saturation in their carrying capacities to hold rhino populations which calls for the establishment of other suitable and rhinos-appropriate sanctuaries to meet the desired population growth of 5%. Having been a habitat for rhinos in the past, and the fact that Loisaba Conservancy possesses superior technical, institutional, human and ecological capacities and abilities, the Conservancy stands out as one of the most ideal areas for establishing a rhino sanctuary. It is also spatially well-endowed and suited, besides its continued successful implementation of wildlife conservation programmes and activities. The Conservancy also enjoy good reputation and rapport with local and international conservation bodies. Further, the Conservancy is located within Laikipia County which is already a stronghold for the eastern black rhino (*Diceros bicornis michaeli*). There are a number of facilities with successful breeding programmes within close proximity and they include Ol Jogi, Ol Pejeta and Lewa.

The need to find more areas to invest surplus rhinos has arisen. The 2007-2011 Rhino Conservation and Management Strategy promoted the establishment of Intensive Protection Zones (IPZs). The current Black Rhino Action Plan (2017 – 2021) puts



emphasis on rhino range expansion and builds from the previous action plan using the well-established sanctuary populations as a breeding nucleus for the provision of a continuous supply of rhinos to restock former range areas. With the target annual growth rate of 5% being achieved in established sanctuaries, it is expected that the national growing population will require more secure places to ease pressure from some established overstocked sanctuaries. The emphasis on strengthening existing IPZs which can support large populations must continue, as well as the expansion of secure sanctuaries and identification of additional areas for national population expansion. This will require significant commitment from partners and sufficient resources.

The Proposed Loisaba Rhino Sanctuary Project will principally involve the re-introduction of a founder population of eastern black rhino (*Diceros bicornis michaeli*) into a 24,440 acres fenced of (52km perimeter fence) and well secured sanctuary straddling Loisaba and Ol Malo conservancies. This will be managed as an Intensive Protection Zone (IPZ). While a founder population of 20 rhinos is envisaged, the final decision of the number of rhinos to be translocated will be dictated by a survey to deduce the ecological carrying capacity (ECC), maximum productivity carrying capacity (MPCC) and minimum viable population (MVP) of the identified area, with a careful and calculated skew on age and gender. The rhinos will eventually be released from the original rhino sanctuary area into the wider conservancy as their population increases beyond the ecological carrying capacity of the original sanctuary. The rhinos will be translocated into Loisaba Rhino Sanctuary from Ol Pejeta Conservancy, Lewa-Borana Rhino Sanctuaries and Lake Nakuru and Nairobi National Parks.

On the 30<sup>th</sup> October 2020, the KWS issued a Provisional Approval letter (**Appendix 3**) for the proposed establishment of the Loisaba Rhino Sanctuary as requested by the Conservancy for the development of the required infrastructure and capacities while **Appendix 4** is the recommendation letter by KWS. On completion of the entire process, a final evaluation will be carried out by KWS before final approval is granted and signing of management agreement which will provide details on roles and responsibilities of the KWS and Loisaba Conservancy with respect to management of the rhinos.

The importance of continued maintenance and increase of a healthy black rhino population in wildlife and biodiversity conservation cannot be gainsaid, with four main attributes standing out. These include:



**Conservation Concern:** Rhinos are a species of conservation concern following their rampant poaching in the 1970s and 1980s which very nearly decimated their population.

**Flagship Species:** Rhinos are highly charismatic and can serve as a rallying point for conservation.

**Umbrella Species:** Conservation depends on large areas of ecosystems being conserved and protected and therefore serving the objective of wider biodiversity conservation

**Keystone Species:** Rhinos have significant role in ecological dynamics, so they are important to the conservation of other elements of biodiversity.

The Proposed Project, whose preliminary cost is estimated at USD 500,000(to be used over a five-year period) is being supported by the Global Conservation Group, The Nature Conservancy (TNC) Chinese Board and Space for Giants. Besides being the principal licensing authority tasked with approving the Project in line with its legal mandate, Kenya Wildlife Service (KWS) is heavily involved in providing technical guidance and backstopping to the Project.

### **2.1.2.3 The Project Layout (Key Considerations before Establishment of the Sanctuary) and Activities**

#### **2.1.2.3.1 The Project Layout (Key Considerations before Establishment of the Sanctuary)**

The proposed Loisaba Rhino Sanctuary Project has to meet and adequately satisfy seven considerations identified as paramount in the establishment of the rhino sanctuaries. Critical for ensuring the survival, maintenance and increase of healthy rhino populations in the sanctuaries where they are moved into. It is envisaged that the project proponent and partners through technical guidance, support and oversight from KWS ensure fulfilment of the prerequisite conditions in order for the sanctuary to host a thriving rhino population. These seven pillars which this EIA Study has to established their status are:

- (i) Black Rhino Browse Consideration:** Black rhino browse availability assessment is the most important component when establishing a Rhino Sanctuary. The diet of black rhinos is woody, semi woody plants annual and perennial herbs. The 0-2m plant height range comprises over 90% of black rhino food resource. This food may include woody and semi-woody plants and dicotyledonous annual and perennial herbs. Broken down plants and



branches also end up forming part of the rhino diet. Plant materials beyond 2m from the ground contributes a small portion of rhino food resource. Competing browser species and fire play an important role in impacting on the available rhino browse. Browse resources found in areas greater than 8 km from the available water sources are effectively unavailable to black rhinos. This makes water availability and distribution in a rhino range a key factor in determining browse availability. Certain plant species are poor food sources for black rhino and it is hypothesized that such species cannot sustain a rhino population. Thus the final component of available browse / browse growth actually suitable for black rhino determines actual rhino carrying capacity.

**(ii) Water Resource:** Reliable water supply is paramount to the success of rhino sanctuary management. If there are no natural water sources, the need to supply water to water holes for use by rhinos, other wildlife and to the security bases for use by sanctuary staff will be important. Water holes need to be evenly distributed to ensure maximum utilisation of the sanctuary and minimise habitat impact at specific areas. When undertaking habitat assessment, available browse is considered as browse that is within 8 km to a water source. The ability of the project proponents to deal with future challenges on water resources management is critical. The ability to harvest surface runoff during rainy seasons using water pans for use during the dry season will equally be important.

**(iii) Rhino Security:** Security is a critical component in rhino conservation and management. The success of any sanctuary will largely depend on its security set up and operations. It is important to note that historically, Kenya has experienced a fair share of insecurity cases targeting endangered species which has led to the local extinction of rhinos in some areas. The dedication of Loisaba security department to wildlife protection within the conservancy (including the intelligence and investigation elements) will be important. The ability to adequately cover ground and aerial patrols is equally critical. Adequate ranger strength, necessary equipment and the supporting



infrastructure is paramount to ensuring provision of maximum security and protection for the sanctuary.

**(iv) Rhino and other Species Monitoring:** Rhino monitoring is vital for keeping track of individual animals and for monitoring population performance. All existing rhino range areas in Kenya have implemented a standardised programme of patrols to obtain information on rhino sightings. Rhinos are identified individually and registers of the features of individual animals are maintained. This data is used for rhino auditing, health checks and to provide estimates of population size, age and sex structures, calving rates (i.e. female breeding performance), mortality rates (by age and sex), and the distribution and movement of rhinos. This information is used to gauge the performance of each population and guide biological-management decision-making processes, such as introductions and removals, to realise the national conservation strategy. The individual identification of rhinos requires properly skilled and motivated observers, a system of strict control on data quality at observer and data recording levels, and the support of the wider conservation-management structure. Field rangers need to be trained to approach and observe rhinos, and accurately complete standardised sighting forms. This information is then checked by an experienced and accredited observer. The field data would need to be stored and analysed using a geographic information database management system. Standardised monthly reports provide key information, such as sighting frequencies of individual rhinos, rhinos on critical sighting list, patrol movements and the availability of manpower resources, which are used to optimise deployment of patrols and analyse population performance. Together with TNC, the project proponents have partnered with Space for Giants, San Diego Zoo Global and Lion Landscapes to help provide support and resources for their elephant, reticulated giraffe, leopard and lion monitoring projects. As well as employing two full time researchers (one being an accredited rhino specialist), the conservation department at Loisaba also benefits from researchers from other research based organisations. This active research at Loisaba means



there is an existing infrastructure on species monitoring and management to achieve the required standard for rhino conservation.

**(v) Community Awareness and Outreach Programmes:** Community outreach and awareness programmes are important components when establishing a Rhino Sanctuary. It is important to enlist the good will of the local community in order to mitigate potential conflicts and misunderstanding. Loisaba Conservancy has education and outreach programmes for the surrounding communities. A vital part of a long term conservation strategy is partnering with local communities in understanding the importance of conservation, and to help place a value on wildlife. The community department support the building, staffing and development of local schools (including libraries and internet access) and education scholarships, and hold regular education days at Loisaba's Conservation Centre. In addition, Loisaba's security team provides valuable support to neighbouring communities with their security operations on a regular basis, strengthening the relationship with community members. Heath outreach programmes provided by the conservancy also help foster a positive attitude to conservation. This beneficial relationship with Loisaba's surrounding communities will help substantially toward the protection of rhinos at the sanctuary.

**(vi) Predation:** Predators that would threaten a rhino population on Loisaba Sanctuary include hyenas, lions and leopards. Loisaba Conservancy has an existing 'Lion Ranger Team' of six individuals who are part of security's rapid response team. They are trained on large carnivore ecology, protecting livestock from large carnivores and using research equipment and collecting data using SMART and CyberTracker. They have also partnered with San Diego Zoo Global on their leopard research project, and subsequently have an updated estimate of leopard densities across the project area. At a later stage and upon approval of the current request, a predator survey will be undertaken to understand the potential predation risk on the new sanctuary.

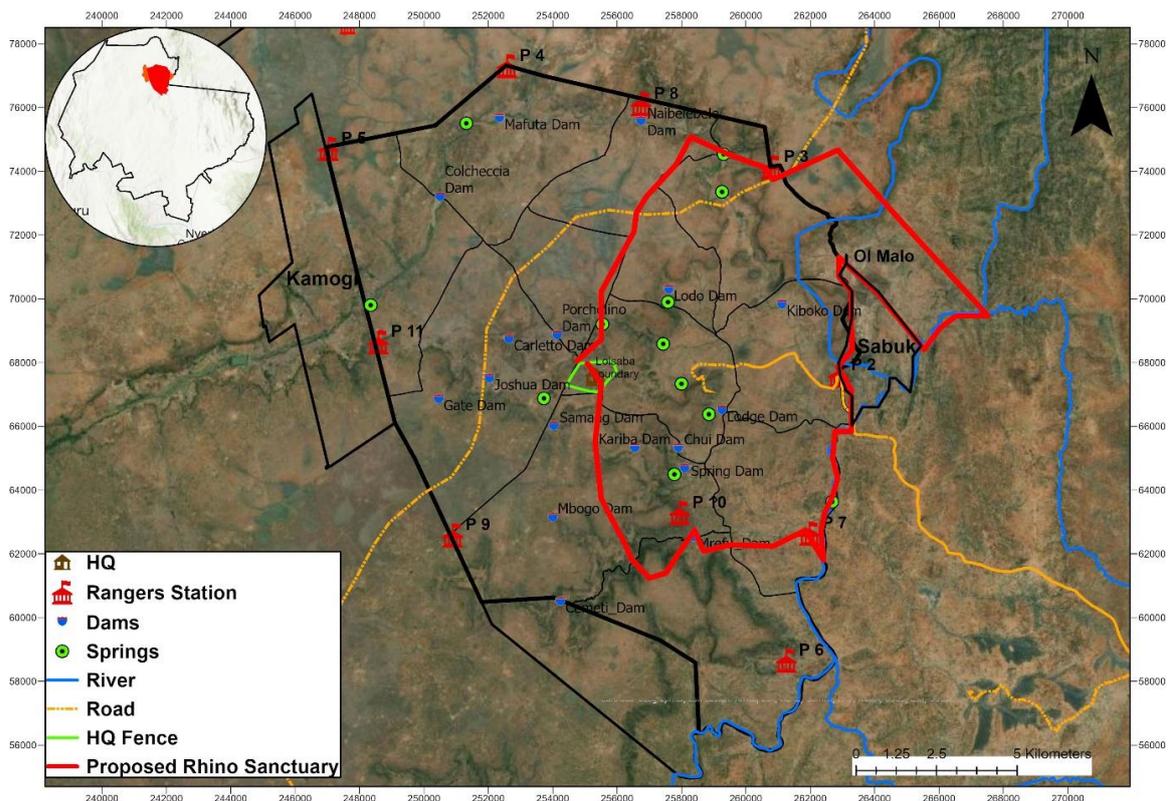
**(vii) Financial Strategy:** A Rhino Sanctuary comes with heavy financial investment, particularly in fencing and additional security provisions. It is important to ensure that the proponents have a comprehensive financial



strategy to address these extra requirements. Currently, Loisaba Conservancy Trust (LCT) management has secured the land, invested in new tourism infrastructure and are running a livestock business. Additional proof of financial plan and stability include the fact that LCT has purchased the management company (Oryx), raised capital to build new tourism facilities, purchased a fleet of new safari game drive vehicles, raised capital for a new workshop, staff offices, staff housing and established a conservation centre. While the ecological sustainability is sound enough, the financial sustainability may require a long term plan to ensure non interruption of the venture. The current global concern and interest in the conservation, and in particular of the rhinos, is a dependable insurance for financial funding. Nonetheless it is pragmatic to have alternative financing scenario in the event this currently bidding concern, expire or fatigued.

The conservancy is strategically placed and forms an important wildlife corridor that links Laikipia and Samburu counties/ ecosystem, and can be accessed from four different gates from either Nanyuki or Rumuruti. From Nanyuki town, the project area is 88km away and can be accessed through Papa 2; alternatively, one can access through Mpala-Suyian via Papa 9 gate approximately 110km from Nanyuki. From Rumuruti, the project area can be accessed through 2 main gates; Papa 5 from Rumuruti-Maralal road and Papa 9 from Rumuruti gate approximately 55km and 77km respectively. **Figure 5** illustrates the accessibility status of the project.





**Figure 5: Location of the proposed Rhino Sanctuary and its Accessibility Status.**

#### 2.1.2.3.2 Project Activities' Components

A step-wise and systematic process of establishing the Loisaba Rhino Sanctuary is split into seven interrelated broad components, each with its specific activities. Some of the activities have already commenced, notably the submission of a formal application to KWS and Ecological and Water Assessments and the EIA. The Loisaba Draft Rhino Management Plan has also been prepared and is being finalised. **Table 1** summarizes the various implementation components and activities and the implementation status.

**Table 1: Summary of the Implementation Plan for the Proposed Loisaba Rhino Sanctuary**

Component	Activities	Status
<b>Formal Application to the KWS</b>	Submission of the expression of interest letter to KWS seeking to have Loisaba Conservancy becoming a rhino sanctuary	Letter sent to the Director General on 16 <sup>th</sup> March 2020
<b>Conducting the Ecological Survey and</b>	Assessment at Loisaba to determine ECC, MPCC and MVP for the proposed	These assessments conducted between 22nd-28th July 2019



<b>Water Assessment by KWS for review and approval by KWS</b>	area (including browse condition, water suitability etc.)	
	Report submitted to the Rhino Coordinator for review	The report was submitted in November 2019
	Report circulated to members of the members of APLRS for endorsement	Has been done
	Report circulated to members of the rhino steering committee	Has been done
	Letter of no objection received with a list of conditions	Has been done
<b>Assessments and Audits</b>	Fence survey	Undertaken on 2019
	Environmental Impact Assessment	Site visits and public consultations undertaken between 18 <sup>th</sup> -22 <sup>nd</sup> February 2020 Report to be completed and submitted to NEMA and Loisaba early March
	Security Assessment	Has been done
	KWS Veterinary/Disease Risk Assessment	Has been done
	Financial Assessment	Pending
<b>Construction</b>	Building of rhino sanctuary infrastructure including fence line clearing, fence construction, installation of solar panels etc.	Pending
<b>Staff Recruitment and Training</b>	Rhino Management Plan	Draft complete, waiting finalization and adoption
	Recruitment of Rhino Officer and other staff	Pending
	Training of staff	Pending
	Pre-translocation planning	Pending
Translocation and Release	Infrastructure assessment	Pending
	Rhinos translocated to Loisaba	Pending
	Wild Release	Pending



### **2.1.2.3.3 Project Partners**

The Proposed Project, whose preliminary cost is estimated at USD 500,000 over a five year is being supported by the Global Conservation Group, The Nature Conservancy (TNC) Chinese Board and Space for Giants. Besides being the principal licensing authority tasked with approving the Project in line with its legal mandate, Kenya Wildlife Service (KWS) is heavily involved in providing technical guidance and backstopping to the Project.

## **2.1.3 Review of Pre-Implementation Studies/Assessments**

### **2.1.3.1 Background**

KWS has developed a checklist to guide establishment of new rhino areas. Two major assessments have been undertaken at Loisaba by KWS technical officers in a bid to assess the Conservancy's (i) ecological carrying capacity and (ii) water availability and quality. These assessments were conducted between 22<sup>nd</sup> and 28<sup>th</sup> July 2019. In addition, a Security Assessment was conducted as from 19<sup>th</sup> to 21<sup>st</sup> May 2020. These assessments are documented in two reports titled:

- i. Black Rhino Ecological Carrying Capacity and Habitat Suitability Assessment for the Proposed Loisaba Rhino Sanctuary; and
- ii. Proposed Loisaba Rhino Sanctuary Water Quality Assessment Report.

A summary review of the findings of the two Reports is presented below:

#### **2.1.3.1.1 Ecological Assessment**

KWS has developed a checklist to guide establishment of new rhino areas. Among the major consideration in rhino range expansion is the requirement of an ecological assessment to determine habitat suitability for rhino conservation. The Ecological Assessment evaluated the suitability of the project area as a Rhino sanctuary in terms of rhino browse availability and condition, water suitability, soil content, veterinary concerns, and security and management plan. Its recommendations will then guide the KWS Rhino Steering Committee in making informed decisions regarding reintroduction of Rhinos in Loisaba ecosystem. This was undertaken in line with the Kenya Black Rhino Action Plan of supporting the attainment of a Meta population of 2000 Rhinos. The assessment also provided guidance on the ecological carrying capacity (ECC),



putting into consideration the property size and the IUCN recommended founder population of 20 rhinos.

The main findings of the ecological assessment are:

- A total of 31 vegetation plots were surveyed from the three main distinct vegetation types (Dense Shrub, Grassland and sparse shrub and Open woodland areas). A total browse availability of 0.21 and total preferred browse availability of 0.19 was recorded across vegetation types. Based on the proposed sanctuary area of 60 km<sup>2</sup>, a maximum ecological carrying capacity of 44 Black Rhinos is estimated. **Table 2** presents predictions of black rhino carrying capacity in the Proposed Sanctuary.

**Table 2: Predicted Black Rhino Carrying Capacity Estimates for the proposed Sanctuary**

<i>Predicted Black Rhino Ecological Carrying Capacity (ECC) for Loisaba</i>		
Estimated Sanctuary Area size in Km <sup>2</sup>	70	
Plant growth index for suitable plants with consideration of soil fertility, temperature and fire	0.137	
Estimated average basic plant growth per year (Metres/ Year)	0.22	
Estimated ECC (Rhinos/ Km <sup>2</sup> )	0.601	36 Rhinos
ECC Upper limit with 95% CI	0.741	44 Rhinos
ECC Lower limit with 95% CI	0.488	29 Rhinos
<b>Maximum Productivity Carrying Capacity (MPCC) @ 75% of ECC</b>		<b>27 Rhinos</b>

- Dense Shrub vegetation type had the highest %BA<sup>2</sup> at 64% as compared to the open woodland at only 9%. In regards to coverage of the different vegetation types, grassland and sparse shrub occupied the largest area at 183 km<sup>2</sup> (80%) as compared to 44 km<sup>2</sup> (20%) occupied by the dense shrub. Overall, dense shrub scored the highest BA score index of 0.12, while the grassland scored 0.09 and open woodland at 0.005 giving a total BA score of 0.21. Available Black rhino

---

<sup>2</sup> BA-Browse Availability



preferred plant species still had the highest BA (PBA<sup>3</sup> 0.11) in the dense shrub vegetation as compared to the rest of vegetation types.

- Episodic events such as herbivore deaths, severe drought, fires or extreme rainfall events can cause marked browse changes via massive reduction of woody vegetation or pulses of plant recruitment. These events can also change rhino carrying capacity, perhaps changing an ecosystem from one “state” (woodland / grassland) to another in the process.
- From studies carried out in some Kenyan areas, fire impacts the palatable species such as *Grewia sp.* and *Rhus natalensis* negatively. Most of these species showed no signs of coppicing after being burned, and all mostly die off months after the fire despite the fact that fire did not entirely consume them during the burn. The consequences of burning for black rhino need to be carefully evaluated, and fire regimes need to be carefully adapted to account for browser needs in the project area.

#### **2.1.3.1.2 Soil Fertility Assessment**

Results from a total of 10 plots that were sampled for soil fertility indicated low levels of Nitrogen, Phosphorous and Organic carbon. However, all the other essential elements, Pottasium, Calcium, Magnesium, Manganese, copper, Iron, Zinc and Sodium were all adequate and with the potential to support healthy vegetation growth. A full soil fertility assessment report is attached to this report.

#### **2.1.3.1.3 Water Availability, Quantity and Quality Assessment**

The project proponents have up to 16 permanent springs, eight of which are located in the proposed area, which have water year-round. A further four dams are located in the sanctuary, providing further water sources. The eastern border of the ranch adjoins the Ewaso Nyiro River, which flows to the north and is fed from tributaries in Mount Kenya. The major tributary of the Ewaso Nyiro, the Ewaso Narok, fed from tributaries in the Aberdares, joins the Ewaso Nyiro at Loisaba.

There are two seasonal though significant rivers that flow across the project area from west to east. The first of these, in the north, is the Pinguone and the second is the Nduru, which runs along the south, forming part of the boundary with neighbouring Suyian Ranch.

---

<sup>3</sup> PBA-Preferred Browse Availability



In general, the project area has adequate and well distributed water sources that are at the moment supporting a rich diversity of wildlife and livestock. There are a number of natural and man-made water sources that are evenly distributed within the conservation area. The quality, quantity and distribution of water resources within the area will support the establishment of a Rhino Sanctuary.

#### **2.1.4 Security Assessment**

- Currently, Loisaba Conservancy has a well-resourced, trained and disciplined ranger force of over 70 personnel, including an armed NPR unit, rapid response teams, a K9 unit comprising four tracker dogs and a Lion Ranger team. The conservancy is divided into 13 blocks manned by ten (10) security teams. The teams comprising of three rangers each will provide round the clock patrolling of the conservancy to eliminate the threat of poaching, and to insure safety and security for the Conservancy. With the use of SMART (Species Monitoring and Reporting Tool) software, Loisaba's security team record the GPS points of any wildlife sightings on their patrols.
- 15 armed security personnel will monitor the sanctuary at all times using SMART phone patrols (one ranger per 4km<sup>2</sup>), and observation posts which would be constructed in the area, with the remaining security team carrying out patrols around the rest of the conservancy. A dedicated rhino monitoring team of 12 will assist the armed guards, managed by the Rhino Sanctuary Officer. The rhino monitors will undergo a rhino monitoring programme, with the Rhino Sanctuary Officer undertaking training for monitoring and collection and analysis of relevant rhino data. Four informers and one intelligence officer from the neighbouring communities will also be recruited, following a full background check.
- Systematic morning and evening aerial patrols are also carried out, using a Piper Super-cub. The flight patrol plans are based on prior ground observations such as wounded animals or intrusions, which orients the nature of the flight. This information is acquired directly from Loisaba's head of Security or from the CEO. In the case of no prior information, a complete patrol of the Conservancy's borders is undertaken with random transects across for security and conservation purposes. **Figure 6** shows Loisaba's security blocks.



The results of the Security and Management Assessment carried out by the KWS applying a set criteria tool for security and management requirements for establishment of a rhino sanctuary, rated Loisaba Conservancy above average and noted that the Conservancy was already running many other conservation, community and research programs. The results of the assessment are encapsulated in **Table 3**.

**Table 3: Security and Management Assessment Results by the KWS**

#	Item	Finding	Comments
<b>A</b>	<b>Security Status</b>		
1	Has a habitat suitability assessment been undertaken?	Undertaken in July, 2019 on the following areas; browse condition, water suitability, soil content and veterinary concerns	Black rhino ECC was estimated at 0.601 rhinos per km <sup>2</sup> translating to 46 black rhinos within the 77 km <sup>2</sup> proposed fenced sanctuary ( with a lower limit of 0.488 or 38 rhinos (lower 95% CI) to upper limit of 0.741 or 57 rhinos (Upper 95% CI).
2	Size of the proposed area ?(is it the entire property or a section of the property, if a section and if envisaged to be expanded in future)	Phase 1: 78km <sup>2</sup> Phase 2: 146km <sup>2</sup> Phase 3: 240km <sup>2</sup>	Assessment undertaken in the proposed area covering 78km <sup>2</sup> There is room for expansion in 3 phases and connectivity with neighboring conservancies
3	Proposed management system (Free range, Intensive Protection Zone, Sanctuary with a perimeter fence)	Proposal is to have a Sanctuary with perimeter fence	Fence not constructed
4	Adequacy of protection and supporting security requirements (wildlife protection/intelligence/ investigations capacity and liaison with other relevant	Team exhibited high standard of preparedness	Intelligence gathering in place, good security strategy, and gathering, positive relationships with KWS and other security agencies within the county



	Government security agencies)		Intelligence structure to be discussed with KWS
5	Anti-poaching capabilities on property including trained and well equipped personnel including KPR status for conservancies (if a sanctuary what measures will be put in place for maintenance and vetting of maintenance personnel)	<ul style="list-style-type: none"> <li>• Canine Unit (3 dogs + handlers)</li> <li>• 41 NPR Rangers</li> <li>• Rapid Response Team (14)</li> <li>• 38 Rangers (valid good conduct)</li> <li>• Piper Super Cub</li> </ul>	Dedicated team for rhino to be set aside when the conservancy is approved as a rhino sanctuary
6	Radio Communication, ( Security Channel, Linkages with other properties and security agencies)	<p>TRBonet &amp; Earth Ranger JOCC (connected to Lewa, Suyian and NRT)</p> <p>3 radio channels (conservancy, tourism and security)</p> <p>53 digital handheld radios</p> <p>33 base radios</p> <p>Operations room hotline number for 24/7 communications</p>	Dedicated channel for rhino security and admin to be set aside when the conservancy is approved as a rhino sanctuary
7	Other security supporting resources (Vehicles, motor bikes Canines, Aircraft, infrastructure, fences)	<ul style="list-style-type: none"> <li>• K9 Unit (3 dogs + handlers)</li> <li>• 40 NPR Rangers</li> <li>• 45 unarmed Rangers</li> <li>• Rapid Response Team</li> <li>• 8 Community wildlife trackers</li> <li>• Aircraft- Piper Super Cub</li> <li>• Currently 6 vehicles (1 Land Rover, 4 Landcruiser's, 1 Suzuki)</li> <li>• 1 motorbike</li> </ul>	Dedicated team to be set aside when the conservancy is approved as a rhino sanctuary
8	Strong Rooms/Armoury	1 armory in place	Needs additional reinforcement with double doors and ventilation, chain to reinforce the rack
9	Nearest Security post in	Kimajo Police Station	The conservancy will create



	the area (KWS and other security agencies)	ASTU (Naibor) KWS Rumuruti KWS Oljogi KWS Baawa	linkages with the security partners around its environs.
10	Proximity to human settlements, public roads and other public utilities	<ul style="list-style-type: none"> <li>The proposed site is not near settlements with the nearest community being Ewaso centre (15km); Morijo/Kirimon Centre (15km); Ol Donyiro Centre (25km) and Posta (24km)</li> <li>However, there are public roads running at the northern and western boundaries of the conservancy though not heavily utilized as there are no communities living nearby</li> </ul>	Increased surveillance on the public roads recommended
11	Adequacy of physical boundaries of property (e.g. perimeter fencing)	Intended perimeter fence of 40 km	Phase 1 to be constructed if approval is granted
12	Vantage observation points	The conservancy has a number of hills that can serve as observation post on a need basis Currently there are 3 established Ops	Observation posts (Ops) to be deployed appropriately once the sanctuary is established
13	Security status within the region	Currently the area is a calm	Increased surveillance required during drought when incidences of livestock incursion are likely to occur
14	Other relevant information (e.g. plan for an ESIA if conditional approval is granted, involvement of communities etc)	<ul style="list-style-type: none"> <li>ESIA ongoing</li> <li>Community engagement planned</li> </ul>	ESIA license and Reports to be provided once site is approved as a rhino sanctuary
<b>B</b>	<b>Management Competence, Control and Availability of Funding for sustainability</b>		



1	Organizational structure and sanctuary management structure	<ul style="list-style-type: none"> <li>• Conservancy has a clear management structure with the overall being a CEO with respective departmental managers</li> </ul>	Once established sanctuary to have its own structure with the following details provided and dedicated resources and deployments
2	Management plan/ Business plan/ Strategic plan	<ul style="list-style-type: none"> <li>• Draft management plan complete</li> <li>• 2015-2020 Strategic Plan under review</li> <li>• 2021 – 2025 Strategic Plan in process</li> </ul>	Process to be fast tracked
3	Installations and other facilities within the project site (e.g. hotels, camps, homes)	<ul style="list-style-type: none"> <li>• Loisaba Tented Camp (tourism)</li> <li>• Loisaba Lodo Springs (tourism)</li> <li>• Loisaba Star Beds (tourism)</li> <li>• HQ (offices and staff accommodation)</li> <li>• Fox Camp (accommodation)</li> <li>• Cottage (accommodation)</li> <li>• Cheli House (accommodation – within LTC fence)</li> </ul>	Controls and increased surveillance to be put in place when the sanctuary is established
4	Sustainability of the project and project financing	Clear project financing and guarantors in place	Running of rhino sanctuaries is an expensive venture thus budgets to be factored in during planning process once the approvals are granted
5	Relationship with surrounding communities	Loisaba supports scholarships, school infrastructure, health outreach, stress grazing and offers security support in neighbouring communities	Relationship with communities established to be good but needs to be enhanced especially if the conservancy is to be approved as a rhino sanctuary
6	Staff welfare - Salaries, wages and welfare	Staff looked well motivated, good uniforms and housing provided	Staff welfare to maintained, and same replicated when



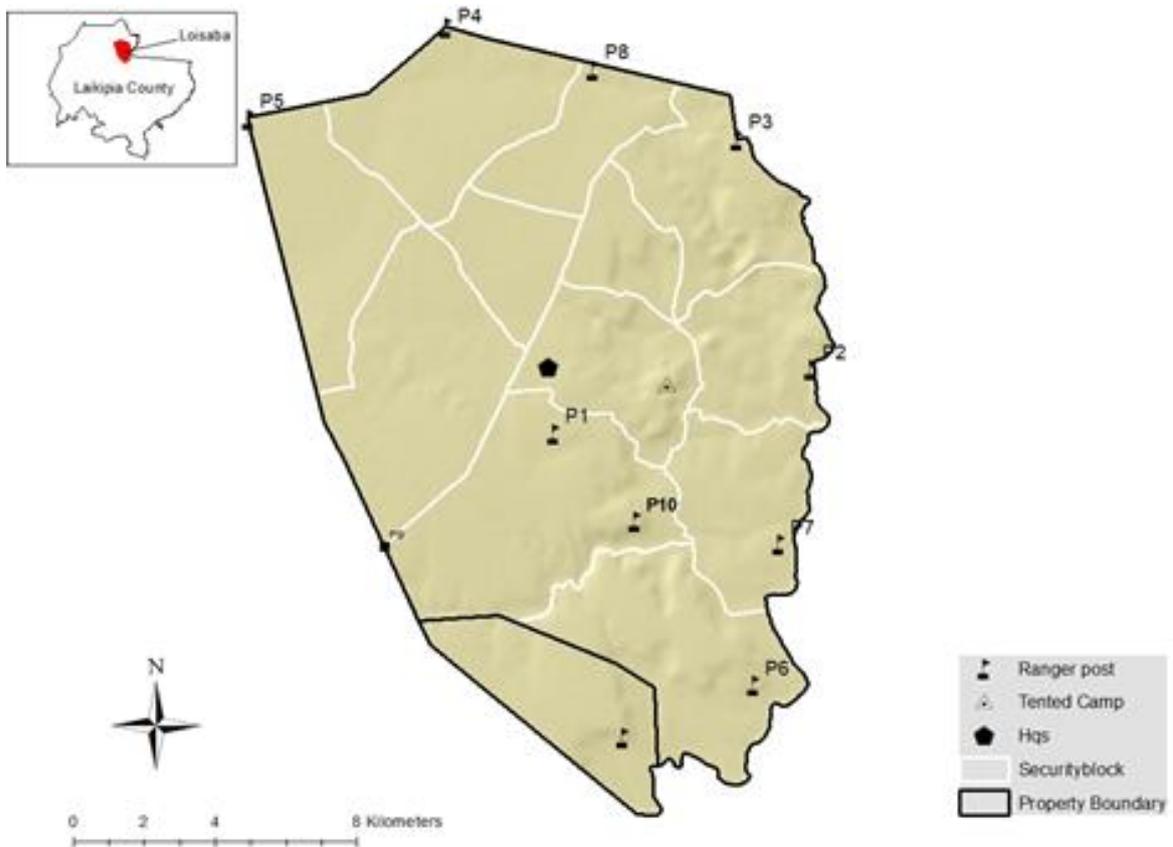
	provision for rhino monitoring and security scouts/ rangers		the sanctuary if the sanctuary is to be established
7	Monitoring capability in line with the rhino monitoring protocol and reporting (preparedness to meet requirements)	<ul style="list-style-type: none"> <li>• SMART reporting in place</li> <li>• Leopard, reticulated giraffe, lion and elephant monitoring ongoing in partnership with San Diego Zoo Global, Lion Landscapes and Space for Giants</li> <li>• Earth Ranger</li> </ul>	<ul style="list-style-type: none"> <li>• Once approved as a rhino areas, specific training to be undertaken on rhino monitoring and reporting</li> <li>• Identified teams to be seconded to existing rhino sanctuaries to gain hands on experience</li> </ul>
8	Commitment to provide access to professional expertise (in house or on a need basis) and willingness to be part of existing Kenya rhino programme	Management looks committed and demonstrated the same in terms of the investments being made even before the approvals are granted	An agreement to be signed once the process is completed before translocations are undertaken
9	Conservation record/ attitude (If new project, commitment to the objectives)	<ul style="list-style-type: none"> <li>• Has the right attitude for conservation based on the ongoing projects</li> <li>• Loisaba is a 56,000 acre conservancy within Laikipia County that is owned by Loisaba Community Trust, a Kenyan Trust incorporated under the Perpetual Succession of Trustees Act, and is committed to wildlife and ecological conservation.</li> <li>• The Loisaba mission is to protect and enhance critical wildlife diversity, abundance</li> </ul>	Though they might want to use the rhino's as a safe guard especially to invasions, they are committed to conservation with huge investments and dedicating the land to conservation



		and habitat in the Loisaba landscape, which sits on the western edge of one of Kenya's most important elephant movement corridors, while concurrently supporting sustainable livestock production and improving the lives of neighbouring communities.	
10	Partners	<ul style="list-style-type: none"> <li>• The Nature Conservancy (Board position, financial support with grants)</li> <li>• Space for Giants (Board position)</li> <li>• San Diego Zoo Global (Research Partners)</li> <li>• County Government</li> <li>• LCCF (financial support for community engagement)</li> <li>• NPS</li> <li>• NRT</li> <li>• KWS</li> <li>• Elewana (Board position, tourism partner)</li> <li>• Land &amp; Life Foundation (support for community engagement)</li> </ul>	Strong partnership with all stakeholders to be maintained

Source: KWS, May 2020





**Figure 6: A map of Loisaba Patrolling Blocks & Security Stations.**

### **2.1.5 Construction of the Loisaba Rhino Sanctuary Fence**

#### **2.1.5.1 Background**

After near annihilation of Kenya 's black rhino population between the early 1970s and 1980s, a coordinated response to the threats and challenges facing rhino conservation was urgently needed to save the remaining population and ensure its increase. In 1989, the 1989 Wildlife Policy Framework was formulated and implemented. This policy led to the establishment of fenced sanctuaries in both state and private owned properties. Fencing off the sanctuaries is one of the key considerations in the establishment of a rhino sanctuary and complements other measures for ensuring the safety and security of rhinos within the sanctuaries. To be successful and meet their objective of securing the rhinos, the fences must be strictly maintained and operated. The work must be complemented by the deployment of modern law enforcement equipment including appropriate firearms and surveillance technologies, digital radio systems with central



command centres based on the Domain Awareness System (DAS) and the rhino database (Kifaru) for law enforcement and rhino monitoring, reporting and tactical planning. The Action Plan Framework of the KWS Rhino Action Plan 2017-2021 aims at increasing by two the number of fenced off rhino areas by 2021 under the Plan's Biological Monitoring and Management Component.

The establishment of a rhino sanctuary in their natural habitats (wildlife conservancies) poses a major challenge for conservationists. On one hand the sanctuaries must be fenced to protect and ensure the security of the rhinos and for monitoring purposes. On the other hand, other wildlife must be allowed to move freely within the Conservancy and among and between the Conservancies and between ecosystems. This challenge calls for innovative fencing designs and alignment which limit the movement of the rhinos within the sanctuary only and allow the free movement of other wildlife within and outside of the sanctuary.

#### **2.1.5.2 Wildlife Corridors Considerations in the Fence Design, Alignment and Structure**

The project proponents have invested considerably on species monitoring and management through various partnerships with international and local wildlife conservation organizations. This has placed at Loisaba's disposal a rich data base on wildlife dynamics including their movement, migration and dispersal along its boundaries with the neighboring conservancies/large scale ranches/lodges as well with the pastoral Samburu and Maasai community lands. Besides this, the Loisaba Rhino Sanctuary Fence design and alignment has benefited from the experiences, challenges and successes of other fenced rhino sanctuaries in Laikipia which include Ol Jogi, Ol Pejeta, Lewa-Borana and Solio Rhino Sanctuaries. Nine wildlife corridors exist along the alignment of the proposed rhino sanctuary fence. This has been validated by KWS.

The fence's alignment and design has taken into consideration these corridors and will allow for fence-gaps at the precise location of these corridors. These corridors include:

- Corridor 1-Ewaso Ng'ro River Bank adjacent to the Crocodile Jaws Bridge;
- Corridor 2-Loisaba Conservancy's main gate (Kimanjo route) about 1.5 kms from Crocodile Jaws Bridge en-route to Ol Malo. The sanctuary's fence then breaks at Sagumai for more than 10 kms.
- Corridor 3- Mawe Nugu area towards the plains adjacent to Olmalo airstrip.
- Corridor 4- Sagumai gate area widely open connecting the main road to Kirimon.



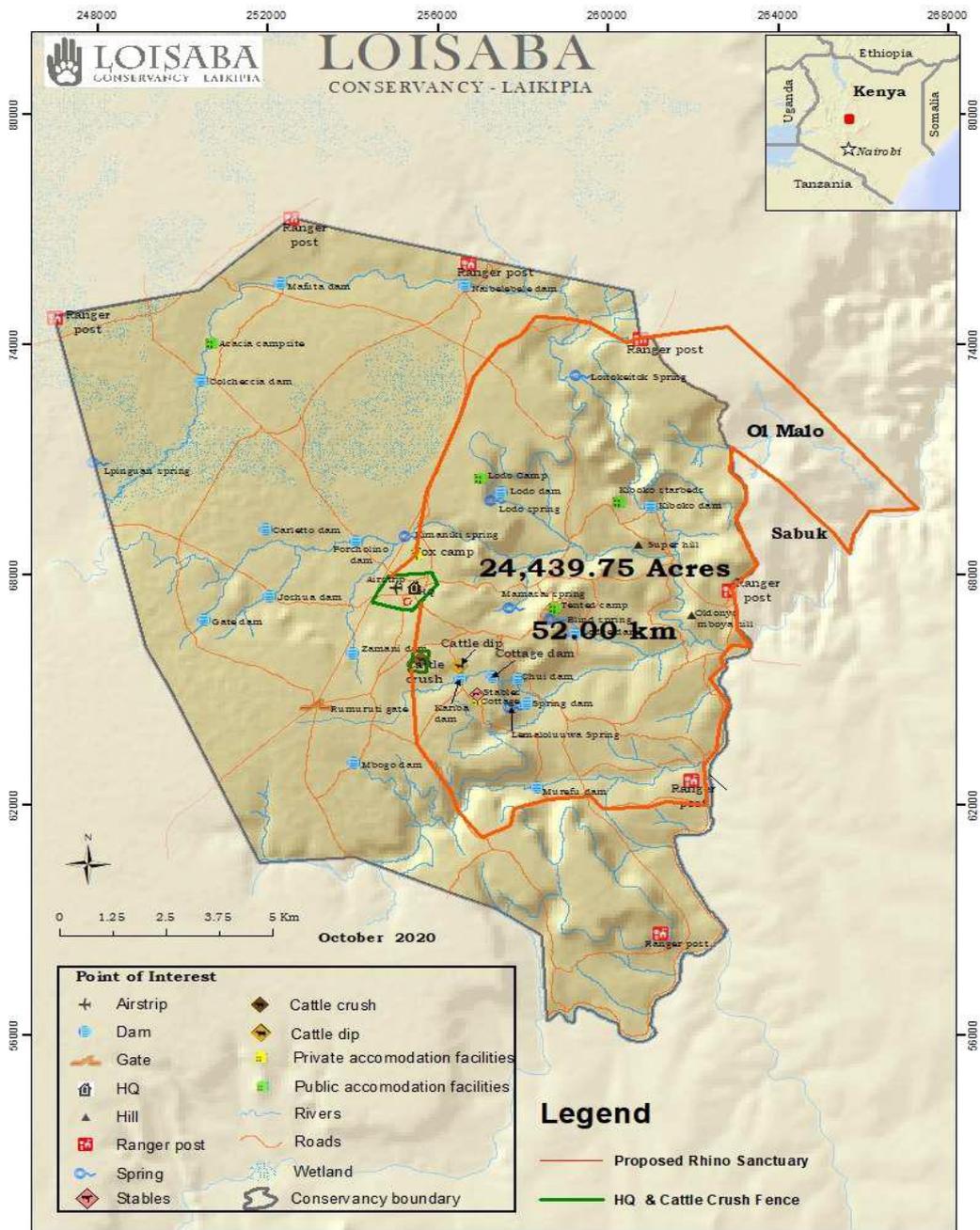
- Corridor 5- Lematasia springs area.
- Corridor 6-Sere Lera area connecting towards KMC and NYS Kirimon.
- Corridor 7- Nchingei area towards Louai and KMC.
- Corridor 8- Leputunoi springs area connecting towards NYS Kirimon.
- Corridor 9- Old Route Road connecting KMC and Kirimon crossing through the conservancy to Lpinguan and Posta.

At these nine corridors, the fence gap design will restrict the rhinos to the Sanctuary, while allowing movement of other wildlife in and out of the Sanctuary. The running electric fence will be interrupted at these gaps where a pile of stones, 3 feet high, will be laid. Due to their sheer weight and girth, the rhinos cannot jump over this pile of stones but all the other animals can. This will restrict the rhinos within the sanctuary's perimeter fence without interfering with the movement of all the other animals. This fence design will therefore ensure continued uninterrupted free movement of wildlife between the project area and the neighbouring private conservancies/lodges and community conservancies. The private conservancies and lodges include Mugie Conservancy, Ol Malo, Suyian Ranch and Sabuk Lodges and TangoMaos Farm while the community conservancies include Naibunga, Ol Donyiro and Kirimun Community Wildlife Conservancies. Public land within this ecosystem include the dormant Laikipia Nature Reserve (owned by the County Government of Laikipia) and the National Youth Service, Kirimun Field Station (a national government institution), both of which are important habitat for wildlife.

#### **2.1.5.3 The Fence Design, Alignment and Structure**

The Rhino Sanctuary Fence will be a **52km** long solar powered perimeter fence aligned to enclose a 24,440 acres fenced of (52km perimeter fence) Loisaba Rhino Sanctuary with several fence gaps (described above) as shown in **Figure 7**. One of the landmark features alongside the fence is the Ewaso Ng'iro River, with the fence aligned along the River but off the riparian land to a distance of about 100 metres. The three tourism properties at Loisaba (Loisaba Tented Camp, Loisaba Star Beds and Loisaba Lodo Springs) and the Ol Malo Lodge will also be within the fence line. The sanctuary fence will join at various point to align with the already existing small fences, notably within the Conservancy.





**Figure 7: The Proposed Loisaba Rhino Sanctuary Fence**

The fence design and structure will comprise of:

- 3 feet long poles at a spacing of five metres;



- 4 strands (3 live wires and 1 earth). The three live wires will be spaced at 22.5cms from each other. The earth wire will be 15 cm above the ground level, while the top live wire will be erected 7.5cm below the top end of the poles.
- 1.2 metres outriggers spaced at 0.6metre intervals. The outriggers will be 120cm long.
- The strainer posts will be concreted and pitted to a depth of 120cm below the ground with 200 metres intervals from strainer post to the next;
- The normal posts will be compacted and pitted to a depth of 60cm below the ground.

**Appendix 5** presents details of the fence design.

#### 2.1.5.4 The Fencing Materials and Equipment

The fencing materials and equipment of varying units, sizes, lengths etc. will comprise of common locally sourced game fencing material which are presented in **Table 4**.

**Table 4: The Fencing Materials and Equipment**

No	Group	Items
1	Fencing Posts	Treated gum fence post. 5ft x 5"-6" diameter. drilled with 4 holes & single strap at each end
		Treated gum fence post. 6ft x 5"-6" diameter drilled with 4 holes & single strap at each end
		Treated gum fence post. 10ft x 5"-6" diameter single strap at each end
2	Wire	Special high quality high tensile steel fencing wire. 12.5 gauge (2.5mm) - 50kg rolls
		Double insulated galvanised underground cable. 2.5mm * 100m rolls
3	Insulators	PVC conduit insulators 16mm diameter (4m lengths each)
		ultra-strength end strainer "s" insulators (white)
4	Hardware	Galvanised nails 5"
		High tensile twisted bar y12mm (12m lengths)
		Galvanised steel pipe 3/4" class "b" (6m lengths)
5	Concrete	Building cement - 50 kg bags
		Building sand
		Aggregate (ballast) 1/2" - 3/4"
6	Uniport	Multiunit steel uniport hut - rm14 c/w 1 door & 1 window
7	Energizer	Fence energizer staffix "b1800"



		Solar panels 12 volts 80-100 watts
		Digital charge controllers – 30amp
		Solar deep cycle batteries 12 volt 200-250 amp/hr
		Digital volt meter fence testers
		Fence alarms staffix
		Heavy duty stainless steel cut-out switches
		Lightning diverter protection kits
		Electrical wiring, connectors, terminals etc.
		3 panel solar frame of 40*40*4mm angle iron mounted on 4" galvanised steel pipe 6mtrs long include with 300mm angle iron struts welded at 300mm distances around pipe concreted into ground
8	Tools	heavy duty wire strainers
		heavy duty fencing pliers
9	Miscellaneous	Warning signs

#### 2.1.5.5 The Fencing Activities

The erection of the fence line will involve several activities which include:

- Identification of the fence line pathway and surveying including taking and recording of GPS points and mapping. This has taken account of the wildlife corridors described above and has deliberately avoided heavily vegetated areas to ensure as minimal devegetation as possible. These activities have commenced and are being finalized.
- Design of the fence including structure and alignment including identification of the fence gaps
- Vegetation clearing and site preparations
- Site clearance will result in significant generation of solid waste generation which should be disposed by using appropriate methods to be identified within this report.
- Purchase and delivery of the materials to the fence line;
- Erecting of the rhino sanctuary fence including installation of multiunit steel uniport, hut pitting, sinking of poles, compacting and stranding;
- Commissioning of the fence



- Monitoring and management of the fence.

#### **2.1.5.6 4.6.6 Fence Maintenance and Monitoring-to include Rhino Action Plan**

The KWS Black Rhino Action Plan 2017-2021 lays emphasis on strict monitoring and management of the fences in rhino sanctuaries. This should be undertaken alongside the deployment of modern law enforcement equipment– including appropriate firearms and surveillance technologies, digital radio systems with central command centres based on the Domain Awareness System (DAS) and the rhino database (Kifaru) for law enforcement and rhino monitoring, reporting and tactical planning. Appropriate training also needs to be undertaken. The proponents are committed to ensuring this through its security programme (described above). Loisaba’s existing fence team would provide consistent monitoring and maintenance of the sanctuary’s fence.

#### **2.1.5.7 Commissioning and Operation of the Loisaba Rhino Sanctuary**

The mandatory assessments that have been undertaken and whose highlights are presented elsewhere in the Report, are strongly in favour of establishing a rhino sanctuary at the proposed project area. Indeed, the project area and the surrounding community lands, ranches and conservancies hosted vibrant rhino populations in before the poaching menace that reached its peak in the 1970s to 1980s. This was validated by elderly men from the neighbouring Koija Group Ranch during the EIA public consultations. Once the KWS grants approval the Sanctuary will be commissioned and the activities shown in **Table 5** are undertaken:

**Table 5: Loisaba Rhino Sanctuary Commissioning and Operation**

<b>Task</b>	<b>Activities</b>
Staff Recruitment and Training	Rhino Management Plan
	Recruitment of Rhino Officer and other staff
	Training of staff
	Pre-translocation planning
Translocation and Release	Infrastructure assessment
	Rhinos translocated to Loisaba Rhino Sanctuary
	Wild Release



## 2.2 Physical Environment: Laikipia County and the Project Area

### 2.2.1 A Summary Description of Laikipia's Physical Environment

Laikipia County is one of the 47 counties in the Republic of Kenya in the Central Rift Valley region. It is listed in the first schedule of the Kenya Constitution 2010 as county number 031. The gazetted county headquarter is Rumuruti Town but has been hosted in Nanyuki Town since inception of devolution in 2013. "Laikipia" is a Maasai word equivalent to trees plain reflecting the large highland plateau. The county is largely rural in settlement with the main economic activities being crop farming, livestock rearing, tourism, retail and wholesale trade. The county is a member of the Mt. Kenya and Aberdares Counties Economic Bloc, Amaya Triangle Initiative and Frontier Counties Development Council.

The Laikipia Plateau is an area of rolling low hills and the altitude varies between 1200-1500 M a.s.l (at the Ewaso Ng'iro Basin in the north) and 2600 M.a.s.l in the south (around the project area). The landform is dominated by the nearly level to gently undulating Laikipia plateau that covers much of the northern and western parts. The plateau is dissected by two main rivers (Ewaso Ngiro and Ewaso Narok) coming out of the Mt. Kenya and Aberdare Ranges respectively.

Laikipia County in general experiences relief type of rainfall due to its altitude and location. The main rainy seasons correspond to the influence of the Inter-Tropical Convergence Zone (ITCZ) which comes twice a year (March-May for the long rains and October-November for the short rains). In August, humid air streams from the west produce a third rainy period, the "continental rains". These rains are considered very valuable as they represent extension of the long rains. However, there is no clearly established pattern on whether they arrive or not in a particular year. Higher altitude areas such as those on the foot slopes of Mt. Kenya, Aberdare Ranges and the eastern rift valley show higher rainfall compared to lower altitude of the Laikipia plateau. The amount of mean annual rainfall drops along a steep gradient, from 800-900 mm at the foot of both massifs to under 500 mm in the northern part of the county. **Table 6** presents rainfall amount recorded at different stations distributed in the County.



**Table 6: Mean Annual Rainfall in Millimetres from stations in Laikipia County (2013-2018)**

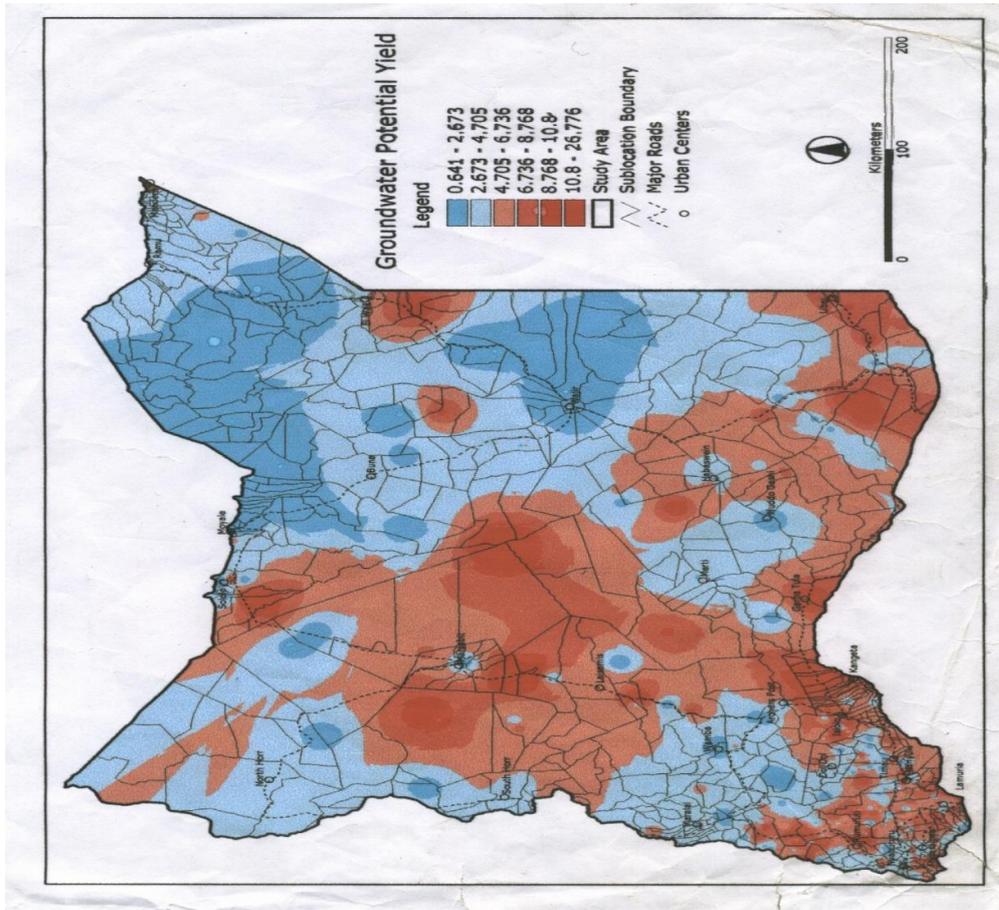
Station	2013	2014	2015	2016	2017
Doldol (Loldaiga Stn)	376.9	457.8	358.4	311.8	571.3
Rumuruti	1159.5	554.4	713.4	848.6	970.2
Nyahururu	1560.5	810.2	690.0	931.5	1316.5
Nanyuki (LAB)	804.6	623.7	623.0	642.7	614.3
Lamuria	857.5	727.9	690.0	732.5	590.0

**Source:** Kenya Meteorological Department, Laikipia County Office, 2018

Temperatures are highest in the months of January to mid-March before the rainy season and lowest in the months of July to August. A wide variation in the annual evaporation over the County is also observable. Evaporation exceeds rainfall in most of the areas resulting in widespread moisture deficits within the County.

Hydro-geological studies conducted in Laikipia County indicate that the County has high groundwater potential. Chances of striking ground water in boreholes are high but the anticipated yields vary widely. Average boreholes yields in Laikipia County are low at 3.89 m<sup>3</sup>/hr, with lows of 0.2 m<sup>3</sup>/hr to highs of over 30 m<sup>3</sup>/hr. **Figure 8** depicts groundwater potential yield in the ENNDA Basin.



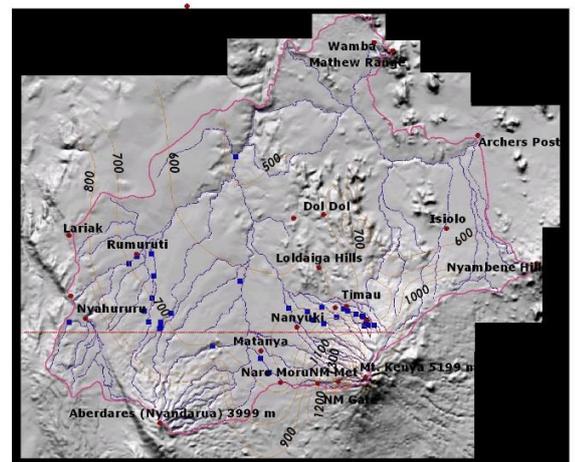


**Figure 8: Groundwater Potential Yield in the ENNDA basin in Northern Kenya**

**Source:** NAREDA 2002. Adopted, from the ENNDA Water Supply for Livestock and Rural Communities Phase III Report

The project area falls within the Ewaso Nyiro North river basin which covers Isiolo, Laikipia, Samburu, Marsabit, Wajir, Garissa and Mandera counties, including parts of Nyandarua, Nyeri and Meru counties. The flow of its tributaries matches the county's topography which slopes gently from the highlands in the South to the lowlands in the North (See **Figure 9**).

The whole of Laikipia County is underlain by metamorphic rocks of Pre Cambrian age.



**Figure 9: Laikipia County Drainage System, Source: Nareda Database, 2016**

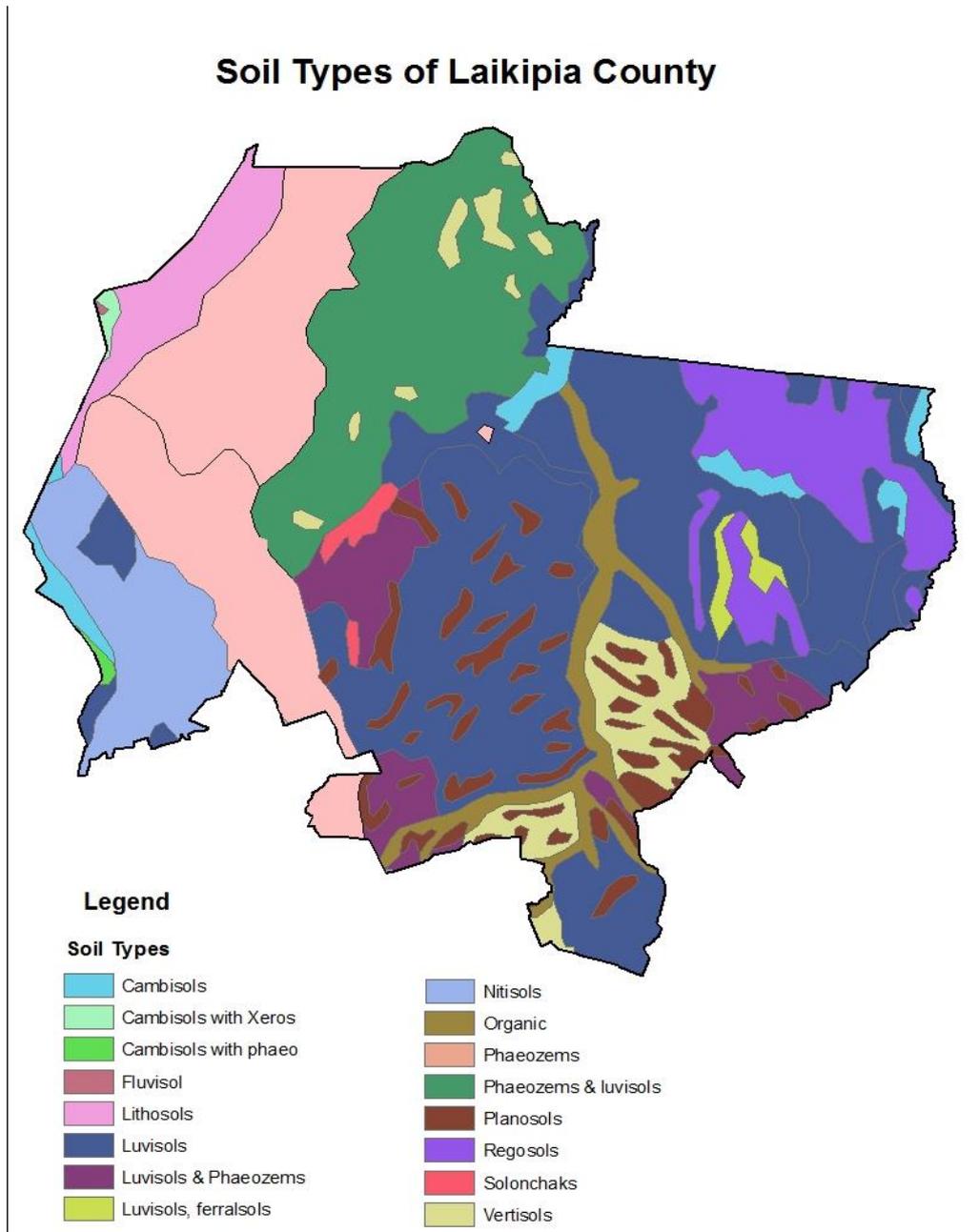


They form part of the extensive African Basement Complex which extends south to Mozambique and west to West Africa. In Laikipia these rocks are exposed at the surface only in the north-eastern parts of the district. They form the Mukogodo and Loldaiga Hills. A greater part of the County is occupied by various volcanic formations which overlie the metamorphic Basement Complex rocks buried at varying depths below them. The western parts of the County are a build-up of extensive flows of phonolite lavas originating from the Aberdare Ranges and the edge of the Rift Valley escarpment. The south and eastern parts have basalts and other volcanic materials originating from Mt. Kenya.

The distribution of soils in Laikipia County is mainly determined by the kind of parent rocks, relief and climate. Time and biological activities have also contributed to soil formation, though to a lesser degree. The soils in the project area falls within the soils on the structural plateaus. Grouping of soils is based first on physiography, followed by their parent material; and finally, using the dominant colour of the subsoil. The soils associated with this physiographic unit occur on nearly flat to gently undulating (1-8% slopes) volcanic plateaus. On the flat to very gentle slopes, soils are moderately well drained to imperfectly drained, very deep, dark greyish brown to very dark grey, firm, cracking clay. On gently undulating to undulating areas, the soils are well drained, deep to very deep, reddish brown to dark brown, firm clay with high humus content topsoil.

These soils cover the largest part of the county (about 62%) with a total area of 602,700ha. They are found from Lamuria, Matanya and Nanyuki in the south east, and cover most areas of the central parts i.e. Ol Pejeta, Mutara and Rumuruti; and Sosian and Kirimun in the north. **Figure 10** shows the distribution of dominant soil types in Laikipia County.





**Figure 10: Types of Soils dominating Laikipia County**

Source: Nareda Database, 2016

Vegetation distribution in Laikipia in general is strongly influenced by altitudinal diversity, with dry forest occurring on the highest elevation and a gradient of Acacia-Themedia bush on the plains. Exceptions to the overall regional ecological gradient are edaphic communities of *Acacia drepanolobium* in the central plains south of Mukogodo,

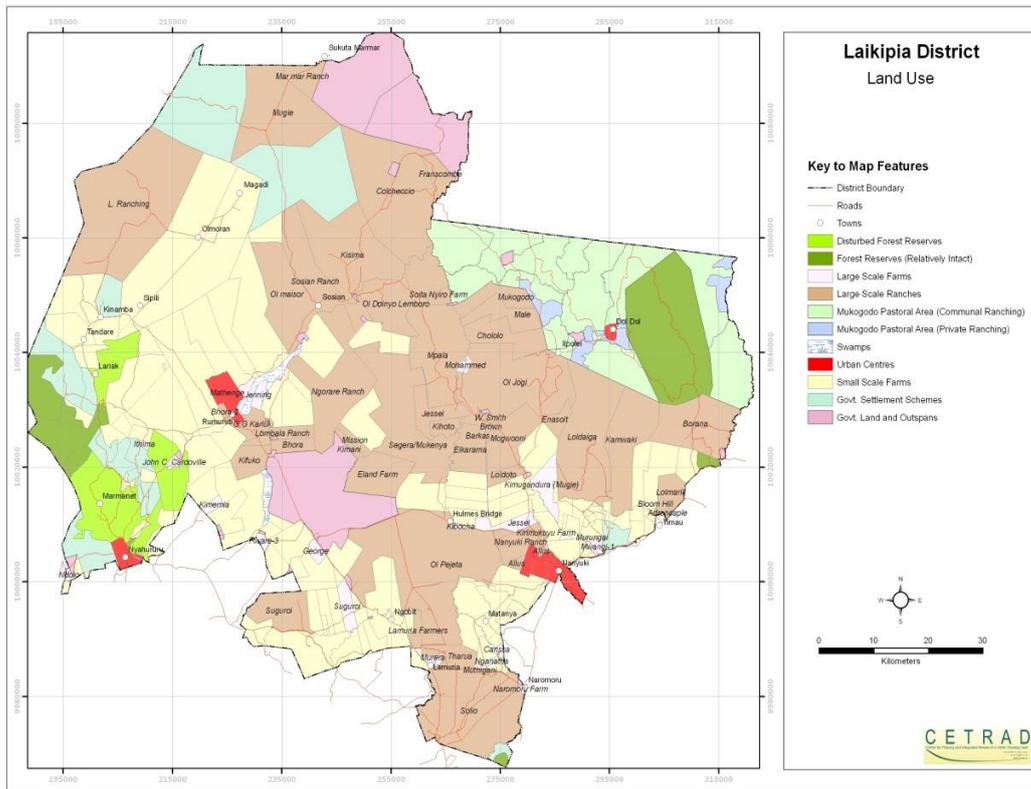


escarpment vegetation and secondary communities induced by historical management factors.

The three main types of land ownership categories in Laikipia are private, community and public. The average private farm size for small-scale/holders is 0.81 hectares. Laikipia is dominantly a pastureland with 46 ranches occupying more than 809.356 hectares representing over 50 per cent of the total land area in the county. Apart from Mutara ADC Ranch, which is run by a parastatal, the rest of the ranches are privately owned. Though the basic concern of the ranches is commercial livestock production, most of the ranchers have diversified into tourism, taking advantage of the vast wildlife found within the ranches. Of the total land mass, arable land constitutes 1,984 square kilometres with non-arable land constituting 7,456 square kilometres. Water masses occupy 22 square kilometres and urban areas at 243.3 square kilometres.

Several land uses are discernable in Laikipia County (See **Figure 11**). These can be broadly divided into large-scale ranches, pastoralist, small-scale farms, unsettled land, forest reserves and urban centers. The total area of forests gazetted as part of the national forest estate in Laikipia County is 67,184 hectares (LRP 1992). This amounts to approximately 7% of the total area in the County. The gazetted forests include: Lariak, OI Arabel, Marmanet, Ewaso Ngiro, Rumuruti, Mukogodo, Ngare Ndare, and Lusoi.





**Figure 11: Land Use in Laikipia County**

Source: CETRAD

## 2.2.2 Physical Environment of the Project Area

### 2.2.2.1 Topography

The project area's topography is dominated by a dramatic escarpment that cuts roughly through the middle of the property from north to south. To the west of this escarpment is a high flat plateau (1,800 m a.s.l.) encompassing a large area of open grass land. This area of open grassland extends beyond the project area, all the way to the base of the Kirisia Hills in Samburu County, to the north. To the east of the Loisaba and Ol Malo escarpment are low plains (1,100 m.a.s.l.), gradually sloping down to the permanent Ewaso Nyiro River that forms the ranch's eastern boundaries. There are two seasonal rivers that originate to the west of the property, travelling east, across the high plains and cut through the escarpment before finally draining into the Ewaso Nyiro. The lower plains

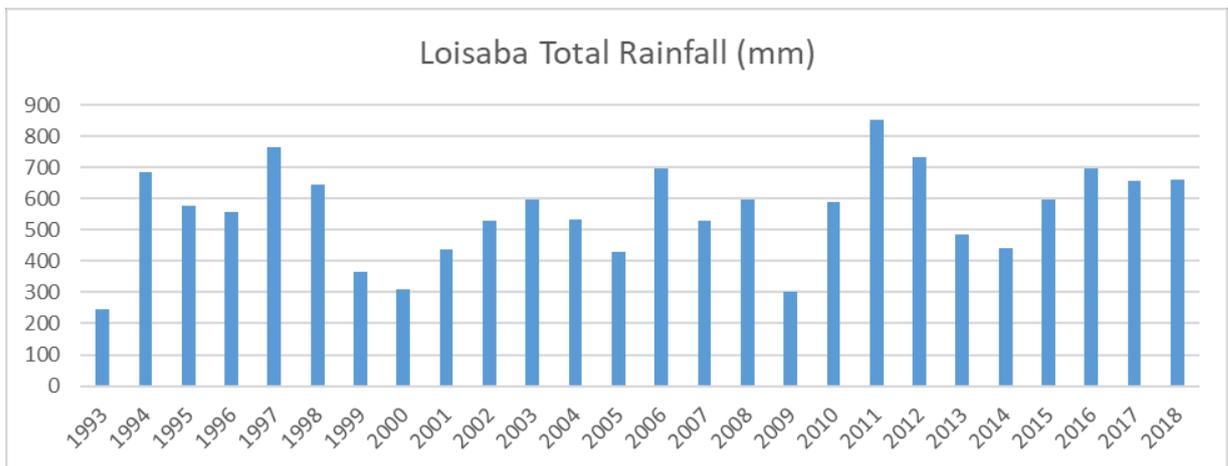


are punctuated by several small hills. The project area's topography makes it one of the most scenically spectacular properties in Laikipia County. There are two marshy areas in the Nduru and Pinguone River Valleys and several smaller marshy areas around the 12 permanent springs at the base of the Loisaba escarpment.

**2.2.2.2 Climate**

**2.2.2.2.1 Rainfall and Meteorology Characteristics**

The annual rainfall is on average around 500 mm but varies greatly from year to year (See **Figure 12**). The main rainy seasons are the 'long rains' from March to May and the 'short rains' from October to November, although rain is unpredictable, and may fall at any time of year. Humidity is relatively low, typically between 35 and 50%. Average daytime temperature is 17.4°C, with an average maximum of 25.7°C and a minimum of 8.3°C. Rainfall monitoring on Loisaba exists with records dating back to 1990s. In addition, Jacobson Farm, near Nanyuki, holds rainfall records extending for more than 70 years and shows no evidence of a change in total rainfall. However, there has been a trend towards the rain falling in a smaller number of more intense storms which has the potential to have significant effects on watercourses and on soil erosion in Laikipia County.



**Figure 12: Average Rainfall in the project area: Source: Loisaba Conservancy Database**

The project area falls within the Ewaso Nyiro North river basin which covers Isiolo, Laikipia, Samburu, Marsabit, Wajir, Garissa and Mandera counties, including parts of



Nyandarua, Nyeri and Meru counties. The flow of its tributaries matches the county's topography which slopes gently from the highlands in the South to the lowlands in the North. These tributaries of the Ewaso N'giro that flow through Laikipia County are perennial streams fed exclusively from Mt. Kenya and the Nyandarua Range during the dry seasons. There are several laggas and ephemeral streams some of which have been harnessed for livestock and wildlife watering.

#### **2.2.2.2.2 Groundwater occurrence**

Loisaba Conservancy lies in the high to medium groundwater potential zone. Aquifers occur in the Old Land Surface and along fissures within the Ewaso Narok phonolites. Deeper aquifers occur at the contact between volcanics and Basement System rocks.

#### ***Aquifer conditions of the System***

On the basis of the available hydrogeological data, the aquifer system in Mugie Ranch is a combination of weathered volcanics with interbedded old land surface deposits. This system can be considered as a regional aquifer system. The configuration of the rest level contours indicates convergence of groundwater towards the Ewaso Narok Swamp while similarity in level between this swamp and the rest levels of the nearest boreholes suggests leakage of the confined aquifers into free groundwater standing in the swamp alluvium. It is probable that the Ewaso Narok Swamp receives water that seeps out of the Old Land surface deposits between Aiyam and Ewaso Narok phonolite groups which is an aquifer in some boreholes in the area. The Suguta Naibor Swamp is fed by a series of small springs the discharge of which is lost by evapo-transpiration.

#### ***Regional Aquifer System***

From data collected from boreholes drilled within this system, there is significant difference between the water struck and water rest levels. This gives an indication that the aquifer is confined. The groundwater is interconnected through fissures and porous material, which partly composes the old land surface deposits. This system is mainly recharged in the high areas where rainfall is high. Ample infiltration is realized along the fault zones. The infiltrated water is discharged in numerous springs found within Loisaba Conservancy.

#### ***Transmissibility, Specific Capacity and Yield***



It is reported that the Lower Uaso Narok Phonolites have the highest value of transmissibility in the area (WRAP 1987). Previous records indicate that boreholes drilled in the Lower Uaso Narok phonolites had their yields varying from 1 to 14 m<sup>3</sup>/hr. Groundwater movement from recharge area to discharge area depends on the available recharge, the aquifer characteristics and the mode of discharge. The groundwater flow rate has minor variations. The flow is in an easterly direction and its outflow is realized through numerous springs. The discharge area marks either the Basement System – volcanic rocks contact or the existence of Old Land Surface deposits between two different lava flows. In some cases, the fault zones, which act as aquifers conduct water from high to low grounds. The transmissibility of the rocks comprising the aquifer is assumed to be 15 m<sup>2</sup>/day. In general, the transmissibility decrease in the downstream directions away from the eruption centers as aquifers become thinner and deposits finer.

#### **2.2.2.2.3 Types and Distribution of Water Resources within the Project Area**

Loisaba has at least 16 permanent springs that supply water throughout the year. Majority of the springs are natural and are being tapped and used for various purposes both for wildlife and domestic. The largest of these springs are the Maasai and Lodo Springs. Mamasai, Lodo, Ping One and Nkimaniki springs have been protected and wildlife are accessing the water from a water trough, majority of the other springs are open and water is flowing freely.

The springs are well distributed within the conservancy with Lematasia and Loitoktok on the Northern part of the Conservancy, Lodo, Nkimaniki, Nkinyei, Simba Blind, Lemororwa and Mamasai on the central part of the conservancy and Ping One on the Western Side of the conservancy.

The rest of the landscape is covered with alternative water sources that includes at least 17 earth dams and the Ewaso Nyiro River on the eastern part of the conservancy. As a policy, the management of Loisaba Conservancy has endeavored to map, protect and monitor water resources across their landscape. **Table 7** summarizes the location and approximate area of the dams whereas **Figure 13** shows water resources and facilities in the project area.



**Table 7: Location of Water Sources and Points within Loisaba**

	<b>Name</b>	<b>Location (GPS)</b>	
1	Lodge dam	37N 259250	0066365
2	Kariba dam	37N 255684	0065723
3	Chui dam	37N 257848	0065314
4	Spring dam	37N 258067	0064700
5	Carlleto dam	37N 251889	0069257
6	Samang dam	37N 260170	0069939
7	Colcheccia dam	37N 250311	0073026
8	Naibebele dam	37N 256665	0075479
9	Gate dam	37N 250487	0066804
10	Mafuta dam	37N 252371	0075655
11	Porcholino dam	37N 254036	0068951
12	Joshua Dam	37N 252108	0067548
13	Mbogo dam	37N 253948	0063079
14	Mrefu dam	37N 258286	0062466
15	Cemeti dam	37N 256844	0064872
16	Kiboko dam	37N 260987	0069821
17	Lodo dam	37N 257245	0069890

Oi Malo area is served by a 600 feet deep borehole which is the main source of water. The borehole is complemented by four small dams, all constructed in the same place in series to collect run off. There also rain water harvesting facilities. An electric submersible pump pumps water from the borehole, from where the water is conveyed to a 50,000 litres capacity reservoir. The water from the borehole is used for all other purposes except drinking. The borehole's discharge rate is between 2.5-3m<sup>3</sup> per hour. Rainwater is harvested from the main dining room's and hangar's roofs. The rainwater reservoirs have a combined capacity of 75,000 litres.

The four dams are used for providing water to livestock and wildlife. They are walled and have pipes underneath that convey water to livestock/wildlife watering troughs. The four dams have a capacity of 400,000 gallons. There are also several temporal springs. According to the management the four dams have increased the yield from a spring about 400 metres away through underground seepage.



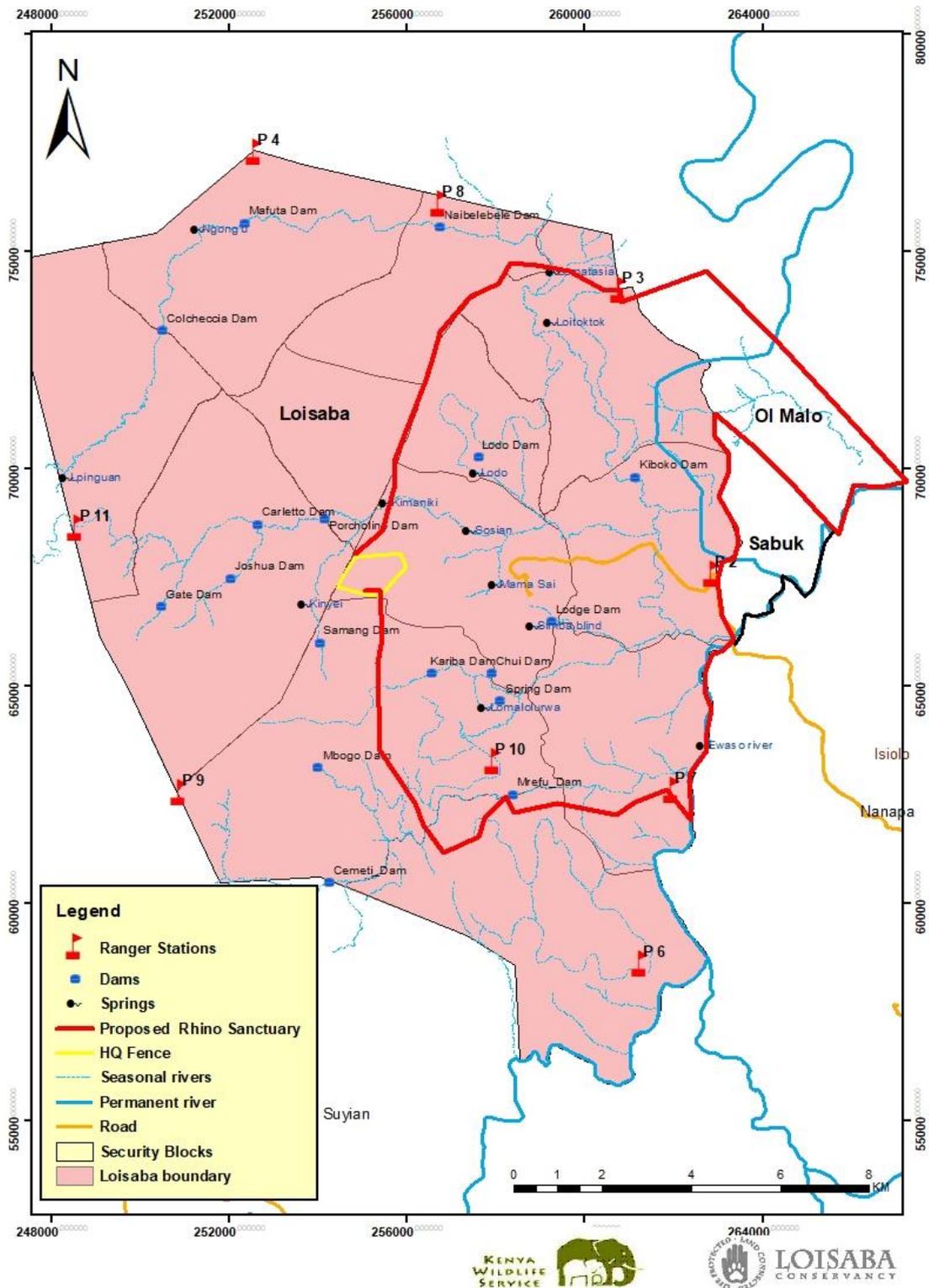


Figure 13: Proposed Rhino Sanctuary Boundary against Existing Water Resources



### **2.2.2.3 Soils**

Dominant soils covering the project area are the well-drained red luvisols which cover much of the conservancy with poorly drained 'black cotton' vertisols, occurring in the extensive open plains in the west. On the flat to very gentle slopes, soils are moderately well drained to imperfectly drained, very deep, dark greyish brown to very dark grey, firm, cracking clay. On gently undulating to undulating areas, the soils are well drained, deep to very deep, reddish brown to dark brown, firm clay with high humus content topsoil. There are also scattered patches of planosols and organic soils along the Ewaso Nyiro.

### **2.2.2.4 Geology**

Loisaba Conservancy is mainly occupied by Basement, Tertiary volcanic sediments and recent formations.

#### **2.2.2.4.1 Basement System Rocks**

These are the oldest rocks in the area and comprise various types of sediments, which were transformed by regional metamorphism into gneisses, schists and quartzites. The eastern, lower part of Loisaba is occupied by a range of metamorphic rocks and intrusive bodies of the Basement System. These Basement rocks underlie the entire region at depth, though they are covered by a much younger volcanic series towards the west. They consist of gneisses with a broad banded structure and of migmatites and granites, which are more homogenous.

#### **2.2.2.4.2 Tertiary Volcanics and Sediments**

These deposits overlie the metamorphic rocks of the Basement System. They underlie Lower Uaso Narok Phonolites, which cover the project area. The lower layers of the volcanic rocks are basaltic while the upper ones are more phonolitic and trachytic.

#### **2.2.2.4.3 Structures**

During the Tertiary, two phases of faulting occurred. The earlier grid-type faulting is in the western part of Laikipia while the later phase produced enormous west-facing escarpments. The central area is flat and is covered by phonolitic lavas probably due to an eastward tilt after their deposition. This has probably contributed to the swamps along the rivers.



### 2.2.3 Vegetation

The dominant vegetation types covering the project area comprise of woodland and wooded grassland. The woodland is an open stand of trees, at least 8m tall with a canopy cover of 40% or more. Wooded grassland can be described as grassland with scattered or grouped trees with a total canopy cover 10-40%. It is also referred to as savanna. The main vegetation types in the project area are described below:

- *Grassland & open woodland*: This broad habitat types covers more than half of Loisaba, in the West, with species composition varying with soil composition. Black cotton soils support “Whistling Thorn” grassland, with stunted *Acacia drepanolobium* trees. On red soil, grass cover is sparser and other *Acacia* species occur, such as *A. mellifera*.
- *Acacia woodland*: Occurs in the eastern parts of Loisaba, before the Loisaba escarpment and towards the Ewaso Nyiro River, and is dominated by *Acacia* trees, particularly *A. mellifera*.
- *Evergreen bushland*: This habitat type covers large areas of western Loisaba and in the seasonal river valleys. It is dominated by *Euclea divinorium*, a persistent evergreen shrub that outcompetes most other species, with the exception of *Carissa spinosa*.
- *Rivers and Wetlands*: Riverine forests, dominated by yellow fever trees, *Acacia xanthophloea*, were once common along Loisaba’s perennial and seasonal rivers but are now rare, most probably as a result of the impact of elephants, though good populations still occur along the Palangalan seasonal watercourse.
- *Scarps and Kopjes*: These rare rocky habitats provide sanctuary for highly diverse and relatively rare plant communities, including patches of dense deciduous forest. This type of vegetation occurs along the Loisaba escarpment.

**Figure 14** presents a land cover map of Loisaba Conservancy



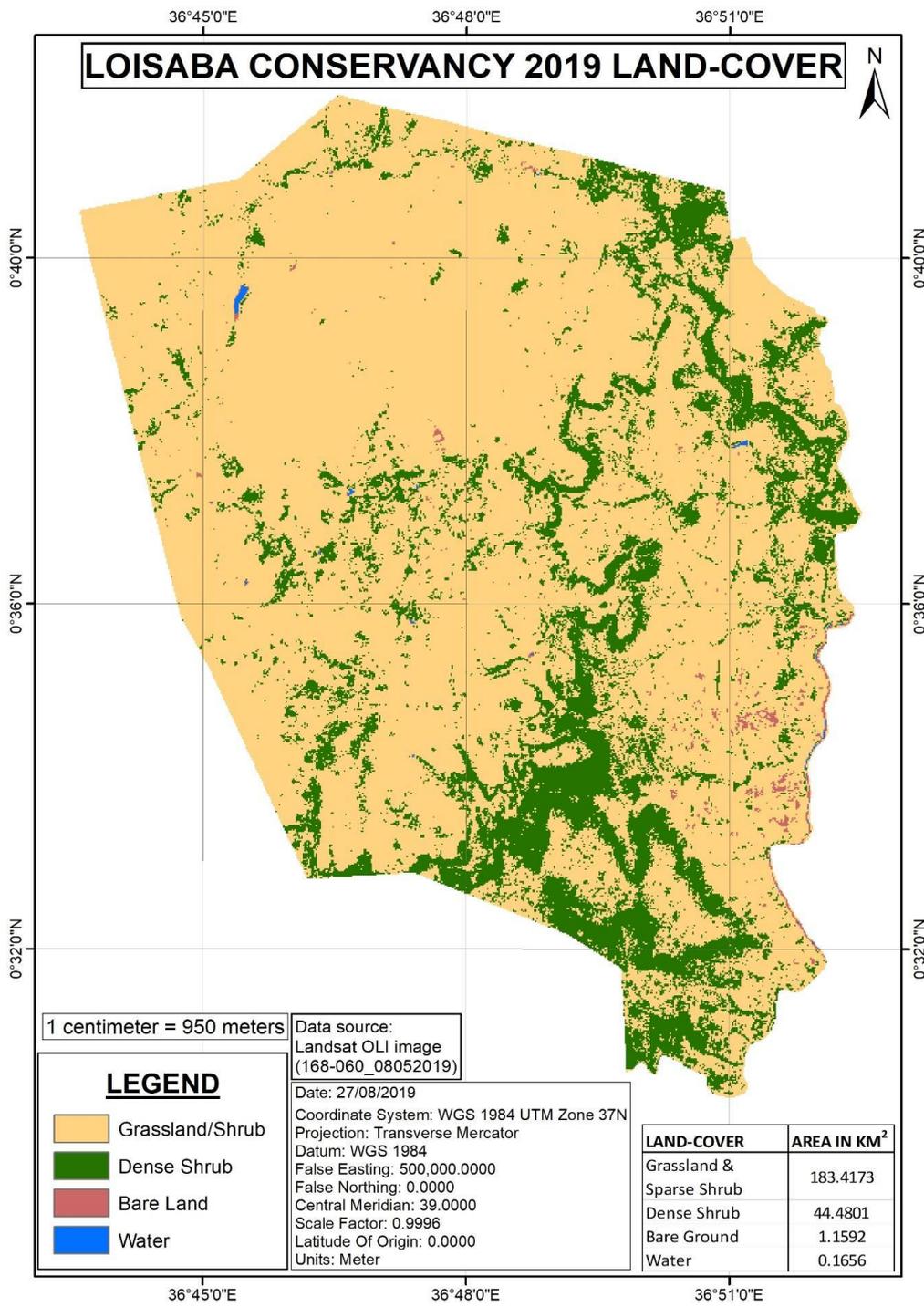


Figure 14: Land Cover Map of Loisaba Conservancy Source: Loisaba Database



#### **2.2.4 Land Use**

The three main types of land categories in Laikipia are private, community and public. The former is the land ownership status of Loisaba Conservancy. The proposed project area is one of the major wildlife conservation areas in Laikipia and aims at protecting and enhancing critical wildlife diversity within the landscape. It also undertakes sustainable livestock production. Wildlife conservation and livestock production are the dominant land use amongst the neighbouring private ranches. To the southeast of the project area lies Mukogodo division which is largely community group ranches run under the Group Ranch Representative Act (1967). The group ranches main land use is livestock production although the clamour for the conservation of the environment has brought about creation of community conservancies where eco-tourism is also being practiced as an income generation venture. Loisaba Conservancy is an instrumental supporter of the Naibunga Conservancy, a community conservation initiative that has brought together 6 group ranches.

### **2.3 Biological Environment: Laikipia County and the Project Area**

#### **2.3.1 A Summary Description of Laikipia's Biological Environment**

##### **2.3.1.1 Flora**

Vegetation distribution in Laikipia in general is strongly influenced by altitudinal diversity, with dry forest occurring on the highest elevation and a gradient of *Acacia-Themeda* bush on the plains. Exceptions to the overall regional ecological gradient are edaphic communities of *Acacia drepanolobium* in the central plains south of Mukogodo, escarpment vegetation and secondary communities induced by historical management factors. Human factors largely influence the natural vegetation in terms of distribution (vegetation communities) and diversity (species composition).

The gazetted forests in the County cover 580 Km<sup>2</sup> comprising of both indigenous and plantation forests. The indigenous forests include Mukogodo and Rumuruti while the plantation forests include Marmanet, Ng'arua, Rumuruti and Shamaneik. Parts of Ng'arua and Rumuruti Forests have been excised for agricultural and settlement purposes. Unsustainable exploitation of forest resources through deforestation and grazing over the years have combined with erratic forest fires to gradually deplete the forest cover in these forests.



In Laikipia North sub-county six vegetation communities are apparent. These include: Closed grassland; sparsely shrubbed grassland; Open woodland; Open grassland; Open shrubbed grassland; and dense woodland.

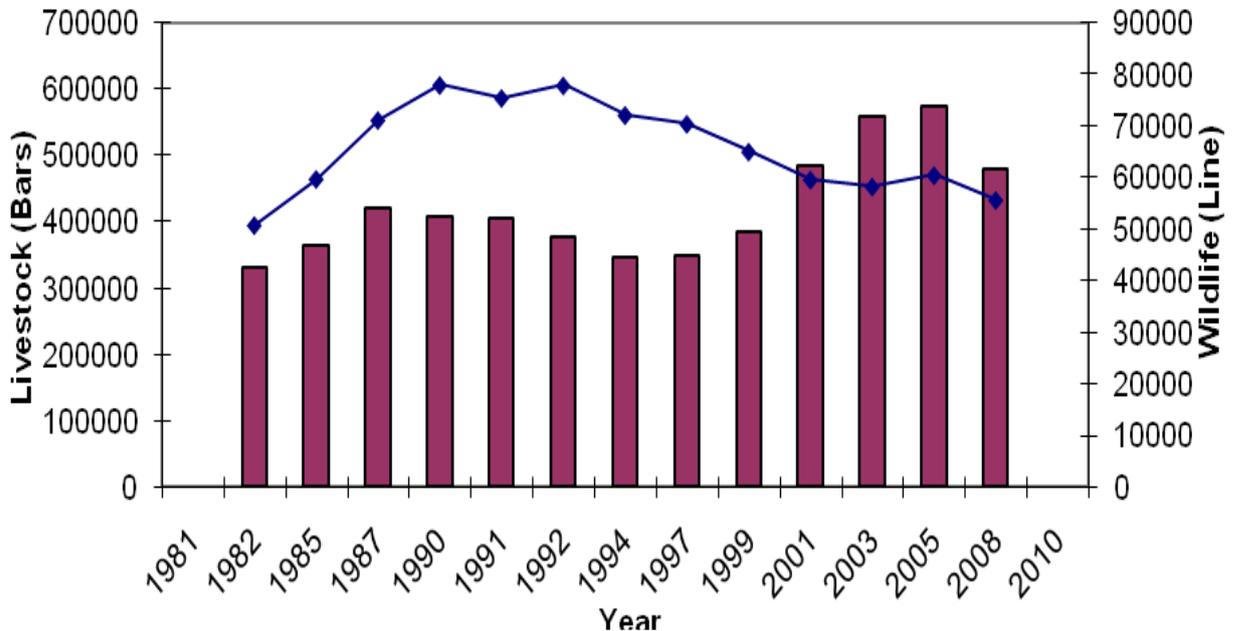
#### **2.3.1.2 Fauna**

Laikipia County has some of Kenya's richest ecosystems in terms of number of endangered wildlife species and supports high densities of large mammals. However, the area contains no formally protected wildlife areas but still has the second highest concentration of wildlife in the country (second only to the Masai Mara), and more endangered wildlife species than anywhere else in Kenya (Laikipia Wildlife Forum, 2007). Half the numbers of endangered black rhinos in Kenya are found in Laikipia. The history of wildlife in Laikipia dates to the pre-colonial period. The pastoralist Laikipia Maasai community were then few in number, sparse in settlement and non-sedentary. These dynamics meant that there was insignificant competition for resources between wildlife and the community as opposed to the current situation. Prior to 1970s, game population, especially elephants, was low. Only seasonal movements south from Samburu along the major drainage systems of Ewaso Ngiro, Ewaso Narok and Mutara rivers would occur seasonally.

Wildlife in Laikipia exists within a mosaic of different forms of land-uses. In the wetter, more productive parts of south and West Laikipia (project area), land use is dominated by smallholder farms, typically ranging from 0.5 to 2 ha in size, and covering 37% of Laikipia. These were created through the sub-division of large-scale ranches after independence in 1963 as part of government and private settlement schemes. In the more arid central and northern parts of Laikipia, subdivision of ranches has been limited, and settlement is sparse. However, wildlife populations have declined substantially in the past 20 years largely attributed to increase of immigrant farming communities considerably reducing wildlife habitat and inevitably resource competition. However, from the country context, wildlife in the county has been growing significantly with surveys showing an increase of 15% over the last 30 years, in contrast to 50% or more declines in other parts of Kenya (**See Figure 15**). The project area is prone to human-wildlife conflict, which is on the increase especially in the recent past as a result of human population growth and remains as one of the single most important challenge to socio-economic development of the local population.



### Absolute numbers (5Yr average)



**Figure 15: Trend in Wildlife and Livestock number since 1980s**

Source: Laikipia Wildlife Forum

### 2.3.2 Biological Environment of the Project Area

#### 2.3.2.1 Flora

As indicated under sub section 2.2.3 above, Loisaba Conservancy is dominated by Grassland & open woodland, Acacia woodland, evergreen bushland and Rivers and Wetlands- Riverine forest types. **Appendix 6** shows the distribution of the Loisaba Conservancy flora by types and species.

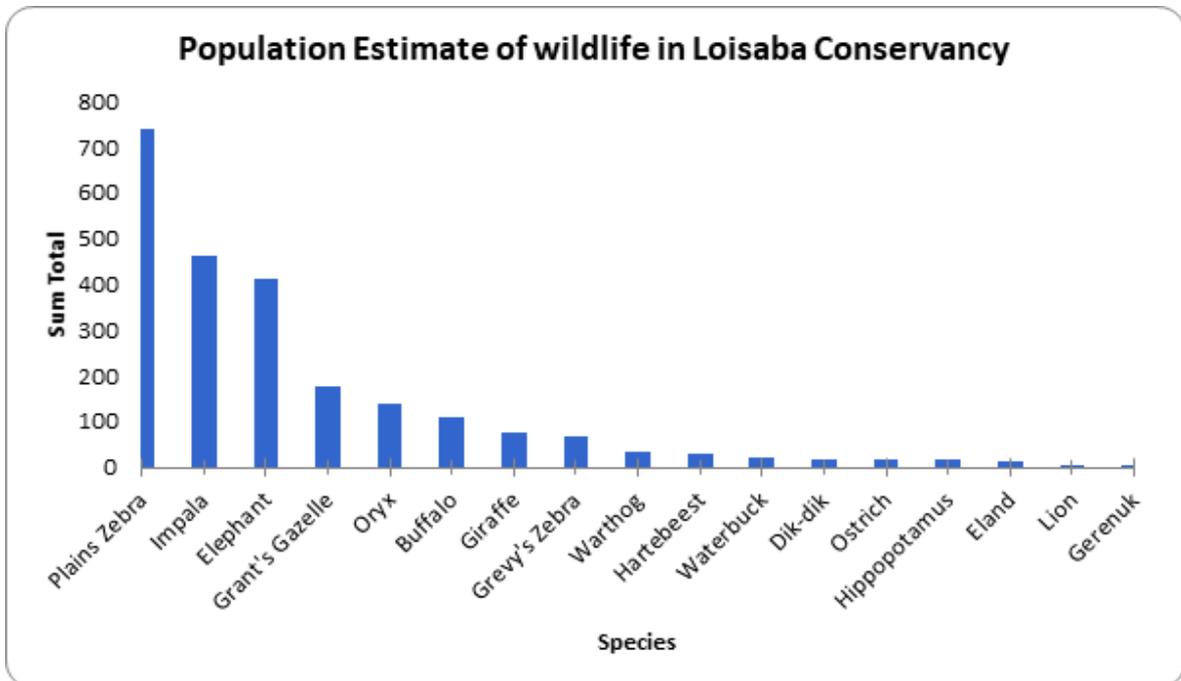
#### 2.3.2.2 Fauna: Wildlife Presence, Distribution and Trends

At Loisaba there are 250 species of birds and 50 species of animals. Besides giraffes, burchnell zebra, antelopes, other common species of wildlife include the elephants, the big cats, buffalo, gravy zebra, wild dogs, and greater kudu

Loisaba conservancy conducts a count of all observed species located within the census units bi-annually (wet and dry seasons), the most recent count was undertaken in June, 2019. The count was used to give an estimate of the wildlife population size on Loisaba. The survey utilised a similar technique to that of Kenya Wildlife Service (KWS), aerial



census methodology. It maintained a consistent aircraft type, number of participants. A total of 17 wild animal species were counted (**Fig. 16**) giving a total of 2341 individuals counted. They include 15 herbivores, 1 carnivore and 1 avian species. Common zebra (*Equus burchelli*) was the most abundant herbivore species (n=741) followed by impala (*Aepyceros melampus* (n=464). The survey recorded 411 elephants (*Loxontoda africana*). Other abundant species included Grant 's gazelle (G), Oryx (Oryx),, and buffalo (*Syncerus caffer*). The least abundant herbivore species included hippo (*Hippopotamus amphibius*), dik-dik (*Madoqua kirkir*), gerenuk, and opportunistic observation of carnivores such as lion (*Panthera leo*). The avian species recorded was ostrich (*Struthio camelus*).



**Figure 16: Results of Large Mammal Survey, June 2019. Source: Loisaba Database**

The project area is a key habitat for Laikipia's elephants. Historical radio-tracking data indicates that the area is used by elephants migrating north to Samburu. It is also important for other subgroups (See **Figure 17**). These studies showed a wide range of types of movement between different sub-populations. Home ranges for individual females were shown to range between 100 and 5000 sq. km. Part of the population migrates northwards from Laikipia into Samburu during the two rainy seasons, returning south as temporary waterholes dry up, while other sub-populations are confined to the

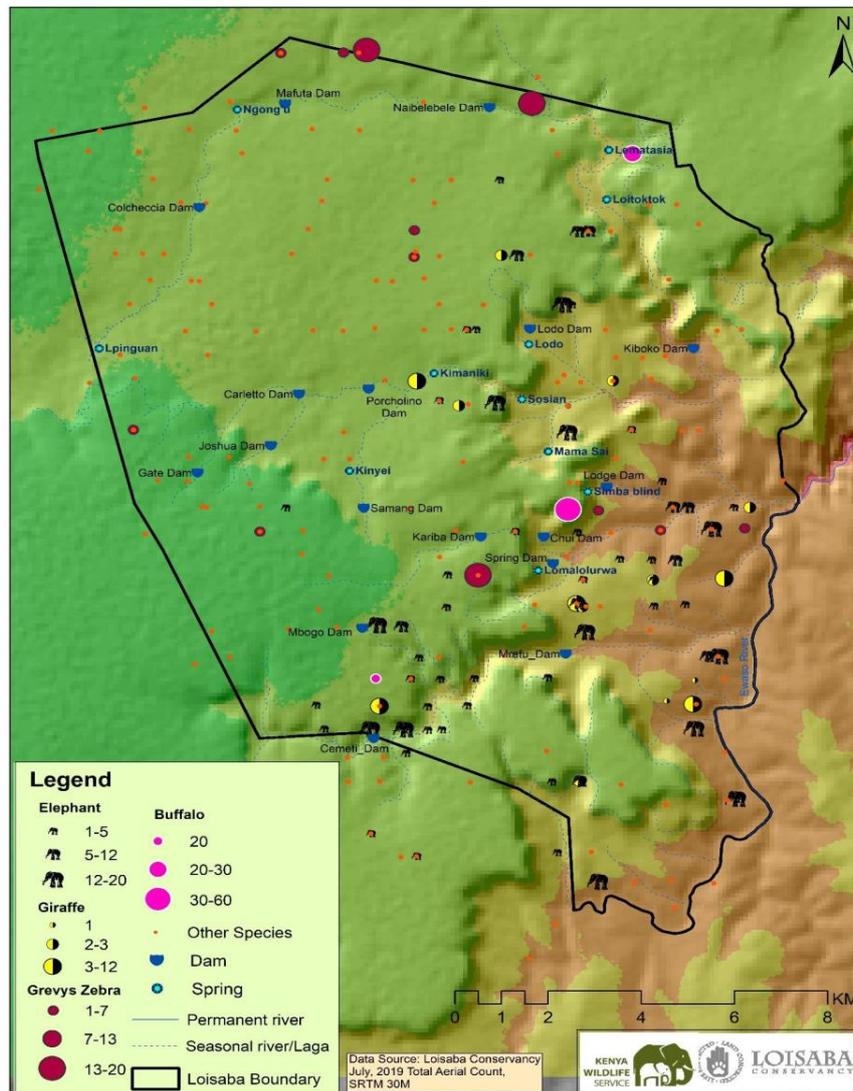


Laikipia ranches. One of the main elephant sub-populations identified by the radio-tracking data was the 'Ewaso subpopulation'. These spent most of their time on the private ranches between Segera and Loisaba, and had intermediate range sizes.

Although meat poaching remains a serious problem in the Group Ranches for giraffe conservation, the populations in private ranches are not currently under significant conservation threats, and numbers are generally increasing. Continued conversion of wooded savannah to grassland by elephants may have an adverse impact on giraffe in time at the project area.

Carnivores' studies at Loisaba are conducted by various organisations. Lion Landscape monitor the three lion prides at Loisaba (each fitted with a collar). Each pride contains an average of eight lions. Much of the work is focused on learning how to actively manage the lion population to reduce livestock losses, and to understand what causes some lions to become livestock killers while others do not. Leopard studies are conducted by San Diego Zoo Global who estimated the leopard population to be approximately 30.





**Figure 17: Map of other herbivore and carnivore population and distribution within the area based on June/ July Aerial census data**

## 2.4 Demographic Pattern, Projections and Public Consultation

### 2.4.1 Demographic Pattern, Projections

According to the 2019 Kenya’s National Housing and Population Census, the population of Laikipia is 518,560 persons split into 259,440 males, 259,102 females and 18 intersex. This population rose from 399,227 people of which 198,625 were males and 200,602 were females as recorded in the 2009 Census. The average household size according to the 2019 census is 3.4 persons per household while the population density



is 54 persons per square kilometre. Nyahururu Sub-county is the most highly populated with a population of 154,704; followed by Laikipia West Sub-county with a population of 129,263 and in third place is Laikipia East Sub-county with a population of 102,815. Laikipia Central and Laikipia North (within which the project area falls in- highlighted in yellow colour) sub counties are the least populated with a population of 95,594 and 36,184 persons respectively as shown in **Table 8**. The main reason of low population density is due to the type of the land use and land ownership which is largely livestock production and wildlife conservation. The land ownership is either private ranches or pastoral community group ranches.

**Table 8: Population Pattern in Laikipia County**

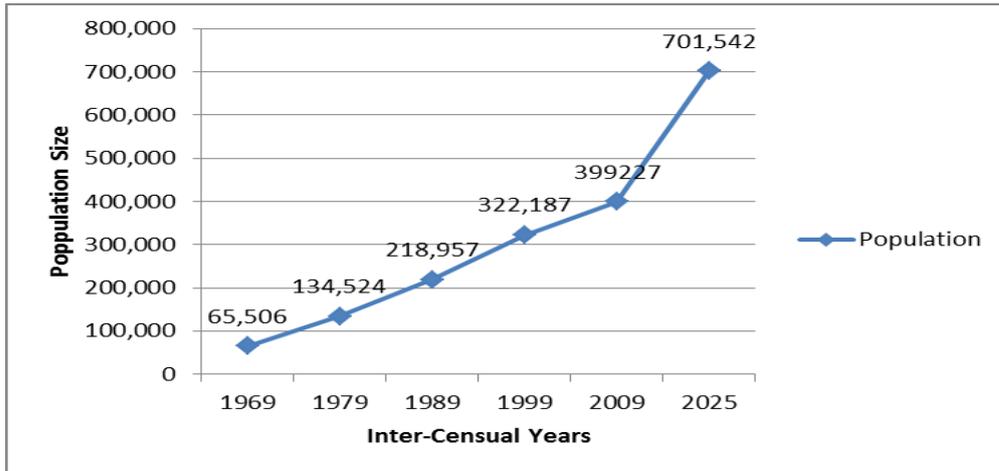
County	District	Male	Female	Inter-sex	Total	No. of HHs	Av. Size	Land Size	Population Density (No. per Sq. Km)
Laikipia County		259,440	259,102	18	518,560	149,271	3.4	9,532.20	54
	Laikipia Central	47,888	47,705	1	95,593	30,372	3.1	1,232.6	78
	Laikipia East	52,078	50,732	5	102,810	33,505	3.0	1,539.0	67
	<b>Laikipia North</b>	<b>18,067</b>	<b>18,116</b>	<b>1</b>	<b>36,183</b>	<b>7,752</b>	<b>4.6</b>	<b>2,575.0</b>	<b>14</b>
	Laikipia West	65,158	64,102	3	129,260	33,025	3.9	3,372.2	38
	Nyahururu	76,249	78,447	8	154,696	44,617	3.4	813.4	190

**Source: CBS's (Kenya's National Housing and Population Census, 2019)**

The settlement patterns in the county are uneven. The varying land potential, livelihood zones, infrastructure access, land use system and availability of social amenities influence them. Laikipia North constituency with community ranches and pastoral livelihood patterns is arid and semi-arid in nature and therefore the least populated.

**Figure 18** illustrates the population growth over the inter-censal years and the projection





**Figure 18: Population Growth Rate and Projection**

Sources: CBS and Acacia Database.

## 2.4.2 Public and Community Consultation and Disclosure

### 2.4.2.1 Introduction

Section 17-1 of The Environmental-Impact Assessment and Audit Regulations, 2003 requires that an EIA should “seek the views of any person who may be affected by the project”. Stakeholders’ consultation and disclosure are therefore overriding principles and practice of EIA and EA. It involves collating the views and concerns of the community neighbouring a development activity/project so that they get to know what the project entails and how the operations will affect their biophysical and human environments. Public consultation is useful for gathering environmental data, understanding likely impacts, determining community and individual preferences, selecting project alternatives and designing viable and sustainable mitigation and compensation plans. Public consultation in the EIA process is undertaken during the project design, implementation and initial operation. The aim is to disseminate information to interested and affected parties (stakeholders), solicit their views and consult on sensitive issues.

### 2.4.2.2 Aims and Objectives of Public Consultation

The specific aims of public consultation are to:

- Improve project design and, thereby, minimize conflicts and delays in implementation;
- Facilitate the development of appropriate and acceptable entitlement options;



- Increase long term project sustainability and ownership;
- Reduce problems of institutional coordination;
- Make the resettlement process transparent; and
- Increase the effectiveness and sustainability of income restoration strategies, and improve coping mechanisms.
- An important element in the process of impact assessment is consulting with stakeholders to gather the information needed to complete the assessment.

#### 2.4.2.3 Objectives of Public Consultations for Loisaba Rhino Sanctuary

The main objectives of the public and stakeholders' consultations for the Proposed Loisaba Rhino Sanctuary were to:

- Provide clear and accurate information about the project to the affected community, neighbouring ranches, conservancies, public institutions and other relevant stakeholders;
- Obtain the main comments, concerns, inputs and perceptions of the affected community, neighbouring ranches, conservancies, public institutions and other relevant stakeholders and their suggested/preferred mitigation measures;
- Identify local leaders with whom further dialogue can be continued in subsequent stages of the project.

#### 2.4.2.4 Stakeholders and Communities Contacted for this EIA

This EIA contacted and consulted a wide network of communities and other stakeholders who may be either directly or indirectly affected by the establishment of the Proposed Sanctuary. During the EIA Project Report process which ran from February 2020 but disrupted by Covid-19 travel restrictions only to resume in July 2020,

the following stakeholders including neighbouring community members were consulted:



*Plate 1: Naibunga Conservancy Manager Making his point during the combine meeting*





*Plate 2: Laikipia North Sub County Ward Administrator pointed about County Government support to the Project*

1. The CEO of Loisaba Conservancy and senior managers including the Security Manager, the Community Development and Liaison Officer, Assistant Conservation Officer, and David Saruni, the Security Administrator
2. Members of the Kojia Group Ranch, Laikipia County and Lokodojek Community, OI Donyiro, Isiolo County. The latter were ably represented by the Manager of OI Donyiro Conservancy, a community wildlife Conservancy;
3. The Chief and elders of Morijo, Kirimun, at the boundary between Laikipia and Samburu Counties.
4. Owners/and or managers of the following private ranches and conservancies: Mugie

Conservancy, OI Malo  
Lodge/Conservancy, Sabuk

Lodge/Conservancy, Suyian Ranch, and TangoMaos Farm;

5. Others included: Dr. Omenga, the KWS Research Scientist, Mountain Conservation Area, Dr. Peter Heitz, the LWF Executive Director, Ms. Jemima. the Chief Officer, Trade, Tourism and Cooperatives, Laikipia County and Mr Horris Wanyama of the Space for Giants.





*Plate 4: Chairlady of the Chui Mamas CBO indicated that women are ready to protect the rhinos for increased benefits to the women*

**Appendix 11** contains the signed interview comments by the project's stakeholders including neighbouring communities' opinion leaders during preparation of the EIA

*Plate 3: Community members from Labarishereki, Isiolo County demonstrate the success of the Rhino project if they all join hands together*

Project Report and **Appendix 14** presents list of people consulted in the process of executing the EIA Study.

After the review of the EIA Project Report which resulted in Nema recommending for EIA Study Report, much wider consultation was conducted. The public consultation commenced immediately after the approval

of the EIA Study Report ToR. For the community wider consultations, meetings were held with the neighbouring

communities, thus:



*Plate 5: Koiya Chief reported that their Koiya communities are already deriving benefits from Loisaba Conservancy*

1. 16<sup>th</sup> March 2021: Meeting conducted at Sagumai, KMC and Ntumodet areas of Laikipia County.
2. 17<sup>th</sup> March 2021: Community meetings were held at Nannapa and Koiya areas in Laikipia County;



*Plate 6: ACC Kirimun Division ensure security for the rhinos and the neighbourhood*



and Labarishereki in Isiolo County

3. 18<sup>th</sup> March 2021: Meeting was held at Morijo community area in Laikipia County, Kirimon and Nkoteiya in Samburu County

A combined community and stakeholders' meeting was held at Loisaba Conservancy whose main objective was to reach a common consensus on the establishment of the Loisaba Rhino Sanctuary project. Besides the community neighbouring Loisaba Conservancy, the meeting also brought together other stakeholders including KWS Community Warden- Laikipia County and KWS Research Scientist, Mountain Conservation Area who informed the participants on the organization's plans to increase rhino population, local, national and global importance of conserving rhinos. Others included the Wildlife Manager of Ol Pejeta Conservancy who presented the status of rhino conservation at Ol Pejeta; Laikipia North Sub County Administrator who gave the county's support to the project; and the Assistant County Commissioner, Kirimon Division, among others. The ACC noted that the security of the rhinos and the surrounding area is assured since Loisaba Conservancy has enough rangers while the government will work closely with the conservancy to ensure security prevailed in the region.



The meetings' items of agenda are contained in **Appendix 7**. **Appendix 8** presents the meeting deliberations as captured from all the neighbourhood. The results from the combined meeting held at Loisaba Conservancy is attached (**Appendix 9**). Individuals consulted (through key informant interviews) during the EIA Study Report fieldwork comprised government officials, wildlife conservationists, Community ranch and conservancy managers as outlined below:

- (i) Chief, Olborsoit
- (ii) Nanapa Community Chairman
- (iii) Manager, Naibunga Lower Unit
- (iv) Mama Chui Chairlady

*Plate 7: An old man narrates the existence of rhinos in Loisaba Conservancy and neighbourhood in the 1970s*



- (v) Laikipia North Sub County Ward Administrator
- (vi) Ilmotiok Chief
- (vii) Former Member of County Assembly
- (viii) Chairman, Naibunga Lower Unit
- (ix) Executive Director, Laikipia Conservancy Association
- (x) Chairman, Naibunga Upper Unit
- (xi) Chairman, Tiamamut Ranch Group
- (xii) Assistant County Commissioner, Kirimun Division
- (xiii) Samwel Mutisyia, Ol Pejeta Conservancy Wildlife and conservation manager
- (xiv) Jamie Gaymer, Ol Jogi Wildlife Conservancy Manager

**Appendix 12** contains stakeholders consulted for the EIA Study Report

#### **2.4.2.5 Stakeholders' and Community Members' Perceptions on the Project**

##### **2.4.2.5.1 Positive Perceptions**

From interviews with the stakeholders listed above and members of the community, it is clear that they anticipate more positive impacts from the implementation of the proposed project. These include;

- The project, apart from re-establishing rhino populations in areas where they were decimated through the rampant poaching witnessed in the 1970s and the 1980, will improve the overall wildlife conservation and biodiversity in Laikipia, a county which plays hosts to a wide variety of wildlife species;
- There might possible increase in the number of tourists visiting Loisaba and the surrounding conservancies (both private and community owned) which may increase the overall revenue obtained from these tourism activities;
- The overall security situation in the region may improve due to the presence of well-trained NPRs and rangers overseeing the security and protection of the rhinos;
- Possible increase in employment opportunities in the rhino sanctuary and the tourism industry in the project area;
- Preservation and protection of the rhino, which is a symbol of Kenya's wildlife heritage;



#### **2.4.2.5.2 Negative Perceptions- Concerns from the Stakeholders**

While appreciating the importance of the Proposed Sanctuary in terms of the conservation value, the stakeholders contacted raised some pertinent concerns and some reservations regarding the project, the highlights being:

- Some of the conservation organizations operating in the Laikipia-Samburu Ecosystem, led by LWF have made formal requests to the Kenyan and US governments on the imperatives of expanding rhino sanctuaries by re-introducing them to their hitherto habitats. However, for this to succeed and take care of the carrying capacities of the existing rhino sanctuaries in Laikipia (Solio, Ol Jogi, Ol Pejeta and Lewa-Borana), there is need to create corridors among and between the Sanctuaries. The proposed corridors include: (i) Borana-Lewa-Ol Naishu-Lol Daiga-Segera-Ol Jogi (ii) Ol Pejeta-Segera-Eland Downs-Mutara ADC-Mpala-Loisaba. The creation of these corridors is further supported by the fact that half of the rhino population in Kenya is on private land.
- There are concerns that the previously mutual co-existence between private conservancies on one hand and the pastoralist communities which neighbour these conservancies, where the communities are allowed dry season grazing areas within the conservancies may be jeopardized by the establishment of rhino sanctuaries which prohibits entry to the sanctuaries due to security reasons. This may breed conflicts between the communities and the ranchers, whose results have, as past incidences have shown vicious. Support and goodwill for conservation by communities in such circumstances is greatly lowered and threatened.
- The perimeter solar powered fence line should be aligned and configured in a way that allows the community (Koiya GR and Ol Donyiro) to access the Ewaso Ng'iro River which is their main source of water for both domestic and livestock watering.
- There are great concerns that the presence of the perimeter fence around the Sanctuary, may interfere with free movement of wildlife and wildlife corridors in the expansive ecosystem which links Loisaba and other wildlife habitat. There is therefore the need to monitor the effectiveness of the proposed short fence on allowing free movement of other wildlife apart from the rhinos. Moreover, the involvement of all the stakeholders is paramount in identifying and maintaining the existing migratory corridors.



- Issues arising from the public consultations and disclosure meetings, have been considered and integrated in the Environmental Management and Monitoring Plan.



### **3 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK**

The EIA Project Report had extensively reviewed policies, legislations and administrative framework with bearing to the establishment of Loisaba Rhino Sanctuary. The policy and legislation analysis cover national level and strategy documents as well as global institutional framework relevant to this EIA study.

#### **3.1 Background**

In the Constitution of Kenya, 2010, the State clearly undertakes to carry out the following:

- Ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits.
- Work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya.
- Protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities.
- Encourage public participation in the management, protection and conservation of the environment.
- Protect genetic resources and biological diversity.
- Establish systems of environmental impact assessment, environmental audit and monitoring of the environment.
- Eliminate processes and activities that are likely to endanger the environment.
- Utilise the environment and natural resources for the benefit of the people of Kenya.

“Every person has the right to a clean and healthy environment, which includes;

- The right to have the environment protected for the benefit of present and future generations through legislative and other measures, particularly those contemplated in Article 69; and
- The right to have obligations relating to the environment fulfilled under Article 70”.



Thus, every activity or project undertaken within the republic must be in line with the State's vision for the national environment as well as adherence to the right of every individual to a clean and healthy environment. Loisaba Conservancy has complied with these constitutional requirements by undertaking this EIA for the Proposed Loisaba Rhino Sanctuary.

### 3.2 Legal Framework

Kenya has over 77 statutes which relate to environmental concerns. Most of these statutes are sector specific, covering issues such as public health; soil erosion; protected areas; endangered species; water rights and water quality; air quality, noise and vibration; cultural, historical, scientific and archaeological sites; land use; resettlement; etc. Before the enactment of EMCA 1999, environmental management activities were implemented through a variety of instruments such as policy statements and sectoral laws and also through permits and licences. It provided for the establishment of NEMA which became operational in July 2002, with the statutory mandate to co-ordinate all environmental activities. Policy and legislative framework of direct relevance to and have informed the preparation of this project report includes the following:

#### 3.2.1 *The Environmental Management and Co-ordination Act, 1999*

The Environmental Management and Co-ordination Act, 1999 (EMCA) aims to ensure successful environmental management in Kenya using four main principles:

- The sustainability of the environment and natural resources;
- The precautionary principle (*the principle that where there are threats of to the environment, whether serious or irreversible, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation*)
- The integration of environmental considerations into development planning and management;
- The encouragement of public participation in any environmental decision-making.

The National Environment Management Authority (NEMA) is the governing body which oversees the application of these principles. EMCA makes provision for an Environmental Impact Assessment (EIA) to be carried out before permission for any



development out of character with its surroundings is granted. Audits must be carried out as per the Environmental (Impact Assessment and Audit) Regulations, 2003, developed to support EMCA. The Act requires an Environmental Impact Assessment (EIA) license for any activity or development out of character with its surroundings. The first step in the application for an EIA license is the submission of a Project Report in the required format, detail, and with the prescribed fee. Schedule 2 of EMCA describes the types of activities or projects that require EIA license and, with respect to this project, include:

Natural conservation areas including –

- (a) Creation of national parks, game reserves and buffer zones;
- (b) Establishment of wilderness areas;
- (f) Commercial exploitation of natural fauna and flora;
- (g) Introduction of alien species of fauna and flora into ecosystems.

In addition to the Environmental Management and Coordination Act, legislations and policies pertinent to this report on a national level are outlined below.

### **3.2.2 *Wildlife Conservation and Management Act, 2013***

The Wildlife Management and Conservation Act 2013 allows for the establishment of wildlife conservancies or sanctuaries either individually or collectively provided that proposers own land on which wildlife inhabits. Part 39 of the Act contains the provisions for establishment of a wildlife conservancy or sanctuary. The Wildlife Management and Conservation Act 2013 defines a Sanctuary as “an area of land or of land and water set aside and maintained by government, community, individual or private entity for the conservation and protection of one or more species of wildlife’. The Act further defines a wildlife conservancy as “land set aside by an individual landowner, body corporate, group of owners or a community for purposes of wildlife conservation in accordance with the provisions of this Act”.

The Act requires that an application to the KWS Director General for the establishment of a wildlife conservancy or sanctuary be ‘submitted in the prescribed form”. Information required by KWS for review of applications include:

- i. List of the wildlife conservancy, sanctuary or other wildlife conservation activities in which they are involved in and in the case of an association their membership;
- ii. For associations, the constitution with clear governance structures;



- iii. A draft plan for the association or privately owned wildlife conservation area detailing:
  - a. Type of wildlife resources in their area and type of wildlife conservation initiatives being undertaken;
  - b. Measures and type of wildlife conservation activities that are being proposed;
  - c. Type of wildlife user rights being proposed that will enhance conservation and survival of wildlife in their area;
  - d. Land use practices in the area and proposed measures to ensure land use compatibility with wildlife;
  - e. Methods of monitoring wildlife and wildlife user activities;
  - f. Community wildlife scouting scheme that will help to provide wildlife surveillance and assist in addressing problem animal control; and
- iv. Any other aspect deemed necessary; and
- v. Such other information as the Director General may require.

Part 111 (2) of the Act bestows on KWS coordination and control of all wildlife security issues in all the national parks, national reserves, wildlife conservancies and sanctuaries. This shall be in collaboration with other law enforcement agencies, counties and community wildlife scouts. The Sixth Schedule lists the black rhinoceros (*Diceros bicornis*), alongside six other wildlife species in Category A, classified as the “Critically Endangered Mammals.” Part 26 (1) of the Act also requires that conservation and management of wildlife should be undertaken in compliance with EMCA 1999.

### **3.2.3 Environmental Management and Coordination (Waste Management) Regulations 2006**

NEMA gazetted these rules under Legal Notice 121 of 2006 to regulate how solid waste is generated, segregated, transported and finally disposed. It deals with all forms of waste including solid, industrial, hazardous, pesticides, biomedical and radioactive wastes. Under these regulations, no person shall dispose of any waste on a public highway, street, road, recreational area or in any public place except in a designated waste receptacle.



The regulations further require that every person whose activities generates wastes has an obligation to ensure that such waste is transferred to a person who is licensed to transport and dispose of such waste in a designated waste disposal facility. Section 2 part II of the regulations requires that any person whose activities generate waste shall collect, segregate and dispose or cause to be disposed of such waste in the manner provided for under the Regulations.

#### **3.2.4 Water Act 2002**

The Water Act makes provision for the conservation, control, apportionment and use of water resources in Kenya, and for incidental and connected purposes. Protection of water supply is clearly a critical issue under the Act. Pollution of water is an offence. Section 75 allows a licensee for water supply to construct and maintain drains, sewers and other works for Intercepting, treating or disposing of any foul water arising or flowing upon land for preventing water from being polluted. Section 76 prohibits discharge of trade effluent into sewers without consent, and section 77 indicates some payment for such discharge. The Act also provides for public consultations where appropriate in the use of the resources notably where such use is likely to impact negatively on the quantity, quality of the water resources in any catchment area.

Section 94 (1) states that No person shall, without authority under this Act -

- Wilfully obstruct, interfere with, divert or obstruct water from any watercourse or any water resource, or negligently allow any such obstruction, interference, diversion or abstraction; or
- Throw or convey, or cause or permit to be thrown or conveyed, any rubbish, dirt, refuse, effluent, trade waste or other offensive or unwholesome matter or thing into or near to any water resource in such manner as to cause, or be likely to cause, pollution of the water resource.

#### **3.2.5 Environmental Management and Coordination, (Water Quality) Regulations 2006.**

Part 2 of the regulations on Protection of Sources of Water states that every person shall refrain from any act which directly or indirectly causes, or may cause immediate or subsequent water pollution, and it shall be immaterial whether or not the water resource was polluted before the enactment of the Act. It also states that, no person shall throw or



cause to flow into or near a water resource any liquid, solid or gaseous substance or deposit any such substance in or near it, as to cause pollution. The regulations also ensure protection of various water sources such as protection of Lakes, Rivers, Streams, springs, Wells and other water sources. It stipulates that no person shall:

- (a) Discharge, any effluent from sewage treatment works industry or other point sources into the aquatic environment without a valid effluent discharge license issued in accordance with the provisions of the Act.
- (b) Abstract ground water or carry out any activity near any lakes, rivers, streams, springs and wells that is likely to have any adverse impact on the quantity and quality of the water, without an Environmental Impact Assessment license issued in accordance with the provisions of the Act; or
- (c) Cultivate or undertake any development activity within a minimum of six meters and a maximum of thirty meters from the highest ever recorded flood level, on either side of a river or stream, and as may be determined by the Authority from time to time.

Moreover, the Authority in consultation with the relevant lead agency, shall maintain water quality monitoring records for sources of domestic water at least twice every calendar year and such monitoring records shall be in the prescribed form as set out in the Second Schedule to the Regulations.

### **3.2.6 Environmental Management and Coordination (Air Quality) Regulations, 2008**

The objective of these Regulations is to provide for prevention, control and abatement of air pollution to ensure clean and healthy ambient air. The general prohibitions state that no person shall cause the emission of air pollutants listed under First Schedule (Priority air pollutants) to exceed the ambient air quality levels as required stipulated under the provisions of the Seventh Schedule (Emission limits for controlled and non-controlled facilities) and Second Schedule (Ambient air quality tolerance limits).

### **3.2.7 Occupational Health and Safety Act, 2007**

This is an Act of Parliament to provide for the safety, health and welfare of workers and all persons lawfully present at workplaces, to provide for the establishment of the National Council for Occupational Safety and Health and for connected purposes. The Act has the following functions among others:



- Secures safety and health for people legally in all workplaces by minimization of exposure of workers to hazards (gases, fumes and vapours', energies, dangerous machinery/equipment, temperatures, and biological agents) at their workplaces.
- Prevents employment of children in workplaces where their safety and health is at risk.
- Encourages entrepreneurs to set achievable safety targets for their enterprises.
- Promotes reporting of work-place accidents, dangerous occurrences and ill health with a view to finding out their causes and preventing of similar occurrences in future.
- Promotes creation of a safety culture at workplaces through education and training in occupational safety and health.

Failure to comply with the OSHA, 2007 attracts penalties of up to KES 300,000 or 3 months' jail term or both or penalties of KES 1,000,000 or 12 months' jail term or both for cases where death occurs and is in consequence of the employer and undertake to restore the land to the conditions it was before. Any damages or reduction of value shall be compensated to the land owners.

### **3.2.8 *Employment Act No 11 and the Work Injury Benefit Act No.13 of 2007***

These provide for the compensation for the employees for work related injuries and disease contracted in course of their employment and connected purposes. This act ensures that the employers ensure good working standards for their employees. This includes employers providing protective garments and equipment to the employees. The Act states that an employer shall provide and maintain such appliances and services for the rendering of first aid to the employees in case of accidents as may be prescribed in any other written law in respect of the trade or business in which employer is engaged

### **3.2.9 *Way Leaves Act (Cap. 292)***

Way Leaves Act (Cap. 292) Section 3 of the Act states that the Government may carry any works through, over or under any land whatsoever provided it shall not interfere with any existing building or structures of an ongoing activity. Notice, however, will be given one month before carrying out any such works (section 4) with full description of the intended works and targeted place for inspection. Any damages caused by the works



would then be compensated to the owner as per section. Finally, section 8 states that any person without consent causes any building to be newly erected on a way leave, or cause hindrance along the way leave shall be guilty of an offence and any alternations will be done at his/her costs.

### **3.2.10 Physical Planning Act (Cap 286)**

Section 36 of this act states that the local authority may if it deems it necessary require a submission of environmental impact assessment report together with a development application if they feel the project may have some injurious effect on the environment. Section 33 of the same act gives the director of planning authority to grant the applicant a development permission or decline to grant the applicant such development permission by stating the ground of refusal. Other relevant sections are 41 and 52.

### **3.2.11 Public Health Act (Cap. 242)**

Part IX Section 8 & 9 of the Act states that no person/institution shall cause nuisance or condition liable to be injurious or dangerous to human health. Any noxious matter or waste water flowing or discharged into a water course is deemed as a nuisance. Part XII Section 136 states that all collections of water, sewage, rubbish, refuse and other fluids which permits or facilitates the breeding or multiplication of pests shall be deemed nuisances The Act addresses matters of sanitation, hygiene and general environmental health and safety.

### **3.2.12 Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009**

The regulations essentially state the general prohibitions, provisions relating to noise from certain sources, licensing procedures for certain activities and mapping of noise and excessive vibrations. The regulations stipulate that no person shall make or cause to be made any loud, unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. The regulations have vested the responsibility of noise measurement and control to NEMA besides designating bodies that may be involved in mapping of noise and excessive vibrations such as Ministry responsible for physical planning; Kenya Airports Authority; Mines and Geology Department among others.



For any person intending to carry out construction, demolition, mining or quarrying work an Environmental Impact Assessment should be undertaken to;

- (a) Identify natural resources, land uses or activities which may be affected by noise or excessive vibrations from the construction, demolition, mining or quarrying;
- (b) Determine the measures which are needed in the plans and specifications to minimize or eliminate adverse construction, demolition, mining or quarrying noise or vibration impacts; and
- (c) Incorporate the needed abatement measures in the plans and specifications

License application procedures to the Authority have been provided for instances where a sound source is planned, installed or intended to be installed or modified by any person in such a manner that such source shall create or is likely to emit noise or excessive vibrations, or otherwise fail to comply with the provisions of these Regulations. In addition, it sanctions that the provisions of The Factories and Other Places of Work (Noise Prevention and Control) Rules, 2005 shall apply *mutatis mutandis* to these Regulations.

### **3.2.13 Occupiers Liability Act (Cap 34)**

This act requires the occupier of a site to warn visitors of the likelihood of dangers within his site to enable the visitor to be reasonably safe. Under common law, the proponent has a duty to care for workers, visitors and other persons, who enter the site legally or with his consent.

### **3.2.14 Penal Code (Cap 63)**

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

Other legislation pertinent to the proposed project activities include;

- The Labour Relations Act, Cap 233.
- The Labour Institutions Act, Cap 234.



- The Industrial Training Act Cap 237.
- The Physical Planning (Building and Development) (Control) Rules, 1998.
- NEMA Integrated National Land Use Guidelines

### 3.3 National Policy

#### 3.3.1 *Sessional Paper No. 6 of 1999 on Environment and Development*

Every person in Kenya is entitled to a clean and healthy environment and has a duty to safeguard and enhance the environment. As envisioned in this Paper, Kenya should strive to move along the path of sustainable development to meet the needs of the current generation without compromising the ability of the resource base to meet those of future generations. The overall goal is therefore to integrate environmental concerns into the national planning and management process and provide guidelines for environmentally sustainable development. The Sessional Paper emphasizes that EIAs must be undertaken by project proponents as an integral part of project design and preparation. It also proposes for periodic environmental auditing to ascertain whether the developer is fully implementing the mitigation measures recommended by the Initial EIA/EA Report.

#### 3.3.2 *The National Environment Action Plan (NEAP)*

The first NEAP for Kenya was prepared in 1994 based upon the recommendations of the 1992 Earth Summit held in Rio de Janeiro, among them Agenda 21, a Global Environmental Action Plan. The second one was prepared in 2009 in tandem with the development aspirations of the country enshrined in the Kenya Vision 2030 policy. It is a deliberate policy to integrate environmental considerations into environmental considerations in the country's social and economic process. Integration is being achieved through a multi-sectoral approach to develop a comprehensive framework to ensure that environmental management and conservation of natural resources is an integral part of the societal decision-making.

The environmental action plan discusses the challenges of change for Kenya and underscores the sustainability of Kenya's economic and social development which depends ultimately on proper and responsible management of the natural resource base and the environment in general. The plan also describes the physical environment and basically follows the thematic areas of nine task forces. These task forces were



constituted along the following environmental issues: 1) water resources (inland, coastal and marine); 2) biodiversity (forestry, wildlife biotechnology, indigenous knowledge); 3) sustainable agriculture and food security; 4) desertification and drought; 5) environmental pollution and waste management; 6) human settlements and urbanization; 7) public participation and environmental education; 8) environmental information systems; and 9) policy, institutional, legislative framework and economic incentives. The report is further supplemented by background documents including detailed individual task forces reports. The report makes some concrete recommendations including the need for a new institutional framework, review and harmonization of environmental legislation, implementation of environmental impact assessment for all investment programs and development of environmental programs to mitigate/reduce environmental degradation.

### **3.3.3 Kenya's Vision 2030**

Following the expiry of the Economic Recovery Strategy (2003-2007), Kenya's Development Agenda is now anchored on the Kenya Vision 2030, which aims at creating "a globally competitive and prosperous country with a high quality of life by 2030". It aims to transform Kenya into "a newly –industrialized, middle-income country providing a high quality of life to all its citizens in a clean and secure environment". Simultaneously, the Vision aspires to meet the Millennium Development Goals (MDGs) for Kenyans by 2015.

The Vision is anchored on three key pillars: economic, social and political. The economic pillar aims to achieve an average economic growth rate of 10 per cent per annum by 2012 and sustaining the same till 2030 in order to generate more resources to meet the MDGs and Vision 2030 goals. The social pillar seeks to achieve a just, cohesive and equitable social development in a clean and secure environment, while the political pillar aims for a democratic, issue-based, people-centred, result-oriented and accountable system.

## **3.4 International Environmental Policies and Agreements**

### **3.4.1 African Convention on the Conservation of Nature and Natural Resources**

This convention has the following main requirements;



1. Control of soil erosion caused by various forms of land use, which may lead to loss of vegetation.
2. Prevention and control of water pollution.
3. Protection of flora and ensure best utilization and development and conservation of threatened or special scientific flora for any aesthetic value, plant species or communities.

The components and activities of this project will adhere and conform to statements of this treaty.

#### **3.4.2 *The World Commission on Environment (the Brundtland commission of 1987)***

This international policy recommends development that produces no lasting damage to the biosphere and to particular ecosystems. Economic sustainable development is development for which progress towards environmental and social sustainability occurs within available financial resources. Similarly, social sustainable development is development that maintains the cohesion of a society and its ability to help its members work together to achieve common goals, while at the same time meeting individual needs for health and wellbeing adequate nutrition and shelter, cultural expression and political involvement.

Moreover, developing and industrialized countries have ratified various multilateral agreements that recognize the need for trans-boundary cooperation on regional and global environmental issues including:

- The Kyoto Protocol on the United Nations Framework Convention on Climate Change,
- The United Nations Convention to Combat Desertification,
- The Convention on Biological Diversity,
- The Ramsar Convention on Wetlands of, among others.



## 4 ENVIRONMENTAL ISSUES

### 4.1 Siting and Operational Phases

The EIA Study assessed and evaluated the environmental issues likely to occur with the implementation of the project. The assessment considered all the phases of the project including siting and designing, construction, operation and decommissioning. The assessment of the potential impacts served to define the Proposed Loisaba Rhino Sanctuary's environmental dimensions (biophysical, cultural, socio-economic; as well as negative and positive) and to identify measures needed to prevent the initiative from causing ecological damage and generating social costs. It also served to identify opportunities to achieve environmental benefits and positive environmental impacts.

#### 4.1.1 Impact Identification

The identification of impacts in the assessment essentially applied the following methods:

- Compilation of a comprehensive list of key environmental impacts such as changes in air and water quality, noise levels, wildlife habitats, biodiversity, landscape, social and economic systems, cultural heritage and employment levels.
- Identification of all the sources of impacts such as dust, spoils, vehicles emissions, water pollution, construction camps, et al using checklists or questionnaires. This was followed by listing possible receptors in the environment (i.e., community, and labourers) through surveying the existing environmental and socio-economic conditions and consultation with concerned parties.
- Identifying and quantifying various environmental and socio-economic impacts through the use of a standard checklist. The checklists were complemented by a Leopold's interaction matrix, which is appended in **Appendix 1**.

#### 4.1.2 Impact Prediction

Prediction of impacts technically characterized the causes and effects of impacts, and their secondary and synergistic consequences for the environment and the local community. It examined each impact within a single environmental parameter into its



subsequent effects in many disciplines. It was based on physical, biological, socioeconomic, and anthropological data and techniques. In quantifying impacts, socio cultural models, economic models, and expert judgments were applied. It is worth noting that all prediction techniques of environmental impacts, by their nature, involved some degree of uncertainty. Potential impacts were identified for the different components of the Proposed Sanctuary and the envisaged activities under each of the component. For the positive impacts, the following components and activities were considered:

- i. Formal Application to KWS for the establishment of the Sanctuary;
- ii. KWS Ecological Survey and Water Assessment and Approval from KWS;
- iii. Rhino Sanctuary Fence Survey;
- iv. Environmental Impact Assessment;
- v. Actual construction works of the Rhino Sanctuary Fence line and its facilities
- vi. Staff recruitment and training
- vii. Translocation and Release of the Rhinos
- viii. Operation and Management of the Rhino Sanctuary

The negative impacts were identified and analyzed based on the following components and activities:

- i. Rhino Sanctuary Fence Line Survey;
- ii. Construction of the Rhino Sanctuary Fence line and other facilities;
- iii. Translocation and Release of the Rhinos; and
- iv. Operation and Management of the Rhino Sanctuary

#### **4.1.3 Types of Impacts**

The project activities are likely to result in social and environmental impacts. The impacts were defined as: -

- Positive Impact: A change which is likely to improve the quality of the environment (for example by increasing species diversity; or improving the reproductive capacity of an ecosystem;
- Negative Impact: A change which was likely to reduce the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).



The potential impacts of the project fell under two broad categories of bio-physical (natural) and socio-economic environments. A matrix table was used to analyse these impacts.

#### **4.1.4 Analysis of Impacts**

A standard checklist was used to guide the EIA team in the identification of possible impacts accruing from the proposed project. A Leopold's Matrix was used to complement the checklists. (See **Appendix 1**) This matrix was generated through subjecting the various project activities to a checklist that listed the impacts in terms of three environmental components, which include:

- Physical environment
- Socio-economic environment
- Biological environment

The three components were further broken into specific components that can either be adversely and beneficially affected by various project activities. The identified impacts were then subjected to a criterion that was used to determine their characteristics and significance. The parameters used in this particular study include:

- Magnitude:-refers to the absolute or relative change in the size and value of an environmental feature
- Direction:-will the impact generate a beneficial or adverse change?
- Extent:-will the impact affects a small, medium or large area?
- Duration:-the period over which an impact will be felt. Is it short-term or long-term?
- Reversibility:-the permanence of the impact. Is the impact reversible particularly for negative ones?
- Likelihood: of occurrence-the possibility of the impact occurring as predicted.

Impact analysis and evaluation results for siting/ designing, construction and operational phases of the proposed Project are presented in **Table 9** whereas **Table 10** contains significance of the foreseen negative Impacts.



**Table 9: Impacts Significance Table for Positive Impacts**

PROJECT COMPONENT	IMPACT	DIRECTION	DIRECT/INDIRECT	REVERSIBILITY	EXTENT	DURATION	IMMINENCE	SIGNIFICANCE
Formal Application to KWS for the establishment of the Sanctuary	-Approval and technical support from KWS will ensure and enhance the success and sustainability of the Sanctuary	+	D	H	L	LT	H	H
Ecological and Water Assessments by KWS technical officers	-Establishment and documentation of Black Rhino ECC within the proposed Sanctuary -Assessment of plant species composition and plant species composition will ensure that the Sanctuary meets rhinos' browser needs and palatability -Initiation of fire management regimes within the Conservancy to manage the rhinos' browser needs -Water assessment will ensure that the project area meets the threshold of rhinos' water needs	+	D	H	L	LT	H	H
Rhino Sanctuary Fence Survey	-Awareness creation on proposed project activities -Conflicts mitigation -Incorporation of pertinent concerns from the affected parties in fence design and implementation -Incorporation of technical inputs from experts enhancing the performance of the fenceline	+	D	H	L	LT	H	H



EIA for establishment of the Rhino Sanctuary	<ul style="list-style-type: none"> <li>-Prevention of unnecessary contradictions with relevant Government Authorities and institutions</li> <li>-Integration of environmental considerations in project implementation and management</li> <li>-Incorporation of stakeholders views in project formulation and implementation</li> <li>-Enhanced support for the project by the affected parties</li> <li>-Adequate measures undertaken to respond to and manage possible risks</li> </ul>	+	D	H	L	LT	H	H
Actual construction works of the Rhino Sanctuary Fence line	<ul style="list-style-type: none"> <li>-Creation of employment opportunities for area residents</li> <li>-Building on job local skills for casual workers recruited from the local community</li> <li>-Improved environmental aspects of the site after removal of debris and other wastes at the end of construction</li> <li>-Boost to local economy due to increased incomes as a result of employment of locals</li> </ul>	+	D	H	S	ST	H	H
Staff recruitment and training	<ul style="list-style-type: none"> <li>-Improved performance and sustainability of the project</li> <li>-Realization of project goal and objectives realized/enhanced/assured</li> <li>-Adequate skills and techniques imparted for ensuring smooth translocation and eventual wild release in line with global best practices and eventual management of the rhino sanctuary</li> </ul>	+	D	H	L	LT	H	H
Translocation and Release of the Rhinos	<ul style="list-style-type: none"> <li>-Adequate and requisite infrastructure for rhinos put in place ensuring technically and scientifically sound translocation process and settlement of the rhinos in their new habitat</li> <li>-Due diligence undertaken</li> </ul>	+	D	H	L	LT	H	H



<p>Operation and Management of the Rhino Sanctuary</p>	<p>-Provision of prime rhino habitat will greatly contribute towards realization of the desired black rhinos' growth rate of 5% per annum and eventual attainment of Kenya's rhino population target of 2000 individuals in 20 years and a meta population of 830 by 2021</p> <p>-Additional space created for rhinos outside the existing sanctuaries and therefore contribute to the desired growth of global rhino population</p> <p>-Creation of the opportunity for widening the rhino gene pool, by selecting individuals from different areas.</p> <p>-Boost to tourism and therefore increased revenues which will be ploughed back to conservation efforts and community projects</p> <p>-Increased tourism activities will also lead the generation of additional employment opportunities</p> <p>-The neighbouring privately owned and community conservancies and lodges will be expected to leverage on the Sanctuary and increased flow of both local and foreign tourists to improve their own revenue streams</p> <p>-The Rhino Sanctuary (rhinos being a flagship species) will contribute to the conservation of other wildlife species and preservation of biodiversity</p> <p>-Preservation and enhancement of Kenya's wildlife as a national heritage for the benefit of the present and future generations</p>	+	D	H	L	LT	H	H
--	--	---	---	---	---	----	---	---



**Table 10: Impacts Significance table for Negative Impacts**

PROJECT COMPONENT	IMPACT	DIRECTION	DIRECT/INDIRECT	REVERSIBILITY	EXTENT	DURATION	IMMINENCE	SIGNIFICANCE
Rhino Sanctuary Fence line Survey	-Unclear understanding among some of the affected parties and stakeholders on the fence design and alignment	-	D	H	L	ST	H	H
Construction of the fence line and related activities	-Clearing and loss of vegetation along the path of the fence line which could lead to loss of biodiversity and externalities such as soil erosion	-	D	H	S	ST	H	L
	-Increased generation of solid wastes such as debris, pieces of plastic, metals, wires etc.	-	D	H	S	ST	L	L
	Injuries to construction workers as a result of handling construction and installation tools, machinery and equipment	-	D	H	S	ST	L	L
	Possible attacks to workers by wildlife leading to serious injuries and deaths and snake or scorpion bites in the bush.	-	D	H	S	ST	L	H
	Disturbance to animal serenity during construction works	-	D	H	S	ST	H	L
Translocation and Release of the Rhinos	-Possible deaths of rhinos and other undesirable and unintended effects such as increased stress levels due to movement unfamiliar habitat	-	IND	H	L	LT	L	H
Operation and Management of the Rhino Sanctuary	-Safety and security of the rhinos-possible exposure of rhinos to security threats and risks which may lead to poaching incidences	-	D	L	L	LT	L	H
	Competition with the high population of elephants and other wildlife in the proposed project area for browse material, salt licks and water	-	D	L	L	LT	L	H



	Continued colonization of the Sanctuary (and the Conservancy) by the invasive opuntia reducing browse availability and habitat quality	-	D	L	L	LT	L	H
	Possible risks of disease outbreak among the rhinos threatening their population	-	D	L	L	LT	L	H
	Possible exceeding of the Sanctuary's ECC as the rhino and other wildlife population increase inside the Sanctuary	-	D	L	L	LT	L	H
	Possible water supply, accessibility, availability and quality challenges	-	D	L	L	LT	L	H
	Possible misuse and abuse of the community grazing system arrangements between exposing the rhinos to threats and dangers	-	IND	L	L	LT	L	H
Operations of the Rhino Sanctuary fence	Concerns about interference with wildlife migratory corridors and free wildlife movement around and within the ecosystem	-	D	L	L	LT	L	H
	-Inefficient/ineffective fence due to lack of proper fence maintenance							

### **LEGEND**

-Adverse impact

+ Beneficial impact

L=Low

M=Moderate H=High

ST=Short term

LT=Long term

D=Direct

IND=Indirect S=Small

L=Large

## **4.1.5 Results of the Impacts Analysis**

### **4.1.5.1 Positive Impacts**

The anticipated positive impacts of the Proposed Loisaba Rhino Sanctuary are presented in **Table 11**.

**Table 11: Anticipated Positive Impacts of the Proposed Loisaba Rhino Sanctuary**

<b>Project Component</b>	<b>Project Activities</b>	<b>Positive Impacts</b>
<i>Siting and Designing Phase</i>		
Formal Application to KWS	Submission of Application Letter to KWS for Establishment of the Sanctuary	-Approval and technical support from KWS will ensure and enhance the sustainability and success of the Sanctuary -Approval for establishment of the Sanctuary



		from KWS is a mandatory legal requirement
KWS Ecological and Water Assessment	Assessments at the proposed sanctuary to determine Ecological Carrying Capacity (ECC), Maximum Productivity Carrying Capacity (MPCC) and Minimum Viable Population (MVP) for the proposed area (including browse condition, water suitability etc.)	<ul style="list-style-type: none"> <li>-Establishment and documentation of Black Rhino ECC within the proposed Sanctuary</li> <li>-Assessment of plant species composition and plant species composition will ensure that the Sanctuary meets rhinos' browser needs and palatability</li> <li>-Initiation of fire management regimes within the Conservancy to manage the rhinos' browser needs</li> <li>-Water assessment will ensure that the proposed project area meets the threshold of rhinos' water needs<sup>4</sup></li> </ul>
Rhino Sanctuary Fence Survey	Consultations with neighbouring Lodges, Conservancies, Ranches and the community and lead agencies such as KWS and LWF	<ul style="list-style-type: none"> <li>-Awareness creation on proposed project activities</li> <li>-Conflicts mitigation</li> <li>-Incorporation of pertinent concerns from the affected parties in fence design and implementation</li> <li>-Incorporation of technical inputs from experts enhancing the performance of the fenceline</li> </ul>
	Mobilization of resources, surveying and designing works and other preparatory tasks for the erection of the fenceline	<ul style="list-style-type: none"> <li>-Operations and sustainability of the fence line enhanced through the hiring of a qualified and competent contractor</li> </ul>
Environmental Impact Assessment	<ul style="list-style-type: none"> <li>-Public consultations and disclosure on the project components and activities</li> <li>-Consultations with project proponent and relevant key</li> </ul>	<ul style="list-style-type: none"> <li>-Prevention of unnecessary contradictions with relevant Government Authorities and institutions</li> <li>-Integration of environmental considerations in project implementation and management</li> <li>-Incorporation of stakeholders views in project</li> </ul>

<sup>4</sup> The Water Assessment Report (by KWS) concluded that the quality, quantity and distribution of water resources within Loisaba is favourable for establishment of a Rhino Sanctuary.



	stakeholders during EIA	<p>formulation and implementation</p> <ul style="list-style-type: none"> <li>-Enhanced support for the project by the affected parties</li> <li>-Adequate measures undertaken to respond to and manage possible risks</li> </ul>
Construction Phase		
Actual construction works of the Rhino Sanctuary Fence line	Site preparations i.e. fence line clearance	<ul style="list-style-type: none"> <li>-Creation of employment opportunities for area residents</li> <li>-Boost to local economy as a result of increased incomes due to employment of locals</li> </ul>
	Pitting and sinking of fence line posts	<ul style="list-style-type: none"> <li>-Creation of employment opportunities for area residents</li> <li>-Building on job local skills for casual workers recruited from the local community</li> <li>-Boost to local economy as a result of increased incomes due to employment of locals</li> </ul>
	Installation of wires and solar panels	<ul style="list-style-type: none"> <li>-Creation of employment opportunities for area residents</li> <li>-Boost to local economy as a result of increased incomes due to employment of locals</li> <li>-Improved environmental aspects of the site after removal of debris and other wastes at the end of construction</li> </ul>
Staff recruitment and training	<ul style="list-style-type: none"> <li>-Hiring and training of the Rhino Officer and other competent and skilled staff</li> <li>-On job training for the recruited staff</li> <li>-Preparation and adoption of Rhino Management Plan</li> <li>-Pre-translocation planning</li> </ul>	<ul style="list-style-type: none"> <li>-Improved performance and sustainability of the project</li> <li>-Realization of project goal and objectives realized/enhanced/assured</li> <li>-Adequate skills and techniques imparted for ensuring smooth translocation and eventual wild release in line with global best practices and eventual management of the rhino sanctuary</li> </ul>
Translocation and Release of the Rhinos	<ul style="list-style-type: none"> <li>-Infrastructure assessment</li> <li>-Actual translocation of rhinos into the proposed</li> </ul>	<ul style="list-style-type: none"> <li>-Adequate and requisite infrastructure for rhinos put in place ensuring technically and scientifically sound translocation process and</li> </ul>



	project area -Wild release of the rhinos	settlement of the rhinos in their new habitat -Due diligence undertaken
<i>Operational Phase</i>		
Operation and Management of the Rhino Sanctuary	-Provision, maintenance and expansion of habitat for rhinos in the Sanctuary and the larger Conservancy -Scientific management and adoption of best practices in maintaining and increasing the rhino population within the Sanctuary	-Provision of prime rhino habitat will greatly contribute towards realization of the desired black rhinos' growth rate of 5% per annum and eventual attainment of Kenya's rhino population target of 2000 individuals in 20 years and a meta population of 830 by 2021 -Additional space created for rhinos outside the existing sanctuaries and therefore contribute to the desired growth of global rhino population -Creation of the opportunity for widening the rhino gene pool, by selecting individuals from different areas. -Boost to tourism and therefore increased revenues which will be ploughed back to conservation efforts and community projects -Increased tourism activities will also lead the generation of additional employment opportunities -The neighbouring privately owned and community conservancies and lodges will be expected to leverage on the Sanctuary and increased flow of both local and foreign tourists to improve their own revenue streams -The Rhino Sanctuary (rhinos being a flagship species) will contribute to the conservation of other wildlife species and preservation of biodiversity -Preservation and enhancement of Kenya's wildlife as a national heritage for the benefit of the present and future generations



	Routine monitoring and maintenance of the fence line	-Early detection of fence line defects and inefficiencies ensuring/improving its effectiveness and efficiency as a security tool
--	--	--

#### 4.1.5.2 Possible Negative Impacts

**Table 12** presents the possible negative impacts of the Proposed Loisaba Rhino Sanctuary

**Table 12: Possible Negative Impacts of Loisaba Rhino Sanctuary**

<b>Project Component</b>	<b>Project Activities</b>	<b>Possible Negative Impacts</b>
<i>Siting and Designing Phase</i>		
EIA for establishment of the Rhino Sanctuary	Public consultations with affected parties and the relevant key stakeholders during EIA	-Unclear understanding among some of the affected parties and stakeholders on the fence design, alignment and its pathway
Rhino Sanctuary Fence line Survey		Possible non-involvement of the community during construction of infrastructure, i.e. fenceline
<i>Construction Phase</i>		
Construction of the Rhino Sanctuary Fence line and other facilities	-Sites clearing and opening up of the fence's path way -Pitting and sinking of posts and compacting -Installation of the fence wire, and installation and supply of power.	Clearing and loss of vegetation along the path of the fence line which could lead to loss of biodiversity and externalities such as soil erosion
		-Generation of solid wastes such as debris, pieces of plastic, metals, wires etc.in the wilderness/pristine areas
		Injuries to construction workers as a result of handling construction and installation tools, machinery and equipment
		Possible attacks to workers by wildlife leading to serious injuries and deaths and snake or scorpion bites in the bush.
Translocation and Release of the Rhinos	Transportation and eventual release of the rhinos	Removal of more rhinos from the donor population to the release site (loisaba Conservancy)
		Poor selection of breeders compromising realization of the



		desired population growth of 5% per annum and sometimes higher (Kenya strategy 2007 ~ 6% in selected target populations)
		Poor logistical coordination and planning hampering effectiveness in operations of the sanctuary
		-Possible deaths of rhinos and other undesirable and unintended effects such as increased stress levels due to movement unfamiliar habitat
<i>Operational Phase</i>		
Operation and Management of the Rhino Sanctuary	-Provision of habitat for rhinos in the Sanctuary and the larger Conservancy	-Safety and security of the rhinos-possible exposure of rhinos to security threats and risks which may lead to poaching incidences
	-Provision, maintenance and expansion of habitat for rhinos in the Sanctuary and the larger Conservancy	-Craft and implement an aggressive elephant monitoring programme based on the ECC with the aim of reducing their impacts
		-Design medium to long term expansion plan beyond the current sanctuary area as well as plan to create corridor among existing rhino sanctuaries
		Continued colonization of the Sanctuary (and the Conservancy) by the invasive opuntia reducing browse availability and habitat quality
		Possible risks of disease outbreak among the rhinos threatening their population
		Possible exceeding of the Sanctuary's ECC as the rhino and other wildlife population increase inside the Sanctuary
		Possible water supply, accessibility, availability and quality challenges
		Possible misuse and abuse of the community grazing system arrangements between exposing the rhinos to threats and dangers
	Operation of the Rhino Sanctuary's fence line	Concerns about interference with wildlife migratory corridors and free wildlife movement around and within the ecosystem
	-Inefficient/ineffective fence due to lack of proper fence maintenance	



## 4.2 Summary of Impacts

Following the identification of environmental impacts resulting from the proposed development, the EIA Project Report recommended feasible and cost effective measures to prevent or reduce the severity of negative impacts to acceptable levels and to enhance positive impacts for the improvement of overall benefits of the project. The mitigation measures for specific adverse impacts are presented in **Table 13**.

**Table 13: Mitigation Measure for Specific Potential Adverse Impacts**

<b>Project Component</b>	<b>Project Activities</b>	<b>Possible Negative Impacts</b>	<b>Proposed Mitigation Measures</b>
<i>Siting and Designing Phase</i>			
Rhino Sanctuary Fence line Survey	Public consultations with affected parties and the relevant key stakeholders during EIA	-Unclear understanding among some of the affected parties and stakeholders on the fence design, alignment and its pathway	-Initiate and expand community outreach and awareness programmes to enlist the good will of the local community in order to mitigate potential conflicts and misunderstanding -Provide technical and socio-economic facts about the fence design, alignment and pathway -Consult widely and adequately with the neighbouring communities, large scale ranchers and conservancies and lead agencies and other stakeholders
<i>Construction Phase</i>			
Construction of the Rhino Sanctuary Fence line and other facilities	-Sites clearing and opening up of the fence's path way -Pitting and sinking of posts and compacting -Installation of the fence wire, and installation and supply of power.	Clearing and loss of vegetation along the path of the fence line which could lead to loss of biodiversity and externalities such as soil erosion	-Minimize clearing of vegetation by re-routing the fence line and re-siting infrastructure to less vegetated areas. -Where it cannot be avoided re-vegetate as much as possible and allow and induce natural regeneration
		-Generation of solid	-Ensure separation of biodegradable



		wastes such as debris, pieces of plastic, metals, wires etc.in the wilderness/pristine areas	<p>and non-biodegradable wastes</p> <ul style="list-style-type: none"> <li>-Encourage use of recyclable materials</li> <li>-Provide adequate waste collection bins and ensure disposal of wastes to designated dump sites.</li> <li>-Sell wastes to NEMA licensed recyclers and fabricators</li> <li>-Preserve reusable wastes such as pieces of metal/steel for future use in maintenance works.</li> <li>-Spread the soil carefully to eliminate unsightly and unstable spoil heaps</li> </ul>
		Injuries to construction workers as a result of handling construction and installation tools, machinery and equipment	<ul style="list-style-type: none"> <li>-Appoint and train health and safety supervisor and committee</li> <li>-Provide and enforce use of protective clothing and equipment workers-PPE</li> <li>-Appropriate health and safety measures shall be implemented as per the OSHA Act 2007</li> <li>-Keep a general accident inventory at the site</li> <li>-Provide adequate First Aid boxes</li> </ul>
		Possible attacks to workers by wildlife leading to serious injuries and deaths and snake or scorpion bites in the bush.	<ul style="list-style-type: none"> <li>-Ensure strategic deployment of trained wildlife scouts and security along the construction sites</li> <li>-Wildlife safety education and training of the construction workers should be undertaken.</li> <li>-Ensure that all construction work is planned and choreographed in response to wildlife movement in the construction sites</li> <li>-Unattended public access (unauthorized non-construction</li> </ul>



			workers) should be strictly prohibited -Provide workmen compensation insurance to take care of major injuries
		Disturbance to animal serenity during construction works	Plan construction time in response to movement of wildlife within the Conservancy to avoid or minimize disturbance and conflict
Translocation and Release of the Rhinos	Transportation and eventual release of the rhinos	Inconsistence removal of rhinos from the donor population to the release site (Loisaba Conservancy)	-It is desirable that all founder rhinos should be translocated at once or over a short period to minimise the increased chances of fighting mortalities that can occur when (as a result of staggered reintroductions over time) additional rhinos are released into areas with established resident rhinos  - Determining suitable release sites and specific areas for release based on screening and assessing habitat quality, estimated medium-term ecological carrying capacity (ECC), security and management capacity in potential recipient areas;  -Translocation process should consider not only the desirable composition of the founder group to be introduced but also how best to harvest to avoid negatively affecting the sex and age structure and subsequent performance of the source population
		Poor selection of breeders compromising realization of the	-Ensure that once the number of rhinos to be translocated, it should be determined concisely which specific



		desired population growth of 5% per annum and sometimes higher (Kenya strategy 2007 ~ 6% in selected target populations)	animals are to be removed, or at least the desirable age and sex structure of animals to be removed. - Removals with a 50:50 sex ratio are usually preferred
		Poor logistical coordination and planning hampering effectiveness in operations of the sanctuary	Proponent to ensure that sufficient budgets, skilled manpower (with rhino capture experience using specialist rhino veterinarians/rhino capture officers and dedicated rhino capture teams), capture vehicles and crates, helicopters, transponders, radio-transmitters, bomas, etc. are all in place in the short term for the capture, transport, boma and immediate post-release phases, but are also in place for the necessary protection, monitoring and biological management which will be required well into the future
		-Possible deaths of rhinos and other undesirable and unintended effects such as increased stress levels due to movement unfamiliar habitat	-Strictly adhere to KWS Rhino Translocation and Release Guidelines and Protocol and global best practices -Ensure full involvement of KWS Rhino Office during identification of individuals to be introduced and their translocation and release -Ensure as much as it is practically and technically feasible that rhinos are selected from Sanctuaries within the Laikipia-Samburu Ecosystem to reduce the risks associated with moving long distances into different



			<p>habitats.</p> <ul style="list-style-type: none"> <li>-Internalize and implement the recommendations contained in the different report and assessments undertaken prior to operationalization of the Project</li> <li>-Implement the localized Rhino Management Plan and ensure it is in line with KWS practices</li> <li>-Undertake multi-agency pre-translocation planning and implement the recommendations</li> <li>-Ensure adequate and appropriate training of staff</li> </ul>
<p>Construction of the Rhino Sanctuary Fence line and other facilities</p>	<ul style="list-style-type: none"> <li>-Sites clearing and opening up of the fence's path way</li> <li>-Pitting and sinking of posts and compacting</li> <li>-Installation of the fence wire, and installation and supply of power.</li> </ul>	<p>Clearing and loss of vegetation along the path of the fence line which could lead to loss of biodiversity and externalities such as soil erosion</p> <p>-Generation of solid wastes such as debris, pieces of plastic, metals, wires etc.in the wilderness/pristine areas</p>	<ul style="list-style-type: none"> <li>-Minimize clearing of vegetation by re-routing the fence line and re-siting infrastructure to less vegetated areas.</li> <li>-Where it cannot be avoided re-vegetate as much as possible and allow and induce natural regeneration</li> <li>-Ensure separation of biodegradable and non-biodegradable wastes</li> <li>-Encourage use of recyclable materials</li> <li>-Provide adequate waste collection bins and ensure disposal of wastes to designated dump sites.</li> <li>-Sell wastes to NEMA licensed recyclers and fabricators</li> <li>-Preserve reusable wastes such as pieces of metal/steel for future use in maintenance works.</li> <li>-Spread the soil carefully to eliminate unsightly and unstable spoil heaps</li> </ul>



		<p>Injuries to construction workers as a result of handling construction and installation tools, machinery and equipment</p>	<ul style="list-style-type: none"> <li>-Appoint and train health and safety supervisor and committee</li> <li>-Provide and enforce use of protective clothing and equipment workers-PPE</li> <li>-Appropriate health and safety measures shall be implemented as per the OSHA Act 2007</li> <li>-Keep a general accident inventory at the site</li> <li>-Provide adequate First Aid boxes</li> </ul>
		<p>Possible attacks to workers by wildlife leading to serious injuries and deaths and snake or scorpion bites in the bush.</p>	<ul style="list-style-type: none"> <li>-Ensure strategic deployment of trained wildlife scouts and security along the construction sites</li> <li>-Wildlife safety education and training of the construction workers should be undertaken.</li> <li>-Ensure that all construction work is planned and choreographed in response to wildlife movement in the construction sites</li> <li>-Unattended public access (unauthorized non-construction workers) should be strictly prohibited</li> <li>-Provide workmen compensation insurance to take care of major injuries</li> </ul>
		<p>Disturbance to animal serenity during construction works</p>	<p>Plan construction time in response to movement of wildlife within the Conservancy to avoid or minimize disturbance and conflict</p>
Translocation and Release of the Rhinos	Transportation and eventual release of the rhinos	<p>Inconsistency in the removal of rhinos from the donor population to the release site (Loisaba Conservancy)</p>	<p>-It is desirable that all founder rhinos should be translocated at once or over a short period to minimise the increased chances of fighting mortalities that can occur when (as a</p>



			<p>result of staggered reintroductions over time) additional rhinos are released into areas with established resident rhinos</p> <ul style="list-style-type: none"> <li>- Determining suitable release sites and specific areas for release based on screening and assessing habitat quality, estimated medium-term ecological carrying capacity (ECC), security and management capacity in potential recipient areas;</li> <li>-Translocation process should consider not only the desirable composition of the founder group to be introduced but also how best to harvest to avoid negatively affecting the sex and age structure and subsequent performance of the source population</li> </ul>
<i>Operational Phase</i>			
Operation and Management of the Rhino Sanctuary	-Provision of habitat for rhinos in the Sanctuary and the larger Conservancy	-Safety and security of the rhinos-possible exposure of rhinos to security threats and risks which may lead to poaching incidences	<ul style="list-style-type: none"> <li>-Ensure implementation of the rhino security management and strategies</li> <li>-Establish an extensive yet intensive intelligence network which could also involve the local communities</li> <li>-Liaise with the government security network and lead agencies in crafting and implementing security strategies and tactics including conducting background checks when recruiting staff especially the security personnel</li> <li>-Conduct the Security Assessment spearheaded by KWS as envisaged and implement its recommendations and strategies</li> </ul>



			<p>-Maintain and consistently improve the proposed project area's security team's preparedness, response and equipment</p> <p>-Continue with the random and impromptu checks</p> <p>-Loisaba Conservancy has put up a formidable ranger force of over 70 well-resourced, trained and disciplined individuals</p> <p>-The team including armed NPR unit, rapid response teams, a canine unit comprising four tracker dogs and a Lion Ranger team will be maintained and their skills and capacity upgraded/improved in response to emerging security threats and situations</p> <p>-Continue and strengthen the 24/7 round the clock patrolling of the Conservancy</p> <p>-Use of SMART (Species Monitoring and Reporting Tool) software will be maintained/improved while emerging and contemporary security software will be explored</p> <p>-Continue and strengthen the systematic morning and evening patrols using the Piper Super-cub and constantly seek upgrading of the technology</p>
	<p>-Provision, maintenance and expansion of habitat for</p>	<p>Competition with the high population of elephants and other</p>	<p>-Craft and implement an aggressive elephant monitoring programme based on the ECC with the aim of</p>



rhinos in the Sanctuary and the larger Conservancy	wildlife in the proposed project area for browse material, salt licks and water	reducing their impacts -Design medium to long term expansion plan beyond the current sanctuary area as well as plan to create corridor among existing rhino sanctuaries
	Continued colonization of the Sanctuary (and the Conservancy) by the invasive opuntia reducing browse availability and habitat quality	-Explore a multifaceted approach to control of opuntia through a holistic approach involving mechanical, manual, biological, and chemical means -Monitor spread of opuntia across the Conservancy
	Possible risks of disease outbreak among the rhinos threatening their population	-Conduct a comprehensive veterinary assessment on disease risks and adopt the recommendations -Recruit a resident veterinarian to oversee disease monitoring and management
	Possible exceeding of the Sanctuary's ECC as the rhino and other wildlife population increase inside the Sanctuary	-Review the ECC and habitat assessment based on an evaluation after sanctuary establishment and before rhino translocation
	Possible water supply, accessibility, availability and quality challenges	- The proposed project area has adequate distribution of good quality water that is suitable for wildlife consumption and establishment of a Rhino Sanctuary -The conservancy also has a proper water management plan including spring protection initiatives. This should be maintained and constantly improved



			<p>-The water quality from the various sources within the proposed project area a meets the basic threshold for meeting water requirements for the establishment of the Rhino sanctuary. The water quality should be monitored and corrective measures put in place as appropriate</p> <p>-The design of the fence should ensure enclosure of adequate springs as they are the most stable source of good quality water.</p> <p>-Redesign some of the water troughs to avoid obstruction of Rhinos when visiting the watering points</p>
		Possible misuse and abuse of the community grazing system arrangements between exposing the rhinos to threats and dangers	<p>-Create well-coordinated intelligence networks and information sharing mechanisms between the community and the proposed project area</p> <p>-Realign the community outreach programme including the grazing arrangements in line with the establishment of the Sanctuary and its related security threats</p>
	Operation of the Rhino Sanctuary's fence line	Concerns about interference with wildlife migratory corridors and free wildlife movement around and within the ecosystem	<p>-Align the fence to ensure that the nine already identified nine migratory corridors remain to allow free movement of wildlife within and outside the proposed project area and the surrounding conservancies and the larger Laikipia-Samburu Ecosystem</p> <p>-The fence design will allow free movement of all other wildlife within and outside the Sanctuary apart from</p>



			<p>the rhinos</p> <ul style="list-style-type: none"> <li>-Observe game management principles</li> </ul>
		<ul style="list-style-type: none"> <li>-Inefficient/ineffective fence due to lack of proper fence maintenance</li> </ul>	<ul style="list-style-type: none"> <li>-The Loisaba Fence Maintenance Team shall provide consistent monitoring and maintenance of the sanctuary's fence</li> <li>-Put in place a fence performance monitoring system</li> <li>-Ensure adequate resources and required equipment are available for fence –maintenance</li> </ul>



## 5 MITIGATION/ MONITORING PLAN AND ALTERNATIVES TO DEVELOPMENT ALTERNATIVES TO DEVELOPMENT

### 5.1 Mitigation/ Monitoring Plan

The Mitigation and Monitoring Plan (MMP) will provide the basis for the implementation of the mitigation measures and provide a benchmark for the monitoring of the environmental performance of the rehabilitation and improvement and operational phases of the proposed project through internal and external audits. The Mitigation and Monitoring Plan has the important advantages of improving operational efficiency, promoting overall conservation and protection of the catchment area through improving risk management and reducing liabilities.

The MMP involves measurement of relevant parameters and setting benchmarks, at a level of details accurate enough, to distinguish the anticipated changes. Monitoring aims at determining the effectiveness of actions to improve environmental quality. The MMP outlined in **Table 14** addresses the identified issues of concern (potential negative impacts) and mitigation measures as well as roles, costs and indicators that can help to determine the effectiveness of actions to upgrade the quality of environment; as regards the subject project. To comprehensively implement the MMP, the project proponents should:

- Regularly inform and update the MMP and recommend any necessary changes, through as per Environmental (Impact Assessment and Audit) Regulations 2003 undertake and Initial Environmental Audit after the first year of the operations of the Rhino Sanctuary and Self Annual Audits thereafter;
- Undertake evaluations that would assess whether or not project activities as designed have been successful i.e. whether or not the environmental status of pre and post-EIA has remained the same, changed for the better or worse.
- To implement project activities, co-ordinate and do follow-up management and monitoring of the mitigation measures for the project.

The MMP is presented below;



**Table 14: Summary of the Environmental Management and Monitoring Plan**

<b>Project Component</b>	<b>Project Activities</b>	<b>Possible Negative Impacts</b>	<b>Proposed Mitigation Measures</b>	<b>Verifiable Monitoring Indicators</b>	<b>Budget</b>	<b>Responsible Body</b>	<b>Timeframe</b>
<b>Siting/ Designing Phase</b>							
Rhino Sanctuary Fence line Survey Environmental Impact Assessment	Public consultations with affected parties and the relevant stakeholders	-Unclear understanding among some of the affected parties and stakeholders on the fence design, alignment and its pathway	-Initiate and expand community outreach and awareness programmes to enlist the good will of the local community in order to mitigate potential conflicts and misunderstandings -Provide technical and socio-economic facts about the fence design, alignment and pathway -Consult widely and adequately with the neighbouring communities, large scale ranchers and conservancies and lead agencies and other stakeholders	-Number of consultative and disclosure meetings held and minutes -EIA report	300,000	-Loisaba Conservancy -Consultant	Pre-implementation
<b>Construction Phase</b>							



Construction of the Rhino Sanctuary Fence line and other related facilities	Sites clearing and opening up of the fence's path way -Pitting and sinking of posts and compacting -Installation of the fence wire, and installation and supply of power.	Clearing and loss of vegetation along the path of the fence line which could lead to loss of biodiversity and externalities such as soil erosion	-Minimize clearing of vegetation by re-routing the fence line and re-siting infrastructure to less vegetated areas. -Where it cannot be avoided re-vegetate as much as possible and allow and induce natural regeneration	-Vegetation density -Fence design and alignment -Fence line pathway	Nil	- Loisaba Conservancy -Contractor	Nil
		-Generation of solid wastes such as debris, pieces of plastic, metals, wires etc.in the wilderness/pristine areas	-Ensure separation of biodegradable and non-biodegradable wastes -Encourage use of recyclable materials -Provide adequate waste collection bins and ensure disposal of wastes to designated dump sites. -Sell wastes to NEMA licensed recyclers and fabricators -Preserve reusable wastes such as pieces of metal/steel for future use in maintenance works. -Spread the soil carefully to eliminate	-Different bins for non-biodegradable and biodegradable wastes, -Type of wastes generated, -Number of waste collection bins, -Type of	90,000	- Loisaba Conservancy -Contractor	During Construction phases





Translocation and Release of the Rhinos	Transportation and eventual release of the rhinos	Inconsistency in the removal of rhinos from the donor population to the release site (Loisaba Conservancy)	scorpion bites in the bush.	planned and choreographed in response to wildlife movement in the construction sites			
			Disturbance to animal serenity during construction works	-Unattended public access (unauthorized non-construction workers) should be strictly prohibited -Provide workmen compensation insurance to take care of major injuries	-Construction plan and timing	Nil	Loisaba Conservancy
		-It is desirable that all founder rhinos should be translocated at once or over a short period to minimise the increased chances of fighting mortalities that can occur when (as a result of staggered reintroductions over time) additional rhinos are released into areas with established resident rhinos - Determining suitable release sites and specific areas for release based on		-Number of rhino death as a result of fighting due to staggered translocation -Efficacy of the harvest plan to ensure desired breeding rate			



		<p>screening and assessing habitat quality, estimated medium-term ecological carrying capacity (ECC), security and management capacity in potential recipient areas;</p> <p>-Translocation process should consider not only the desirable composition of the founder group to be introduced but also how best to harvest to avoid negatively affecting the sex and age structure and subsequent performance of the source population</p>			
<p>Poor selection of breeders compromising realization of the desired population growth of 5% per annum and sometimes higher (Kenya strategy 2007 ~</p>	<p>-Ensure that once the number of rhinos to be translocated, it should be determined concisely which specific animals are to be removed, or at least the desirable age and sex structure of animals to be removed.</p> <p>- Removals with a 50:50 sex ratio are usually preferred</p>	<p>-Composition of the founder rhinos (sex and numbers)</p>			



	6% in selected target populations)					
Poor logistical coordination and planning hampering effectiveness in operations of the sanctuary	Ensure that sufficient budgets, skilled manpower (with rhino capture experience using specialist rhino veterinarians/rhino capture officers and dedicated rhino capture teams), capture vehicles and crates, helicopters, transponders, radio-transmitters, bomas, etc. are all in place in the short term for the capture, transport, boma and immediate post-release phases, but are also in place for the necessary protection, monitoring and biological management which will be required well into the future	-Adequacy of the budget to support the translocation and management of the rhinos at the receiving site	Project Budget estimates budget - USD 500,000	Loisaba Community Conservation Foundation and partners (TNC, SFG, NRT, SDZG, LL; EEP and LLF)	Entire phases of the project (planning, construction and operational phases)	
-Possible deaths of rhinos and other undesirable and unintended effects such as increased stress	-Strictly adhere to KWS Rhino Translocation and Release Guidelines and Protocol and global best practices -Ensure full involvement of KWS Rhino Office during identification of individuals to be introduced and their translocation and release	-Number of rhino deaths reported -Minutes of consultations meetings	Nil-factored in the budget	Loisaba Conservancy, KWS	During translocation	



		levels due to movement unfamiliar habitat	<ul style="list-style-type: none"> <li>-Ensure as much as it is practically and technically feasible that rhinos are selected from Sanctuaries within the Laikipia-Samburu Ecosystem to reduce the risks associated with moving long distances into different habitats.</li> <li>-Internalize and implement the recommendations contained in the different report and assessments undertaken prior to operationalization of the Project</li> <li>-Implement the localized Rhino Management Plan and ensure it is in line with KWS practices</li> <li>-Undertake multi-agency pre-translocation planning and implement the recommendations</li> <li>-Ensure adequate and appropriate training of staff</li> </ul>					
<b>Operation Phase</b>								
Operation and Manage	-Provision of habitat for rhinos in the	-Safety and security of the rhinos	<ul style="list-style-type: none"> <li>-Ensure implementation of the rhino security management and strategies</li> <li>-Establish an extensive yet intensive</li> </ul>	-Number of security personnel	Nil-	factored in the	- Loisaba Conservancy, KWS, Ministry	Throughout operation



nt of the Rhino Sanctuary	Sanctuary and the larger Conservancy	-possible exposure of rhinos to security threats and risks which may lead to poaching incidences	intelligence network which could also involve the local communities -Liaise with the government security network and lead agencies in crafting and implementing security strategies and tactics including conducting background checks when recruiting staff especially the security personnel -Conduct the Security Assessment spearheaded by KWS as envisaged and implement its recommendations and strategies -Maintain and consistently improve Loisaba's security team's preparedness, response and equipment -Continue with the random and impromptu checks - Loisaba Conservancy have put up a formidable ranger force of over 70 well-resourced, trained and disciplined individuals -The team including armed NPR unit, rapid response teams, a canine unit	-Type and nature of security equipment and installations -Security Reports	budget	of Interior	
---------------------------	--------------------------------------	--	--	---	--------	-------------	--



		<p>comprising four tracker dogs and a Lion Ranger team will be maintained and their skills and capacity upgraded/improved in response to emerging security threats and situations</p> <p>-Continue and strengthen the 24/7 round the clock patrolling of the Conservancy</p> <p>-Use of SMART (Species Monitoring and Reporting Tool) software will be maintained/improved while emerging and contemporary security software will be explored</p> <p>-Continue and strengthen the systematic morning and evening patrols using the Piper Super-cub and constantly seek upgrading of the technology</p>				
-Provision, maintenance and expansion of habitat for rhinos in the Sanctuary	Competition with the high population of elephants and other wildlife in Loisaba Conservancy for	-Craft and implement an aggressive elephant monitoring programme based on the ECC with the aim of reducing their impacts	Monitoring reports, animal census	Factored in the budget	Loisaba Conservancy	Throughout operation
		-Design medium to long term expansion plan beyond the current sanctuary area as well as plan to create corridor among				







		the most stable source of good quality water. -Redesign some of the water troughs to avoid obstruction of Rhinos when visiting the watering points				
	Possible misuse and abuse of the community grazing system arrangements between exposing the rhinos to threats and dangers	-Create well-coordinated intelligence networks and information sharing mechanisms between the community and the project proponents -Realign the community outreach programme including the grazing arrangements in line with the establishment of the Sanctuary and its related security threats	-Number of incidences report -Number of consultative meetings with communities, minutes of meetings	Nil	Loisaba Conservancy, Community representatives	Routine
Operation of the Rhino Sanctuary's fence line	Concerns about interference with wildlife migratory corridors and free wildlife movement around and within the	-Align the fence to ensure that the nine already identified nine migratory corridors remain to allow free movement of wildlife within and outside the project area and the surrounding conservancies and the larger Laikipia-Samburu Ecosystem -The fence design will allow free movement of all other wildlife within and outside the Sanctuary apart from the	-Number of migratory corridors	Nil	Loisaba Conservancy, KWS	Throughout operation phase



		ecosystem	rhinos				
		Inefficient/ineffective fence due to lack of proper fence maintenance	<ul style="list-style-type: none"> <li>-Observe game management principles</li> <li>-The Loisaba Fence Maintenance Team shall provide consistent monitoring and maintenance of the sanctuary's fence</li> <li>-Put in place a fence performance monitoring system</li> <li>-Ensure adequate resources and required equipment are available for fence maintenance</li> </ul>	Fence condition	Nil	Loisaba Conservancy	Routine



## 5.2 Alternatives to the Project

### 5.2.1 Overview

Since the introduction of the EIA process and subsequent development of EIA methodologies and legislative provisions, the analysis of alternatives has been one of the main tenets of EIA policy and procedures. Indeed, a thorough, unbiased and transparent assessment of investment alternatives from an environmental and social perspective (as well as a technical and economic standpoint) is one of the most important contributions EIA can make in improving decision-making. The analysis of alternatives in EIA is designed to bring environmental, economic and social considerations into the “up-stream” stages of development planning-project identification and earlier-as well as the later stages of site selection, design and implementation.

### 5.2.2 Assessment of Alternatives

In this study a scenario is considered to mean the “description of a possible future situation and the development from the current situation to this future stage” (Huber and Opondo, 1994). The development of scenarios involved analyzing the current situation, discerning the relations and links to the environment, influencing factors, existing and potential strengths, opportunity and threats.

In the assessment of the proposed project alternatives, this study considered three main scenarios namely:

- Status quo or no action scenario;
- Alternative Game Barriers and Fence Designs; and
- Alternative Location for Establishment of a Rhino Sanctuary Site within the project area.

#### 5.2.2.1 Status Quo or “No action” Scenario

This alternative means that the status quo will be maintained and the proposed Rhino Sanctuary will not be established. However, this alternative will not be in line with the KWS Rhino Action Plan, international wildlife treaties/agreements and overall Kenya’s wildlife conservation policies, plans and strategies. Certainly, non-establishment of an additional rhino sanctuary will undermine efforts of rhino conservation over the last two



decades in the country. This scenario should NOT be considered due to a myriad of reasons and factors, the principal ones being:

- The Proposed Loisaba Rhino Sanctuary will contribute immensely towards supporting and contributing to the implementation of KWS's Kenya Rhinos Action Plan (2017-2021) which aims at achieving a population of at least 2,000 eastern black rhinos (*Diceros bicornis michaeli*) in Kenya, and a meta-population of 830 black rhinos by the end of 2021.
- Three main attributes (described in detail elsewhere in this Report) define the black rhino as one of the wildlife species with critical conservation concern and attention. These are: (i) the rhino is a flagship species (ii) the rhino is an umbrella species and (iii) the rhino is also a key stone species. The proposed project will contribute towards the conservation of this wildlife species and go a long way in contributing to KWS's vision of 'Saving the last great species and places on Earth for humanity'.
- The proposed Loisaba Rhino Sanctuary will complement the government's efforts in the conservation of black rhinos. In the 2017-2012 KWS Rhino Action Plan's Preface, the then KWS Deputy Director, Research and Biodiversity acknowledges that the implementation of the Plan will require considerable resources and calls for support to Kenya from conservation partners in achieving the global cause of conserving the black rhino.
- The Proposed Loisaba Rhino Sanctuary will have contributed to one of the aims of KWS Rhino Action Plan's Action Framework of having at least two fenced rhino areas extended by 2021. This is in response to the growing national population of the rhino which requires more space.
- The rhino is one of the 'big five' that constitute the core of the tourism industry. Kenya's wildlife is the major tourism attraction that generates an annual income of more than US \$1bn to the national economy.
- The establishment and sustaining of a rhino sanctuaries such as the one proposed is an expensive undertaking requiring substantial investment in financial, human and technical resources. The proposed Sanctuary is being financed privately with KWS playing the oversight and technical guidance role. Undeniably the KWS will have achieved one of its strategic objectives without having to hive off any chunk of its



budget which can then be used in financing the establishment of another rhino sanctuary in the country.

- Loisaba and the larger landscape which currently constitutes big ranches, privately owned wildlife conservancies, community conservancies and community lands hosted thriving rhino populations before the infamous poaching in the 1970s through to the 1980s. This presence of rhino populations in the landscape was confirmed by elderly men during the public consultation meetings for this EIA. The project area is therefore a natural habitat for the rhino and ideal and well suited for “restocking former range areas capable of supporting large populations’ as stated in the Rhino Action Plan.
- Geographically, the project area is located within the same ecosystem currently hosting successful Rhino Sanctuaries. They are Ol Jogi, Ol Pejeta, Lewa-Borana and the Solio Rhino Sanctuaries. Various other non-rhino conservancies but important wildlife areas surround Loisaba, include Mpala, Suyian, Laikipia NR, Koiya and Ol Malo.
- The EIA has prepared well thought through mitigation measures to respond to potential negative impacts associate to the establishment of the rhino sanctuary. Therefore, foreseeable potential impacts will be forestalled before they occur thereby considerably limiting future environmental damage and ensuring the existence of a clean and healthy environment.

#### **5.2.2.2 Alternative Game Barriers and Fence Designs**

The design of the fence for securing the Proposed Loisaba Rhino Sanctuary has been carefully thought out and is specifically for confining the rhinos within the Sanctuary while allowing free movement of all the other wildlife within and out of the proposed area. Laikipia, has been a hot spot for human-wildlife conflict, and various types of game barriers have been tried but not with protection of wildlife as the objective, but rather for mitigating against the conflict. Use of game barriers has evolved with the increasing settlement and population, changes in land use and emerging dynamics due to the need to improve their effectiveness. Some of these game barriers and fence designs that have been previously used include stone walls, game moats, live fences, barbed wire and electric fences. Game moats are trenches that are dug around/along a wildlife



habitat to prevent the movement of game from one place to another. The Forest Department has been the main user of game moats as a barrier in Mt. Kenya and the Aberdares. In Laikipia, a game moat was dug around Laikipia Ranching, a barrier that was found to be labour intensive due to the need of constant re-excavations. Experience has demonstrated that moats are associated with high labour needs, lead to increased soil erosion due to the massive earthworks involved and tend to concentrate game in the interior side straining the carrying capacity of the habitats.

Stone walls are often gigantic walls built of stones. In Laikipia these walls have been constructed at Kifuko Ranch, Laikipia Ranch, Sosian Ranch and G.G. Kariuki Ranch where they have been found to be fairly effective. The associated environmental impacts are relatively low. However, these walls are only viable where stones are locally available and usually on the surface. The use of the stone walls is essentially reliant on the game pressures and may result in considerable exceeded carrying capacity inside the habitat necessitating cautious monitoring to keep the animal populations within the carrying capacity.

Live fences consist of plants that are hedge forming. The most commonly used plants are *Cupressus lusitanica* (cypress), *Aberia caffra* (kei apple), *Euphorbia tirucalli* (finger euphorbia), *Ceasalpinia decapetala* (Mauritius thorn), *Opuntia vulgaris* (cactus), and *Agave sisaliana* (sisal). The use of such fences in Laikipia has been only at small scale levels. Studies should be done to establish the viability of establishing such fences in individual farms to act as a back up to fencing in keeping straying animals at bay. Common fences are normal fences that consist of posts, barbed wires and in some cases off cuts. The environmental impacts of such fences are minimal and include runoff as a result of pitting and devegetation. As a game barrier, this type of fence is not tenable as the bigger animals such as buffalos and elephants can break it through.

Electric Fences are the most commonly used game barriers in Laikipia and elsewhere. There are different designs and the target animal determines alignments for these fences. These fences work on the principle of electric pulses generated from wires powered by energizers that derive the current from either the normal grid, generators, wind or solar power. When an animal comes into contact with the live wire, it becomes



part of the circuit and the current produces a shock that deters it from making contact with the fence again.

None of these barriers including electric fences, apart from the sanctuary fences, are suitable or appropriate for securing the Proposed Loisaba Rhino Sanctuary due to the various limitations that are discussed above. The proposed fence design and alignment for the Proposed Sanctuary has been based on:

- The fence gap design will allow movement of all the other animals in and out of the sanctuary, restricting the rhinos only within the confines of the sanctuary. These gaps will be on the nine existing corridors within the proposed sanctuary area.
- The fence gap design will, as envisaged during the establishment of sanctuaries, allow the concentration of the rhinos within the sanctuary while reflecting natural patterns of distribution and movement, and not the deliberate result of fencing and other methods of confinement.

#### **5.2.2.3 Alternative Location for Establishment of a Rhino Sanctuary Site**

The proposed site for the establishment of the Rhino Sanctuary is based on ecological and water assessments and ethnography, where the proposed site hosted teeming wildlife populations in the yester years. Specifically, the following considerations informed the selection of the site overall other areas within the expansive Conservancy:

- The 0-2m plant height range comprises over 90% of black rhino food resource. This food may include woody and semi-woody plants and dicotyledonous annual and perennial herbs. Damaged? plants and branches also end up forming part of the rhino diet. Plant materials beyond 2m from the ground contributes a small portion of rhino food resource.
- The project area has up to 16 permanent springs, eight of which are located in the proposed area, which have water year-round. A further four dams are located in the sanctuary, providing further water sources.
- Rhinos should be introduced into an area that has sufficient carrying capacity to allow rapid population growth (which minimizes loss of genetic diversity). Assessments indicate that the proposed site meets this criterion.



### 5.3 Decommissioning Plan

Although the decommissioning of the rhino sanctuary is not foreseen in the medium or long term, the proponent will consider three possibilities; transfer of management or donation of the project as a going concern, the transfer or donation of the project for a different use and the abandonment of the project. The process does not deal with the decommissioning of the project as a result of civil disturbances or acts of God.

In decommission, the main objective is to make the developed site equivalent or better than its original condition.

#### **5.3.1 Transfer of Management or Donation of the Project as a Going Concern**

In the event that the management of the project is transferred or the project is donated as a going concern, the new owner will assume all responsibilities associated with the project operations. Copies of all environmental reports, audits and NEMA correspondence will be made available to the transferee/recipient. The transferee/recipient will be expected to adhere to the environmental management plans and any other issues raised in the documentation.

#### **5.3.2 Transfer or Donation of the Project for a Different Use**

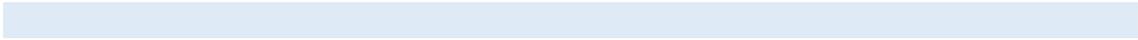
In the event that the project is transferred or donated for a different use, all movable assets will be removed from the property and sold or disposed of. This will be done in close collaboration of the KWS which is expected to organize how to relocate rhinos from Loisaba sanctuary to a safe location. The relocation plan will follow the KWS rhino translocation guidelines, meaning adequate timeframe and budgetary resources will have to be made available to support the decommissioning process. It is expected that most items (fence materials, vehicles etc. will be sold, any items requiring disposal will be disposed of as per NEMA guidelines.

The new owner will assume control of the property and any non-removable assets. Copies of all environmental reports, audits and NEMA correspondence will be made available to the transferee/recipient. The transferee/recipient will be expected to adhere to any appropriate parts of the environmental management plans that are relevant to the property and non-removable assets.



### **5.3.3 Abandonment of the Project**

In the event that the project is abandoned, all removable assets will be removed from the property and sold or disposed of. Relocation of the rhinos will be carried out as per the KWS rhino translocation guidelines and in collaboration with the KWS. It is expected that most removable items will be sold, any items requiring disposal will be disposed of as per NEMA guidelines. A watchman or suitable security arrangement will be left in place to prevent theft of any remaining assets or trespassing on the project property.



## 6 TIME SCHEDULE FOR EXECUTING THE EIA

**Table 15** shows the tentative work plan for executing the EIA Study Report after the approval of the ToR.

**Table 15: EIA Study Report Implementation Schedule**

Tasks/ Activities	Expected Outputs	Work plan (in weeks)		
		1	2	3
<i>Preparation time</i>	EIA team mobilized and work schedule and deliverables for each team member determined/ specified			
<i>Review of documents</i>	Environmental Screening- description of the problem, the project objectives and activities and the involved parties established and documented			
	Environmental scoping: <ul style="list-style-type: none"> <li>• Social significance of the various project impacts identified/ predicted.</li> <li>• The agenda for the EIA established</li> <li>• The agenda of the work translated into a programme agreeable to all parties</li> <li>• Key policy, legal and institutional parameters for the study identified etc.</li> </ul>			
<i>Tools and schedule development</i>	Preparation of the following data collection tools: <ul style="list-style-type: none"> <li>• Impact identification/ prediction and analysis checklist</li> <li>• Stakeholders interview checklists</li> <li>• Public/ community consultation and disclosure checklist</li> <li>• Impact significant assessment tool, among others.</li> </ul>			
<i>Field work/stakeholder consultation</i>	Imperative qualitative and quantitative raw data collected Documentation of the stakeholders/ community consultation meetings/ deliberations.			
<i>Data analysis</i>	Data analysis and tabulation			
<i>EIA Report compilation</i>	Report synthesized, shared with the client and finalized for submission to NEMA			



## **7 .PROPOSED CONSULTANTS**

Nareda has put together a multi-disciplinary team to undertake the EIA Study. This comprises specialists from its core staff and a huge base of associate experts who will be guided by Mr. Martin Kamau Gitau (Lead expert No. 7283). The list of the core EIA study team and the role to be played is indicated in **Table 16** while **Appendix 13** contains the CVs.



*Table 16: Tasks and Responsibilities of the EIA Study Team*

<b>Name of Specialist</b>	<b>Areas of Expertise</b>	<b>Task Assigned</b>
<p>Martin Kamau Gitau (MPA, Livelihoods, Community Based Natural Resource Management, M&amp;E and Rural Development), Nema Registered Lead Expert, No. 7283.</p>	<ul style="list-style-type: none"> <li>• Knowledge in preparing sound environmental projects and accredited by NEMA as EIA Lead Expert (Reg. no. 7283)</li> <li>• Has wide experience and expertise in preparing and guiding implementation of environmental policies</li> <li>• Has global exposure in climate change and global warming challenges and execution of the SESA in a 'Strategic Thinking' Approach.</li> <li>• Specialized in carrying out environmental Impact Assessments, monitoring and auditing</li> <li>• Has been involved in designing of development projects integrating the environmental and sustainability objectives and issues into planning and programming procedures.</li> <li>• Wide experience and knowledge of the context environment, climate change, resilience and food and nutritional security in the HOA region.</li> <li>• Good knowledge of the national legal regulatory framework, international regulations and standards related to EIA in the context of the task; good analytical and writing</li> <li>• Highly conversant with Project Cycle Management, log-frame development and analysis, natural resources mapping and Vulnerability Analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Team Leader and overall coordinator of the EIA Study.</li> <li>• Provide a framework and structures that will improve social, economic and environmental conditions of the project</li> <li>• Literature review.</li> <li>• Preparation of study data collection tools</li> <li>• Facilitate Public Consultation sessions</li> <li>• Data collection and Data processing</li> <li>• Take the lead in drafting of the EIA Study Report</li> <li>• Responsible for quality control of the study</li> </ul>



	<ul style="list-style-type: none"> <li>Involved in the development of CBNRM and other participatory training manuals and facilitating Training of Trainers to public and private sectors</li> <li>Community development and technology transfer,</li> <li>Drought Management</li> <li>Rural livelihoods/Sustainable land use and management</li> <li>Strategic planning and development</li> <li>Organizational development and community empowerment</li> <li>Networking and coalitions building</li> </ul>	
<p>Vasco Nyaga Gupta (M. Sc. Wildlife Ecological Assessments, Ecosystem Services and Ecosystem Valuation; Environmental Planning and Management / Natural Resources Management.</p>	<ul style="list-style-type: none"> <li>Extensive experience in natural resource assessment and management and Nema accredited as Lead Expert (Reg no. 2131)</li> <li>Has hand on experience in wildlife conservation and wildlife management</li> <li>Experienced in the assessment of risk hazard vulnerability assessment</li> <li>Expertise in Protected Areas planning and Management</li> <li>Wide experience and knowledge of the context environment, climate change, resilience and food and nutritional security in the HOA region.</li> <li>Good knowledge of the national legal regulatory framework, international regulations and standards related to EIA in the context of the task; good analytical and writing</li> <li>Specialist in participatory approaches including community based natural resources management</li> </ul>	<ul style="list-style-type: none"> <li>He will be responsible for the ecological and habitat suitability assessment for creation of rhino sanctuary at Loisaba Conservancy.</li> <li>He will undertake security assessment to establish Loisaba Conservancy capacity to manage a rhino sanctuary including adequacy of requisite infrastructure to support the project in the short and long term basis</li> <li>Provide technically and scientifically sound translocation process and settlement of the rhinos in their new habitat</li> <li>Provide scientific management and adoption of best practices in maintaining and increasing the</li> </ul>



James Kamenju Wakiuru (M. Sc. Water and Environment Management, Geologist, Design and Management of water infrastructure, Strategic Planning)	<ul style="list-style-type: none"> <li>• He has wide knowledge in strategy development and policies in IWRM, Climate Change, Desertification and Environmental Management</li> <li>• He has a wide global exposure in Hydrogeology, Water Harvesting, Climate Change, IWRM, Adaptation Metrics and others</li> <li>• He is competent in designing and management of water infrastructure</li> <li>• Has skills in facilitating institutional strategic planning</li> <li>• He is exposed to projects 'monitoring and evaluation</li> <li>• Experienced in conducting water assessments- quality, demand and water safety</li> <li>• Has managed donor supported water projects and developed management capacities</li> </ul>	<p>rhino population within the Sanctuary</p> <ul style="list-style-type: none"> <li>• He will be responsible for the assessment of entire Conservancy's water needs/ demands with particular emphasis on the rhino water availability in the sanctuary and its reliability</li> <li>• Assessment of the water quality specifically for rhinos.</li> <li>• Undertake water quality analysis</li> <li>• Provide guidance in the technical matters relating to water safety for rhinos.</li> <li>• Literature review.</li> <li>• Prepare data collection tools.</li> <li>• Data processing</li> <li>• Data analysis and report writing.</li> </ul>
Ken Mwithirwa Gatobu (M.Sc. Agro forestry and Rural Development), Nema Registered Lead Expert, No. 1623.	<ul style="list-style-type: none"> <li>• He is well-conversed with coordination community water projects and accredited by NEMA as EIA Lead Expert</li> <li>• Experienced in conducting baseline surveys and evaluation studies</li> <li>• Specialized in carrying out environmental Impact Assessments, monitoring and auditing</li> <li>• Has been involved in designing of development projects integrating the environmental and sustainability objectives and issues into planning and programming procedures.</li> </ul>	<ul style="list-style-type: none"> <li>• Support preparation of the framework and structures that will improve social, economic and environmental conditions of the project</li> <li>• Literature review.</li> <li>• Preparation of study data collection tools</li> <li>• Facilitate Public Consultation sessions</li> <li>• Data collection and Data processing</li> <li>• Take part in drafting of the EIA Study Report</li> </ul>



	<ul style="list-style-type: none"> <li>• Good knowledge of the national legal regulatory framework, international regulations and standards related to EIA in the context of the task; good analytical and writing</li> <li>• Highly conversant with Project Cycle Management, log-frame development and analysis, natural resources mapping and Vulnerability Analysis</li> </ul>	
<p>William George Wachira (B. sc. Environmental Studies, GIS/Remote Sensing specialist</p>	<ul style="list-style-type: none"> <li>• Wide experience in GIS and Remote Sensing and has carried out Resource Mapping, CBNRM, PRA, PLUP, among other participatory assessments</li> <li>• He has carried out numerous mapping (land use/ land cover including mapping of Mt Elgon Ecosystem, analysis of vegetation categories of Mt. Elgon Forest, Mt. Elgon National Reserve and Mt. Elgon National Park- mapped all the infrastructures in Mt. Elgon National Park and the National Reserve and a 10 kilometer human interface bordering the forest reserve.</li> <li>• In south Sudan, he mapped the parks and coordinated mapping activities in all Counties of Lakes State and a few other counties in Jonglei, Central and Western Equatorial States under Norwegian People's Aid.</li> </ul>	<ul style="list-style-type: none"> <li>• He will map the habitat, water points/ facilities, security infrastructures, the fence and any other infrastructures developed to support the re-establishment of rhinos in Loisaba Conservancy.</li> <li>• He will also map out the wildlife migratory routes other herbivore and carnivore population and distribution within the area, and Loisaba patrolling blocks &amp; security stations.</li> <li>• He will be responsible for all the mapping requirements as specified by the study team</li> </ul>



## **8 NON-TECHNICAL SUMMARY OF NEGATIVE IMPACTS AND THEIR MITIGATION MEASURES**

In the assessment and evaluation of the negative impacts likely to occur with the development of the proposed project and formulation of the mitigation measures, the following environmental issues/ concerns were considered by the EIA team:

### **A: Siting/ Designing of the project**

- Incorporation of the stakeholders' interests and concerns as captured during the EIA consultation and disclosure stage
- Management of the stakeholders' expectations

### **B: Construction of the Rhino Fence and Translocation of the Rhinos:**

- determining suitability of Loisaba Sanctuary as the release site and specific areas for release based on screening and assessing habitat quality, forage availability, security and management capacity.
- deciding how many and where animals should be removed from in each donor population
- determining the ages and sexes and in some cases the specific animals that need to be removed;
- setting up logistical coordination and planning mechanisms;
- sorting out any socio-political issues in advance;
- sorting out any legal and permit issues in advance;
- deciding on timings of capture and introductions;

### **C: Operationalization of the Project**

- Sustainability of the project in medium and long term
- Continuation of active interactions between the proponent and the neighbouring communities, i.e. access to pasture during dry spells and other Corporate Social Responsibility benefits
- Access of other wildlife into the sanctuary which if limited will result in decrease of habitat area which will also affect the biodiversity of the area.

Likely negative impacts and their mitigation measures are presented in **Table 17**.



**Table 17: Non-Technical Summary of Negative Impacts and Proposed Mitigations**

<b>Project Phase</b>	<b>Likely Impacts</b>	<b>Mitigation Measures</b>
Siting and designing of the project	-Unclear understanding among some of the affected parties and stakeholders on the fence design, alignment and its pathway	-Enhance consultation activities and stakeholders' scope of coverage during EIA study -Improve the information integration, education and communication to enhance positive public attitude
Construction of the fence and translocation of rhinos	Loss of vegetation cover and land degradation during construction	-Establish a programme for re-vegetation and rehabilitation of the cleared sites -Clear vegetation only where necessary -Undertake construction works during dry seasons to minimize chances of erosion
	-Generation of solid wastes	-Develop a waste management procedure (collection, transfer, storage and disposal) -Loisaba Conservancy to create awareness among the construction staff on the need to separate biodegradable and non-biodegradable wastes -Encourage use of recyclable materials -Sell wastes to NEMA licensed recyclers and fabricators -Preserve reusable wastes such as pieces of metal/steel for future use in maintenance works.
	Health and safety	-Disseminate information on contractor safety, health and conservation to workers on site -Special attention to sensitizing construction workers against Covids-19, HIV/AIDS in collaboration with relevant organizations -Provide and enforce use of protective clothing and equipment -Provide training on Occupational Safety and Health -Provide a First Aid Box and have trained first



		aiders
	Poor selection of breeders limiting the rate of rhino population growth	-Determine the target rhinos to remove while considering their reproductive potential
	Death of rhinos during translocation	<ul style="list-style-type: none"> <li>- Ensure that sufficient budgets, skilled manpower (with rhino capture experience using specialist rhino veterinarians/rhino capture officers and dedicated rhino capture teams)</li> <li>-Ensure setting up effective coordination and planning logistics before translocation commences.</li> <li>- Strictly adhere to KWS Rhino Translocation and Release Guidelines and Protocol and global best practices</li> <li>-Ensure full involvement of KWS Rhino Office during identification of individuals to be introduced and their translocation and release</li> </ul>
Operational	Inaccessibility of pasture and other Corporate Social Responsibility benefits by neighbouring pastoral communities	-Loisaba Conservancy to ensure that pasture and other benefits derived by the communities are enhanced with the introduction of rhinos to ensure project acceptance and support among the locals-
	Insecurity in Loisaba Conservancy and neighbourhood as a result of poaching activities	<ul style="list-style-type: none"> <li>-Ensure implementation of the rhino security management and strategies</li> <li>-Establish an extensive yet intensive intelligence network which could also involve the local communities</li> <li>-Liaise with the government security network and lead agencies in crafting and implementing security strategies and tactics including conducting background checks when recruiting staff especially the security personnel</li> <li>-Conduct the Security Assessment spearheaded by KWS as envisaged and implement its</li> </ul>



		<p>recommendations and strategies</p> <ul style="list-style-type: none"> <li>-Maintain and consistently improve Loisaba's security team's preparedness, response and equipment</li> <li>-Continue with the random and impromptu checks</li> <li>- Loisaba Conservancy have put up a formidable ranger force of over 70 well-resourced, trained and disciplined individuals</li> <li>-The team including armed NPR unit, rapid response teams, a canine unit comprising four tracker dogs and a Lion Ranger team will be maintained and their skills and capacity upgraded/improved in response to emerging security threats and situations</li> </ul>
	Concerns about interference with wildlife migratory corridors and free wildlife movement around and within the ecosystem	<ul style="list-style-type: none"> <li>-Align the fence to ensure that the nine already identified nine migratory corridors remain to allow free movement of wildlife within and outside the project area and the surrounding conservancies and the larger Laikipia-Samburu Ecosystem</li> <li>-The fence design will allow free movement of all other wildlife within and outside the Sanctuary apart from the rhinos</li> <li>-Observe game management principles</li> </ul>
	Inefficient/ineffective fence due to lack of proper fence maintenance	<ul style="list-style-type: none"> <li>-The Loisaba Fence Maintenance Team shall provide consistent monitoring and maintenance of the sanctuary's fence</li> <li>-Put in place a fence performance monitoring system</li> <li>-Ensure adequate resources and required equipment are available for fence –maintenance</li> </ul>
	Rhino population exceed the forage and water	<ul style="list-style-type: none"> <li>-Regular review of habitat status based on rhino population growth</li> </ul>



	capacities	<p>-The project proponents have adequate distribution of good quality water that is suitable for wildlife consumption and establishment of a Rhino Sanctuary</p> <p>-The conservancy also has a proper water management plan including spring protection initiatives. This should be maintained and constantly improved</p> <p>-Ensure adequate maintenance through regular checks on fence and all other essential infrastructures</p> <p>--Design medium to long term expansion plan beyond the current sanctuary area as well as plan to create corridor among existing rhino sanctuaries</p>
	Possible risks of disease outbreak among the rhinos threatening their population	<p>-Conduct a comprehensive veterinary assessment on disease risks and adopt the recommendations</p> <p>-Recruit a resident veterinarian to oversee disease monitoring and management</p>



## REFERENCES

- AGRISYSTEMS (EA) LTD, (1997)** - Environmental Impact Assessment; Manual Guidelines for the Water Sector. IUCN, Nairobi - Somalia Natural Resources Management Programme.
- DENNIS HERCLOKER, (1999)** - Rangeland Resources in East Africa: Their Ecology and Development
- Government of Kenya. (2003).** *Environmental (Impact Assessment and Audit) Regulations, 2003.* Kenya Gazette Supplement No.56.Legal Notice No. 101. Nairobi: Government Printer.
- Government of Kenya, (1999).***The Environment Management and Co-ordination Act, 1999.*Nairobi: Government Printer.
- Government of Kenya, (2015).** *The Environment and Coordination Amendment Act, 2015.* Nairobi: Government Printer
- Government of Kenya (2013).** *The Wildlife Conservation and Management Act, 2013.* Nairobi: Government Printer.
- Government of Kenya (2019),** *Kenya National Population and Housing Census, 2019: Volume 1: Population by County and Sub-County.* Nairobi: Kenya National Bureau of Statistics
- Government of Kenya (2018),** *Laikipia County Integrated Development Plan 2018-2022.*Nairobi. Government Printer.
- Government of Kenya (2009):** Population and Housing Census (CBS)
- Huber, M., and Opondo, J. C. (1994).***Land use Change Scenarios for Subdivided Ranches in Laikipia District, Kenya.* Institute of Geography, University of Berne, Switzerland.
- Kenya Wildlife Service (2017).** Kenya Black Rhino *Diceros Birconis Michaeli* Action Plan 2017-2022, Sixth Edition
- Kenya Wildlife Service (2016),** *Conservation and Management Strategy for the Black Rhino in Kenya (2016-2022).*
- Knausenberger, W. et al., (1996)** *Environmental Guidelines for Small-Scale Design for Planning and Implementing Humanitarian and Development Activities. Technical Paper No. 18*
- Omengo, F. et al, (2019).** *Black Rhino Ecological Carrying Capacity and Habitat Suitability Assessment for the Proposed Loisaba Rhino Sanctuary.* (Kenya Wildlife Service, Loisaba Conservancy and The Nature Conservancy).
- Omengo, F. et al, (2019).** *Black Rhino Water Quality Assessment Report for the Proposed Loisaba Rhino Sanctuary.* (Kenya Wildlife Service, Loisaba Conservancy and The Nature Conservancy).



**WALTER I KNAUSENBERGER, GREGORY A. BOOTH, CHARLOTTE S. BINGHAM  
AND JOHN J. CANDET, (1996) - *Environmental Guidelines for Small-Scale Activities in  
Africa, Environmentally Sound Design for Planning and Implementing Humanitarian and  
Development Activities. Technical Paper No. 19, USAID***









## Appendix 2: Leasehold

183

6997

**COLONY AND PROTECTORATE OF KENYA**  
**THE REGISTRATION OF TITLES ORDINANCE**  
**(CHAPTER 160)**

GRANT: Number I.R.10976  
ANNUAL RENT: Shs.3,489/30 (revisable)  
TERM: 99 years from 1.8.1952

KNOW ALL MEN BY THESE PRESENTS that in consideration of the sum of Shillings twenty thousand nine hundred and thirty-five and Cents eighty by way of Stand Premium as to Shillings two thousand and ninety-three and Cents fifty-eight paid on or before the execution hereof and as to the balance of Shillings eighteen thousand eight hundred and forty-two and Cents twenty-two to be paid by nine equal annual instalments of Shillings two thousand and ninety-three and Cents fifty-eight on the first day of January in each year the first of such instalments having been paid on the first day of January One thousand nine hundred and fifty-three the GOVERNOR AND COMMANDER-IN-CHIEF OF THE COLONY AND PROTECTORATE OF KENYA on behalf of HER MOST GRACIOUS MAJESTY QUEEN ELIZABETH THE SECOND under and by virtue of the powers vested in him hereby GRANTS unto SOSIAN LIMITED having its registered office at Nairobi (Post Office Box Number 312 Nairobi) in the said Colony (hereinafter called "the Grantee") ALL that piece of land situate North-East of Rumuruti Township in the Laikipia District of the said Colony containing by measurement sixty-nine thousand nine hundred and fifty-six acres (less one hundred and seventy acres Riparian Reserve) or thereabouts that is to say Land Reference Number 8085 which said piece of land with the dimensions abuttals and boundaries thereof is delineated on the plan annexed hereto and more particularly on Land Survey Plan Number 56371 deposited in the Survey Records Office at Nairobi TO HOLD for the term of ninety-nine years from the first day of August One thousand nine hundred and fifty-two SUBJECT to (a) the payment in advance on the first day of January in each year of the rents hereinafter prescribed (namely) :-

- (i) from the first day of August One thousand nine hundred and fifty-two until the thirty-first day of December One thousand nine hundred and sixty an annual rent of Shillings three thousand four hundred and eighty-nine and Cents thirty (revisable);
- (ii) from the first day of January One thousand nine hundred and sixty-one until the thirty-first day of December One thousand nine hundred and seventy-five an annual rent calculated at the rate of one per centum on the unimproved value of the land in the year

6/6



One thousand nine hundred and sixty;

(iii) from the first day of January One thousand nine hundred and seventy-six until the thirty-first day of December Two thousand and five an annual rent calculated at the rate of two per centum on the unimproved value of the land in the year One thousand nine hundred and seventy-five;

(iv) for every subsequent period of thirty years an annual rent calculated at the rate of three per centum on the unimproved value of the land in the last year of the preceding period of thirty years;

(b) the provisions of the Crown Lands Ordinance (Chapter 155) and (c) the following Special Conditions (namely) :-

SPECIAL CONDITIONS

1. The land shall be used for agricultural purposes only.
2. The Grantee shall effect on the land permanent improvements of the nature specified in the First Schedule to the said Crown Lands Ordinance (including dips satisfactory to the Local Agricultural Officer) to the value of Shillings two hundred and forty-four thousand two hundred and fifty-one (Shs.244,251/-); improvements to the value of not less than one-half of such sum shall be effected during the first three years and the remainder during the second three years of the term.
3. The Grantee shall not transfer sublet or otherwise alienate the land or any part thereof during the first ten years of the term without the prior consent in writing of the Governor.
4. The land shall at all times be occupied either by the Grantee's European manager or agent.
5. The land shall be managed in a prudent and husbandlike manner and maintained in a good state of fertility to the satisfaction of the Commissioner of Lands.

IN WITNESS WHEREOF I, )  
 JOHN STEVENTON BALLENTINE, )  
 C.B., C.I.E., the Acting )  
 Commissioner of Lands have )  
 by Order of the Governor )  
 hereunto set my hand this )  
 eighth day )  
 of November One thousand )  
 nine hundred and fifty-four )  
 in the presence of :- )

*C. A. Allen*

*M. J. Skam*  
 REGISTRAR OF TITLES )

DISTRICT  
 Location  
 Meridian  
 Scale

8051

8037

Traced by  
 Compared by



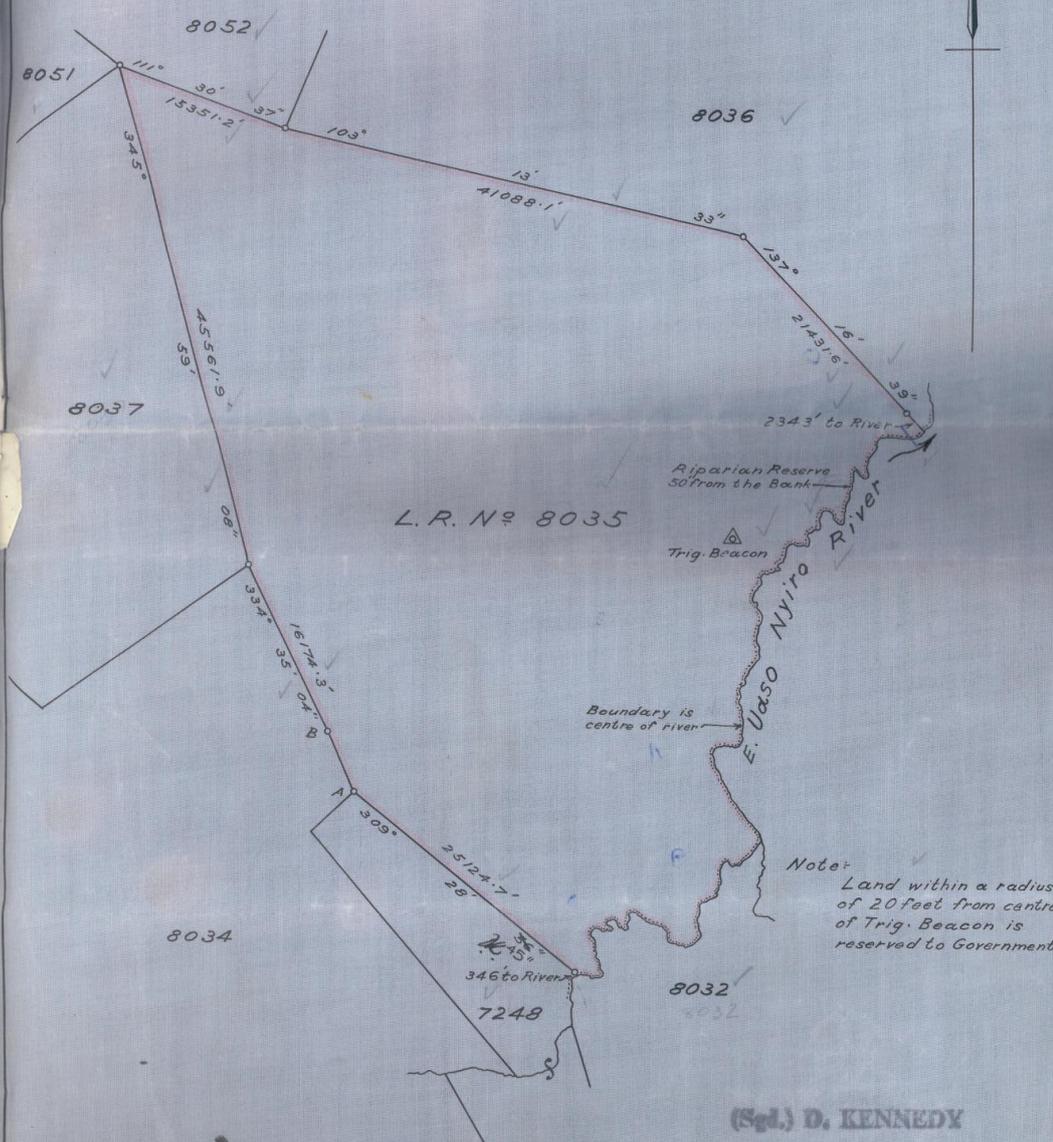
# COLONY & PROTECTORATE OF KENYA

DISTRICT OF LAIKIPIA  
 Locality N.E. of Rumuruti Township  
 Meridional District North. A. 37  
S. II. d

Land Reference No. 8035 ✓  
 (Orig. No. \_\_\_\_\_)  
 Subdivision No. \_\_\_\_\_ (Orig. No. \_\_\_\_\_)  
 of Section No. \_\_\_\_\_

Scale: 1 in. = 25000 or 10416.66 Feet to 1 Inch Total Area = 69956 Acres (Approx.)  
 Riparian Reserve = 170 " "  
 Nett Area = 69786 Acres (Approx.)

	Bearings		Distances
	°	' "	Feet
A-B	339	11 07	5705.2 ✓



(Sgt.) D. KENNEDY



LAND TITLE REGISTRY - COLONY OF KENYA

WILSON DISTRICT NAIROBI - REGISTERED NO. LR 10976/1  
Presentation No. 1133 Date of Registration 18-12-63  
REGISTRAR OF TITLES

2

THE FOLLOWING INSTRUMENT HAS BEEN REGISTERED AGAINST THE TITLE  
Declaration by the Crown dated 31st May, 1963  
declaring the annual rent payable for the land comprised  
in the within-written Grant to be Shs. 2,490/-  
with effect from 1st January, 1961  
M. A. KHAN

3

THE FOLLOWING INSTRUMENT HAS BEEN REGISTERED AGAINST THE TITLE  
Transfer to Colcheccio Limited  
Presentation No. 717 Date of Registration 18-4-72  
M. A. KHAN

4

THE FOLLOWING INSTRUMENT HAS BEEN REGISTERED AGAINST THE TITLE  
Transfer to Muridjo Game and Ranching Limited  
Area 0.877 Ha. L.R. no 8035/3. Term 99 years from  
1-8-1952. Annual Rent Kshs. 22,900 (Rev.)  
VIDE CERTIFICATE OF TITLE LR 5155b  
Presentation No. 913 Date of Registration 23-1-91  
M. A. KHAN

5

THE FOLLOWING INSTRUMENT HAS BEEN REGISTERED AGAINST THE TITLE  
Transfer to Leutrat Lenogingiro Rang  
Area 170.4 Ha. L.R. no 8035/2. Term 99 years from  
1-8-1952. Annual Rent Kshs. 25300 (Rev.)  
VIDE CERTIFICATE OF TITLE LR 5155  
Presentation No. 1244 Date of Registration 31-1-91  
M. A. KHAN

6

THE FOLLOWING INSTRUMENT HAS BEEN REGISTERED AGAINST THE TITLE  
Caveat by David Kojman, Advocate for Dryx  
Limited a Lessee's interest  
Presentation No. 122 Date of Registration 4-8-98  
M. A. KHAN 18/3/99

7

THE FOLLOWING INSTRUMENT HAS BEEN REGISTERED AGAINST THE TITLE  
Withdrawal of caveat No. 6 above  
Presentation No. 960 Date of Registration 18-3-99  
M. A. KHAN

8

THE FOLLOWING INSTRUMENT HAS BEEN REGISTERED AGAINST THE TITLE  
Lease to Dryx Limited 24597 Ha.  
LR 8035/5 term 10 years from 1-4-1998  
quarterly rent (US\$ 12,000.00)  
Presentation No. 962 Date of Registration 18-3-99  
M. A. KHAN

9

THE FOLLOWING INSTRUMENT HAS BEEN REGISTERED AGAINST THE TITLE  
Transfer to Kitenye Limited Area 166.4 Ha.  
LR NO 8035/4. term 99 years from 1-8-1952  
VIDE certificate of title LR 84801  
Presentation No. 931 Date of Registration 24-5-2000  
M. A. KHAN



THE FOLLOWING INSTRUMENT HAS BEEN REGISTERED AGAINST THE TITLE

10

Lease to Dryx Limited  
Area 24, 597Ha (less 51Ha riparian reserve)  
LR NO. 8035/5 Term 5 yrs from 1.04.2008

Presentation No. 228 Date of Registration 2-11-2010

Registrar  
G. M. Mungai\*211

Transfer to Luisa Ancilotto  
LR 8035/9. Cover No. 8035/5(2). - Area 1296.4014.  
Vide CI IP 16085 MK 29,1608 (KW).

11

Presentation No. 3174 Date of Registration 23-12-2014

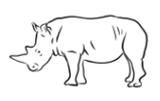
THE FOLLOWING INSTRUMENT HAS BEEN REGISTERED  
Grant of Easement to Luisa Ancilotto  
"Grantee"

C. R. Muthoni\*298

12

Presentation No. 2308 Date of Registration 20-3-2015

Registrar  
B. F. Atieno\*208



## Appendix 3: Provisional Approval Letter



**Ref: KWS/SCM/RP/5681**

30<sup>th</sup> October, 2020

Tom Silvester,  
Chief Executive Officer,  
Loisaba Conservancy,  
Oryx Limited,  
P.O. Box 1348, 10400,  
**NANYUKI**  
E-mail: tom@loisaba.com

Dear *Tom*,

**PROVISIONAL APPROVAL FOR THE PROPOSED LOISABA RHINO SANCTUARY**

Following your request to establish a rhino sanctuary and subsequent habitat suitability, water quality and security assessments undertaken by our technical teams, we are pleased to inform you that the reports recommended that Loisaba meets the threshold to be considered as a rhino sanctuary as per the established criteria for establishment of rhino sanctuaries.

The management has granted Loisaba Conservancy provisional approval to develop required infrastructure and capacity for establishment of a rhino sanctuary as per the report's recommendations.

Once the process is completed, a detailed evaluation will be undertaken before final approval is granted and signing of management agreement which will provide details on roles and responsibilities of the Service and Loisaba with respect to management of the rhinos.

You are requested to work closely with the Assistant Director Mountain Conservation Area who will link you up with the relevant technical departments from the area and headquarters to provide guidance and technical support at every stage of the process.

Yours

**PATRICK OMONDI, PhD, OGW**  
**FOR: DIRECTOR GENERAL**

P.O Box 40241-00100, Nairobi, Kenya.  
Tel: +254-020-2379407/8/9 - 15, Mobile: +254-735 663 421, +254-726 610 508/9.  
Email: kws@kws.go.ke Website: www.kws.go.ke



## Appendix 4: KWS Recommendation Letter



Winner, Leadership and Governance Practices - Company of the Year Awards 2008

**Ref: KWS/MRS/5001**

County Director of Environment  
National Environment Management Authority  
Laikipia County  
**31<sup>st</sup> March 2021**

Dear Sir,

**RE: LETTER OF SUPPORT FOR THE PROPOSED LOISABA RHINO SANCTUARY  
EIA**

Loisaba Conservancy made an application to Kenya Wildlife Service to establish a Rhino Sanctuary in part of their property. Their request was subjected to requisite internal evaluation and approval processes where various assessments were undertaken to evaluate the feasibility of the proposal. Attached to this letter are the ecological, hydrological and feasibility reports for your perusal.

Based on the technical reports, a provisional approval was granted subject to implementation of some recommendations among them an EIA.

Over the last few months, elaborate consultations have been undertaken that has resulted in an EIA document that they intend to file with NEMA. As they file the above report, I wish to confirm that KWS has been part of the EIA process and based on our initial evaluation, Loisaba conservancy meets the basic thresholds for establishment of a Rhino sanctuary.

Your assistance in fast-tracking the approval of the EIA document will be appreciate

Sincerely,

**Fred Omengo, PhD**  
Senior Research Scientist  
KWS Mountain Conservation Area

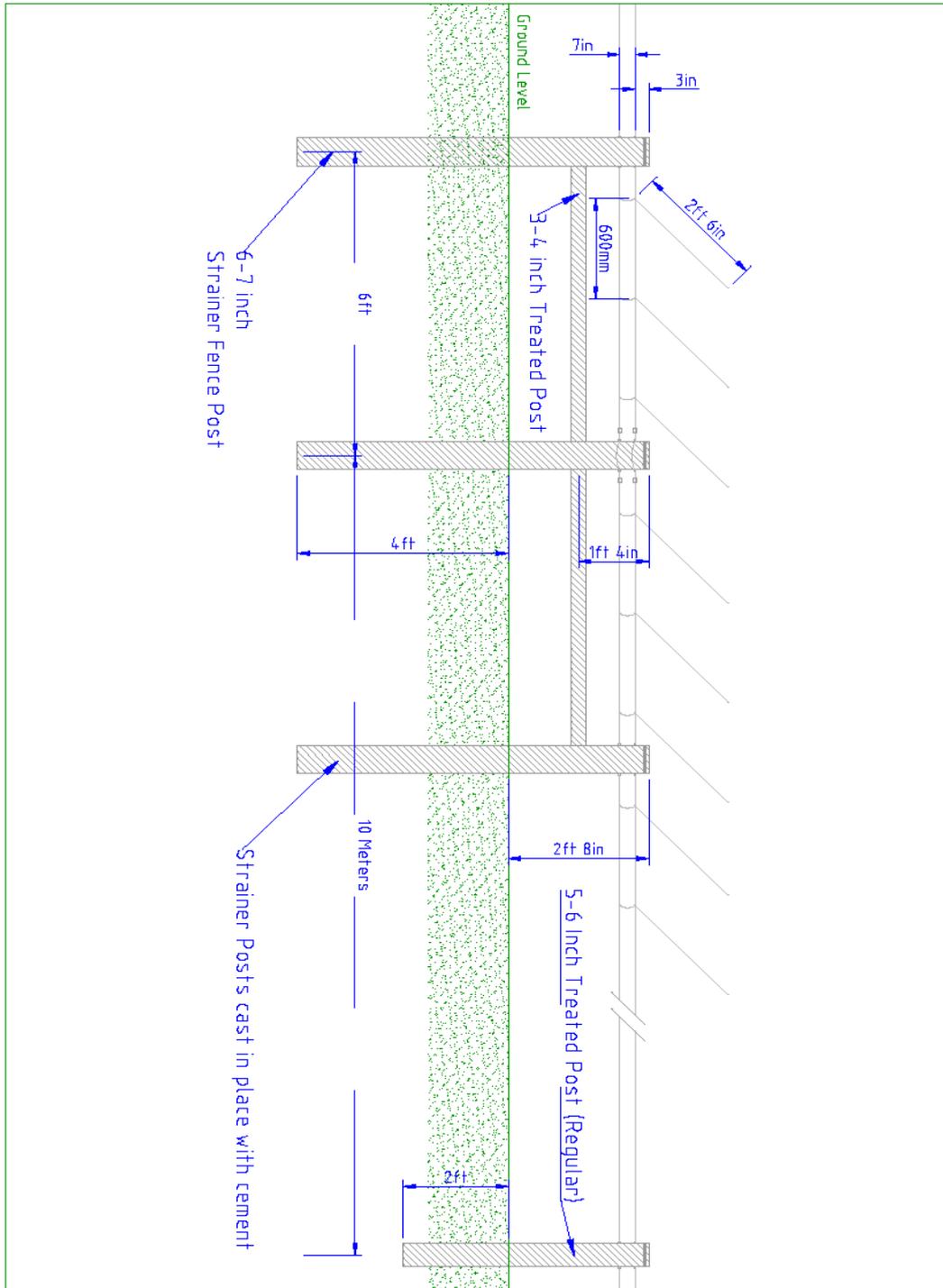
KENYA WILDLIFE SERVICE HEADQUARTERS

P.O. Box 40241-00100, Nairobi, Kenya. Tel: +254 - 20 - 600800, 602345. ISDN: +254 - 020 - 3992000. Wireless: +254 - 020 - 2379407/8/9.  
Mobile: +254 - 735 663421, +254 - 726 610508. Fax: +254 - 020 - 603792. Email: kws@kws.go.ke, www.kws.go.ke

Copy to:  
Director-Parks and Reserves  
Deputy Director-Security  
Deputy Director-Community Wildlife Service  
Assistant Director- Mountain Conservation Area  
Head-Species Conservation and management  
Head-Veterinary Services  
Senior Research Scientist- Mountain Conservation Area



## Appendix 5: Project Fence Design



## Appendix 6: List of Vegetation Species in the Project Area

Species	Rank	Family	Class
<i>182 Turrea mombassana</i>	2	Meliaceae	Shrub
<i>186 Turreaparvifolia</i>	2	Meliaceae	Shrub
<i>189 Pavetta stenocephala</i>	2	Rubiaceae	Shrub
<i>Parvetta crassipes (Sawa palm)</i>	3	Rubiaceae	Shrub
<i>Abutilon mauritianum</i>	1	Malvaceae	Shrub
<i>Acacia gerandii</i>	1	Mimosoidea	Tree
<i>Acacia brevispica</i>	1	Mimosoidea	Tree
<i>Acacia drepanolobium</i>	1	Mimosoidea	Tree
<i>Acacia mellifera</i>	1	Mimosoidea	Tree
<i>Acacia nilotica</i>	1	Mimosoidea	Tree
<i>Acacia polyacantha</i>	1	Mimosoidea	Shrub
<i>Acacia feficens</i>	1	Mimosoidea	Shrub
<i>Acacia tortilis</i>	1	Mimosoidea	Tree
<i>Acalypha fruticosa</i>	2	Euphobiaceae	Shrub
<i>Acalyptia fruticosa</i>	2	Euphorbaceae	Shrub
<i>Achyranthes aspera</i>	1	Compositae	Shrub
<i>Achyranthes aspera</i>	1	Compositae	Shrub
<i>Ajuoga remota</i>	3	Lamiaceae	Herb/forb
<i>Albizia anthelmintica</i>	3	Fabaceae	Tree
<i>Amaranthus hybridus</i>	2	Compositae	Herb/forb
<i>Antheriscium sp</i>	2	Compositae	Shrub
<i>Harrissonia abyssinica</i>	1	Mimosoideae	Shrub
<i>Asparagus africanus</i>	2	Asparagaceae	Shrub
<i>Grewia tenax</i>	1	Tiliaceae	Shrub
<i>Grewia bicolor</i>	1	Tiliaceae	Shrub
<i>Balanites aegytiaca</i>	2	Balanitaceae	Shrub
<i>Balanites glabra</i>	2	Balanitaceae	Shrub
<i>Baleria remulosa</i>	2	Akanthaceae	Shrub
<i>Commelina petersii</i>	2	Commelinaceae	Shrub
<i>Matricaria parathenium</i>	3	Asteroideae	Herb/forb
<b><i>Boscia angustifolia</i></b>	2	Capparaceae	Tree
<i>Bothlioichline calycina</i>	2	Compositae	Shrub
<i>Brassica napa</i>	2	Cruciferae	Herb/forb
<i>Caesalpenia budduc</i>	2	Caesalpinioideae	Herb/forb
<i>Kalanchoe pumila</i>	2	Crassulaceae	Herb/forb



<b>Species</b>	<b>Rank</b>	<b>Family</b>	<b>Class</b>
<i>Kalanchoe densiflora</i>	2	Crassulaceae	Herb/forb
<i>Capparis cartilaginea</i>	2	Capparaceae	Shrub
<i>Capparis cartilaginea</i>	2	Capparaceae	Shrub
<b><i>Carissa edulis</i></b>	3	Apocynaceae	Shrub
<i>Casalopenia(phyglenthus ficus)</i>	2	Papilionaceae	Shrub
<i>Cassia occidentalis</i>	2	Apocynaceae	Shrub
<i>Sonchus oleraceas</i>	1	Euphorbiaceae	Herb/forb
<i>Cynoglossum coerullum</i>	2	Boragnaceae	Herb/forb
<i>Commelina bangalensis</i>	2	Commelinaceae	Herb/forb
<i>Commiphora samharensis ssp terebinthiana</i>	2	Burseraceae	Tree
<i>Commiphora Africana</i>	2	Burseraceae	Tree
<i>Cordia Monoica</i>	2	Boraginaceae	Tree
<i>Crassocephalum picridifolium</i>	2	Compositae	Herb/forb
<i>Crotolaria pycnostachya</i>	1	Papilionaceae	Herb/forb
<i>Croton dichogamous</i>	3	Euphorbiaceae	Tree
<i>Raphanus sativus</i>	2	Euphorbiaceae	Herb/forb
<i>Cucumis aculeatus</i>	2	cucabitateae	Herb/forb
<i>Cyathula prostrata</i>	1	Compositae	Herb/forb
<i>Oxygonum sinuatum</i>	1	Compositae	Herb/forb
<i>Cynadenium compactum</i>	2	Euphobiaceae	Herb/forb
<i>Cyphostema adenocaula</i>	3	Vitaceae	Herb/forb
<i>Cyathula prostrata</i>	1	Composiate	Herb/forb
<i>Delopserma oehleri</i>	1	Composiate	Shrub
<i>Leucas diflexa</i>	2	Labiatae	Shrub
<i>Opuntia engalmannii</i>	2	Euphorbiaceae	Shrub
<i>Euclea divinorum</i>	2	Ebenaceae	Tree
<i>Euclea divinorum</i>	2	Ebenaceae	Tree
<i>Euclea melania</i>	2	Ebenaceae	Tree
<i>Euphorbia bussei Var. Kibweziensis</i>	2	Euphorbiaceae	Tree
<i>Euphorbia Canderablum</i>	2	Euphorbiaceae	Tree
<i>Eurphobia Sechmperina</i>	2	Euphorbiaceae	Shrub
<i>Eurphobia nyikae</i>	2	Euphorbiaceae	Tree
<i>Euphorbia heterochroma (finger like)</i>	2	Euphorbiaceae	Tree
<i>Huernia aspera (Small euphorbia)</i>	2	Euphorbiaceae	Shrub
<i>Fern (Pteridium aquillinum)</i>	3	Dennstaedtiaceae	Herb/forb
<i>Galliniera saxinifraga</i>	3	Rubiaceae	Shrub



<b>Species</b>	<b>Rank</b>	<b>Family</b>	<b>Class</b>
<i>Grewia Bicolor</i>	1	Tiliaceae	Tree
<i>Grewia Tenax</i>	1	Tiliaceae	Shrub
<i>Grewia similis</i>	1	Asparagaraceae	Shrub
<i>Asparagus falcatus</i>	2	Asparagaraceae	Shrub
<i>Guetenbagia cordifolia</i>	3	Asteraceae	Herb/forb
<i>Carissa edulis</i>	3	Euphobiaceae	Shrub
<i>Hibiscus flavifolius</i>	1	Malvaceae	Shrub
<i>Hibiscus aponeurus</i>	1	Malvaceae	Shrub
<i>Hibiscus vitifolus</i>	1	Malvaceae	Shrub
<i>Hibiscus aponeurus</i>	1	Malvaceae	Shrub
<i>Hibiscus flavifolius</i>	1	Malvaceae	Shrub
<i>Hibiscus aponeurus</i>	1	Malvaceae	Shrub
<i>Hypoestes forskalei</i>	2	Akanthaceae	Shrub
<i>Hypoestes Aristata</i>	2	Akanthaceae	Shrub
<i>Ipomea hildebrandtii</i>	2	Convolvulaceae	Herb/forb
<i>Ipomoea kituiensis</i>	2	Convolvulaceae	Herb/forb
<i>Solunum incunum</i>	2	Solanaceae	Shrub
<i>Indigofera schimperii</i>	1	Compositae	Herb/forb
<i>Hypoestis triflora</i>	2	Akanthaceae	Herb/forb
<i>Hypoestis folskalei (30%)</i>	2	Akanthaceae	Herb/forb
<i>Astripomoea hyoscyamoides</i>	2	Convolvulaceae	Shrub
<i>Ipomea kituiensis</i>	2	Convolvulaceae	Herb/forb
<i>Ipomea Mimosa</i>	2	Convolvulaceae	Herb/forb
<i>Ipomea Spathulata</i>	2	Convolvulaceae	Herb/forb
<i>Ipomoea garckeana</i>	2	Convolvulaceae	Herb/forb
<i>Jasminium floribundum</i>	1	Apocynaceae	Herb/forb
<i>Juisticia malammensis</i>	1	Akanthaceae	Herb/forb
<i>Juisticia flava</i>	1	Akanthaceae	Herb/forb
<i>Justicia odora</i>	1	Akanthaceae	Herb/forb
<i>Kalanchoe densiflora</i>	2	Compositae	Herb/forb
<i>Leucas Deflexa</i>	2	Labiatae	Shrub
<i>Lycium shawii</i>	2	Solanaceae	Shrub
<i>Lipia javanica</i>	3	labiatae	Shrub
<i>Lipia javanica</i>	3	labiatae	Shrub
<i>Leucus deflexa</i>	2	Labiatae	Shrub
<i>Lycium europaeum</i>	2	Solanaceae	Herb/forb



<b>Species</b>	<b>Rank</b>	<b>Family</b>	<b>Class</b>
<i>Maerua triphyla</i>	1	Capparaceae	Tree
<i>Maytenus heterophylla</i>	2	Celastraceae	Tree
<i>Maytenus heterophylla</i>	2	Celastraceae	Tree
<i>Maytenus heterophylla</i>	2	Celastraceae	Tree
<i>Maytenus heterophylla</i>	2	Celastraceae	Tree
<i>Maytenus heterophylla</i>	2	Celastraceae	Tree
<i>Melhania parviflora</i>	1	Malvaceae	Herb/forb
<i>Merepare (without thorns) Cadaba farinosa</i>	2	Capparaceae	Shrub
<i>Ngoki/Caparisis(with thorns) Lycium europaeum</i>	2	Solanaceae	Shrub
<i>Ochna inermis</i>	2	Ochnaceae	Tree
<i>Ochna inermis</i>	2	Ochnaceae	Tree
<i>Olea Africana</i>	2	Oleaceae	Tree
<i>Olyris lanceolata (sandal wood)</i>	3	Santalaceae	Shrub
<i>Optunia engelmannii</i>	2	Euphorbiaceae	Shrub
<i>Opuntia stricta</i>	2	Euphorbiaceae	Shrub
<i>Orthosiphon parvifolius</i>	2	Labiatae	Shrub
<i>Orthosiphon pallidus</i>	2	Labiatae	Shrub
<i>Occimum kilimandscharicum</i>	2	Labiatae	Shrub
<i>Oxygonum sinuatum</i>	2	Compositae	Herb/forb
<i>Parathenium (Tenacetum vulgare)</i>	3	Compositae	Herb/forb
<i>Pentanisia ouronogyne</i>	3	Compositae	Herb/forb
<i>Asparagus hildebrandtii</i>	2	Asparagaceae	Shrub
<i>Crassocephalum picridifolium</i>	2	Compositae	Herb/forb
<i>Polygala abbyssinica</i>	2	Polygalaceae	Herb/forb
<i>Portulaca foliosa</i>	2	Portulacaceae	Herb/forb
<i>Psiadia paniculata</i>	3	Compositae	Shrub
<i>Psidia Paniculata</i>	3	Compositae	Shrub
<i>Rhus vulgaris</i>	2	Anacardiaceae	Shrub
<i>Rhus natalensis</i>	2	Anacardiaceae	Shrub
<i>Rhynchosia tomentosa</i>	3	Fabaceae	Shrub
<i>Osyris lanciolata</i>	3	Santalaceae	Shrub
<i>Parvetta crassipes (Sawa palm)</i>	3	Rubiaceae	Shrub
<i>Sida ovata</i>	2	Casalpinoideae	Herb/forb
<i>Sida cordifolia</i>	2	Casalpinoideae	Herb/forb
<i>Solanum shrumannianum</i>	2	Solanaceae	Shrub
<i>Solanum Incanum</i>	2	Solanaceae	Shrub



<b>Species</b>	<b>Rank</b>	<b>Family</b>	<b>Class</b>
<i>Synadenium Compactum</i>	2	Euphobiaceae	Shrub
<i>Teclea nobilis</i>	2	Rutaceae	Tree
<i>Teclea Simplicifolia</i>	2	Rutaceae	Tree
<i>Tephrosia villosa</i>	2	Papilionaceae	Shrub
<i>Tephrosia emeroides</i>	2	Papilionaceae	Shrub
<i>Thubergia alata</i>	3	Akanthaceae	Herb/forb
<i>Turraea parviflora</i>	2	Melliaceae	Shrub
<i>Accaia totilis</i>	1	Mimosoideae	Tree
<i>Tribulus zayheri ssp zayheri (10%)</i>	1	Zygophyllaceae	Herb/forb
<i>Triumpheta flavescens</i>	2	Malvaceae	Shrub
<i>Sansivieria suffruticosa</i>	2	Agavaceae	Shrub



## Appendix 7: Community Consultation and Disclosure Meetings Items of Agenda

Loisaba Rhino Translocation – Community Meetings March 2021

Purpose:

Engage with neighboring communities to inform and prepare planning for the black rhino translocation to Loisaba.

Objectives:

1. Increase community awareness of the need for black rhino translocation
2. Communicate preparations to determine suitability for rhino habitat and protection
3. Share results from the SAPA Community Survey
4. Obtain feedback from community members on social goals tied with the rhino translocation

Agenda/Messages:

1. Prayer
2. Introductions – who is at each and needs to be introduced?
3. Overview of Rhino Proposal
  - a. Kenya's rhino populations, historical and current
  - b. Need for additional protected habitats
  - c. Why Loisaba can be a good home for rhinos
    - i. Habitat
    - ii. Security
    - iii. Relationships with neighbors
    - iv. Tourism operations
4. How the rhino translocation can be successful
  - a. Security
  - b. Science-based management
    - i. Future research directions
      1. Ecology with the giraffe and leopard programs
        - a. Using the camera grid to monitor rhino habitat
        - b. Have used giraffe collaring data to try and avoid fence collisions with wildlife (show map?)
      2. Disease investigations
        - a. Discussing with Kenya Wildlife Service Vets
      3. Human Dimensions
  - c. Community support
    - i. Results from SAPA?



1. About 2/3 of respondents listed “Security provided by Loisaba” as a reason for improved well-being over the last 5 years, though this varied relative to community area
  - a. How security is related to rhinos
2. About 3 of 4 respondents listed grazing access as a challenge
  - a. How grazing management might be impacted by rhinos
  - b. How participatory planning can be used to address these concerns?
5. Community discussion as place to share questions, concerns, priorities
  - a. **What would having rhinos nearby mean to you?**
  - b. **What concerns do you have with having rhinos nearby and how to address these concerns?**
  - c. **How would you like to see communities involved in rhino conservation?**
  - d. **What community goals do you see as tied to this rhino translocation?**
6. Conclusion and timeline for next check in



## Appendix 8: Deliberations deriving from Community Consultation Meetings

March 2021

### **Community rhino awareness meeting report**

One of the key conservation priorities for Loisaba Conservancy is to protect critical wildlife and their habitats. In line with this, we are currently in the process of re-introducing rhinos to the landscape. As a requirement community involvement is critical in this process as part of the stakeholder participation. Community meetings were held on 16<sup>th</sup> at Sagumai, KMC and Ntumodet and on 17<sup>th</sup> held at Nannapa and Koiya. On 18<sup>th</sup> a meeting was held at Morijo community.

The purpose of these meetings was to engage with neighbouring communities to inform and prepare planning for the re-introduction of rhinos to Loisaba as well as to the entire landscape.

The key objectives of the meeting were to increase awareness of the need for rhino reintroduction and obtain feedback from community members on social goals tied with the rhino reintroduction.

Each community meeting started with a word of prayer and introductions by the members present. The agenda of the meeting was introduced by Daniel Yankere the Loisaba conservancy security manager. These meetings were open ended this is to allow us to understand the history of the rhinos in the landscape and the community perceptions towards their reintroduction to Loisaba.

The community members acknowledged the presence of rhinos in the area. The old people who are in their 50s/60s acknowledge seeing the rhinos while young people have heard from history that the rhinos used to be in this area back in 70s whereby the last rhino to be seen in the area was in 1979 as narrated by one of the elders from Koiya. On inquiring why, the rhinos disappeared from the landscape, many people stated that it is due to killing by shifta what they later came to realize was poaching, and subsistence poaching by locals for food and aesthetic. Lots of these rhinos have been poached by shifta in the early 70s.

The community appreciated the reintroduction of rhinos as it will increase employment opportunities to people from the communities from need of more security personnel, and more need as the tourism sector will be improved. They also stated serenity within the landscape as security will be beefed up for rhinos hence other wildlife benefiting as rhinos are regarded as an umbrella species as well as the communities.

Other social benefits like continued support for education, health and rangeland programs were pointed out by the community as to be increased once the rhinos are reintroduced to Loisaba due to increased income.

Koiya community were incredibly positive about this great conservation objective citing that they believe their ecolodge the koiya Starbeds will get to a higher rating due to the availability of the big five within the vicinity which will translate to more income earning from the facility hence improved livelihoods.



**Conclusion**

All the community participants were so thankful to Loisaba Conservancy management for involving the community in this noble idea of conservation citing the benefits that are associated to it. They also appreciated the conservancy good relations to the community which will result to positive coexistence going forward. The communities were also happy to hear of a series of educational trips and awareness meetings planned by the conservancy for them on familiarization to the intended program.



**Appendix 9: Combined Consultative Meeting Report**

**TITLE: COMMUNITY RHINO AWARENESS AND CONSULTATION MEETING REPORT**

**DATE: 23<sup>rd</sup> March 2021**

**VENUE: LOISABA CONSERVATION CENTRE**



**Figure 19. Community Awareness and Consultation Meeting**

**Background Information.**



Loisaba is a 56, 000 acres wildlife conservancy. The conservancy provides important habitat for more than 270 bird species and 57 mammal species, including the endangered Grevy's zebra, wild dog, lion, leopard, cheetah, and Elephants among other wildlife. The rivers which form two of the property's boundaries, together with numerous dams and permanent springs mean that Loisaba Conservancy remains well watered and attractive to wildlife throughout the year. The conservancy works very closely with Kenya Wildlife Service (KWS) in support of wildlife conservation and for the benefit of the people of Kenya.

One of the key conservation priorities for Loisaba Conservancy is to protect critical wildlife and their habitats. In line with this, Loisaba is in the process of re-introducing rhinos to the landscape. Historically, based on statements by community members a large population of rhinos was present in Loisaba in 1960's to 1978. The reason for rhino extinction in the landscape was majorly due to poaching by Somali bandits (Shiftas), the last rhino was killed in 1978. To bring back black rhinos to the landscape, a formal request was made to KWS in 2018. Early 2019, KWS sent a technical team to conduct a surveillance visit. This was followed with a recommendation to conduct a habitat suitability and browse assessment, assessment on security was done in May 2020 and recently on the 23<sup>rd</sup> of March 2021, Loisaba held a community rhino awareness and consultation meeting.

### **Community Awareness and Consultation**

On the 23<sup>rd</sup> of March 2021, a community awareness meeting was held at Loisaba Conservancy which was attended by KWS team, Loisaba Communities, NAREDA Consultants, Olpejeta Conservancy rhino team, County and National government representatives, NRT Conservancies Managers and Chairpersons, Laikipia Conservancies Association and Loisaba team. The aim of the meeting was to create awareness and gather community opinions on the re-introduction of Black rhinos in Loisaba.

### **Presentations**

There were various presentations done by various groups. The presentations were as follows.

#### **Tom Silvester Remarks**

Tom welcomed the participants and highlighted the agenda citing that it is an important day to the communities and Loisaba as Loisaba conservancy is taking a milestone in conservation as it is in the process of re-introducing rhinos to Loisaba for the benefit of the biodiversity and the communities.

#### **Loisaba conservancy community programs - By Paul Naiputari (Community Development and Liaison officer)**

Paul introduced the community program giving a brief history on the theory of change to the Loisaba conservancy **Conservation- communities program** i.e., what conditions have enabled the continuity of the program to be successful, Overall benefits, community attitude and behavior change by the communities over a period of time which has helped in realization of biodiversity importance leading to creation of more community



conservancies opening connectivity in the entire ecosystem/landscape hence life protection.

The community programs for Loisaba are: -

- Education- School infrastructure support, Conservation Education, and scholarship
- Health- Medical services/outreaches, FGM, Support of community health volunteers, Infrastructure support
- Rangeland/Grazing
- Security – In conjunction with county and national government
- Enterprise – Women support in Beadwork, soap making, tailoring and cultural visits.
- Conservation- Research, HWC interventions and coexistence training.



**Figure 20. Community Development Officer presenting community programs.**

**KWS Scientist- Dr. Fred Omengo**

Dr Fred Omengo thanked all the community participants for showing up for this important rhino discussion for Loisaba. He emphasized on the co-existence of the pastoral communities with the wildlife saying that pastoralist embrace conservation and understand it better as the livestock and wild animals have always been grazing together so introduction rhinos on this landscape will be an easy thing. He also mentioned that 70% of wildlife are in dispersal areas outside the protected areas inhabitant by the pastoral communities. Dr Fred said also that community participation is among the last bit in the rhino reintroduction process and assured that Ecology assessment i.e., forage availability and water has been conducted and Loisaba has enough forage for the rhino as



well as water. Security assessment has also been done and it clear that Loisaba is secure for rhinos. He pointed out that from the community program presentation it shows that from the benefit mentioned there is no doubt that the community will support the rhino project.



**Figure 21. Dr. Fred Omengo talking to the audience  
KWS community county warden -Mr. Stephen Kuseren**

Mr. Kuseren acknowledged the maa community know much about wildlife conservation. He urged Let us embrace the introduction of rhino at Loisaba as it will improve the livelihood of the people living adjacent to Loisaba. He assured the community that the KWS and the government is fully supporting this process. He further emphasized on the suitability of rhinos on Loisaba landscape.





**Figure 22 KWS Community Warden discussing importance of coexistence  
Olpejeta rep- Wildlife- Cattle integration- Mr. Samuel Mutisya**

Mr. Mutisya gave a presentation on history of rhino introduction on Olpejeta (OPC). He stated that the rhinos were introduced in 1989 with only 20 individuals. Currently it has the highest number of rhinos in Kenya with over 180 individuals. The only two northern rhinos are found at the Olpejeta sanctuary. He added that Olpejeta is supporting community programs like grazing and helping to improve community breeds for better quality. OPC does not only do conservation but agriculture, tourism and cattle keeping are all carried out.

He emphasized that community grazing plans can still be supported by the conservancies with rhinos if security measures are put in place to ensure security of the rhinos as well as other wild animals. He outlined that for the safety of rhino good community relationship is critical, good fences, regulated herding, and security patrols, have an armed security team for ground patrols and an aircraft for aerial surveys and tracker dogs.





**Figure 23 Head of Olpejeta Rhino Program presenting**

**NAREDA CONSULTANT- Mr. Martin Kamau**

Mr. Kamau talked about environmental conservation saying that it is the responsibility of everyone to take care of the environment. He gave an example of forest resources how it got depleted by communities because they could not report Logging activities taking place at night without the knowledge of the authority. He urged people to report all vices because it will help prevent lots of destruction to any kind of natural resources. He regarded Laikipia as “Garden of Eden” because of its rich biodiversity. He also engaged the members present in a discussion on the positive and negative impacts of the project. He stated that his role as a consultant is to follow the EMCA requirements which outlines need for community consultation on positive and negative impacts. For the negatives impacts there must be measures to be put in place to reduce them in unavoidable situations.





**Figure 24. Mr. Martin Kamau from NAREDA Consultants presenting on Environmental Impacts**

**CHUI MAMAS- Ellie Modesta**

Ellie Modesta is a co-founder of Chui mamas a community based self- help group based at Koija group ranch. Ellie talked about the support that they get from Loisaba conservancy. The women have been empowered through beadwork activities, bee keeping, soap making and tailoring. Chui Mamas supported this initiative as they have seen much benefit from the conservation programs supported by Loisaba.



**Figure 25. Chui Mamas talking on conservation benefits to the Women group  
Oldonyiro Ward administrator - Francis Lekalasi**

Mr. Francis said that Rhino conservation will be of great boost to ecotourism not only to



Loisaba but even to neighboring conservancies. He said that everyone was happy to be associated with this great idea, which will be of great history to Loisaba CEO and all partners who took part in ensuring the process is successful. He also thanked KWS for maintaining good working ethics, integrity, and speed of work in its nature and protocols of work.

The ward administrator also told the members present that Isiolo County Government has passed community conservancies and tourism bill and it is the responsibility of the community to make good land use plans to tap this opportunity.

#### **ACC KIRIMON and Chiefs**

They confirmed that Rhino conservation will boost security and surveillance in the area. They requested the community and Loisaba to have a good integrated grazing plan of both wildlife and livestock within the landscape as it is enough and relevant. They requested communities to cooperate and assist in security information sharing.

#### **Community managers and Chairpersons**

The managers and chairperson were also incredibly supportive of the rhino reintroduction to Loisaba landscape. They are very ready to work with Loisaba in ensuring that this project is successful and ensure their conservancies are a conducive place for wildlife conservation.

#### **Youth Representatives**

The youth representatives also had a brief demonstration on the importance of collaboration between Loisaba conservancy and the neighboring communities in protection of this iconic species. A youth named Loreu encouraged the communities to embrace conservation initiatives and work closely with Loisaba.





**Figure 26. Youths demonstrating collaboration efforts between Loisaba and neighboring communities**

#### **Communities' representatives**

1. Kojja community gave a positive node
2. Oldonyiro community also supported the idea
3. Kirimon community also supportive
4. PND Community also supported
5. Ilmotiok supported the idea as well
6. Youths also supported.

In summary all communities supported the idea of introducing Rhinos to Loisaba conservancy.

#### **Closing remarks by Tom Silvester**

He thanked everyone for the healthy and good discussion on rhinos. He was extremely happy to see the idea of conservation of Rhinos in the nearby communities is coming right from their hearts. He went further and explained to the communities and other dignitaries present that, if Loisaba is valued to the level everyone is praising then it is a good effort taking into consideration the time and resources which have been allocated to the community in form of Community Programs. KWS fraternity has been of great help throughout in this process and he still requested them to continue guiding and working closely to ensure the dream is realized. He promised to work with all levels of Government both National and County Government.





**Figure 27. Loisaba CEO talking to the audience during closing remarks**

### **Recommendations**

- Extension of community programs to other areas like Nannapa, Tiamamut and P&D.
- Opuntia eradication support on community rangelands.
- Conduct more community awareness on rhino program by Loisaba

***Report compiled by:  
Paul Naiputari  
Community Development and Liaison officer  
Loisaba Conservancy***



Appendix 10: Consultants License

FORM 7

(r.15(2))



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

License No : NEMA/EIA/ERPL/14280

Application Reference No: NEMA/EIA/EL/18897

M/S **MARTIN KAMAU GITAU**  
(individual or firm) of address

P.O. Box 1001-10400, NANYUKI

is licensed to practice in the

capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert**  
registration number **7283**

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

Issued Date: **2/25/2021**

Expiry Date: **12/31/2021**

Signature.....

(Seal)

**Director General  
The National Environment Management  
Authority**

P.T.O.



## Appendix 11: Signed Comments from stakeholders During EIA Project Report Preparation

### Ranches and Key Partners (Institutions)

#### CONSULTATIONS WITH MR EVANS KAMAU, CHIEF OFFICER, WATER, ENVIRONMENT AND NATURAL RESOURCES, COUNTY GOVERNMENT OF LAIKIPIA (CGL)

##### Introduction

NAREDA Consultants, based in Nanyuki, is a NEMA registered/accredited Firm of Experts authorised to undertake Environmental Impact Assessments (EIAs) and Environmental Audits (EAs). NAREDA has been commissioned by Loisaba Conservancy to undertake an EIA for the Proposed Loisaba Rhino Sanctuary, Laikipia County, in accordance with EMCA 1999 and Environmental (Impact and Audit) Regulations 2003. A key tenet of the EIA process is Public Consultations and Disclosure. Section 17-1 of The Environmental-Impact Assessment and Audit Regulations, 2003 requires that an EIA should "seek the views of any person who may be affected by the project". It involves collating the views and concerns of the community neighbouring a development activity/project so that they get to know what the project entails and how the operations will affect their biophysical and human environments. The aim is to disseminate information to interested and affected parties (stakeholders), solicit their views and consult on sensitive issues.

The Proposed Loisaba Rhino Sanctuary, will principally involve the re-introduction of a founder population of eastern black rhino (*Diceros bicornis michaeli*) into a 64 km<sup>2</sup> fenced off and well secured sanctuary within Loisaba, with the ultimate aim of having a free-ranging population within the conservancy (230km<sup>2</sup>), in line with the Kenya Wildlife Service's Kenya Black Rhino Action Plan. This will be managed as an Intensive Protection Zone (IPZ). We have started the Public Consultation and Disclosure process and the County Government of Laikipia (CGL), a lead agency in the implementation of the Project, is one of the key stakeholders. In line with this we would like to understand your views, comments, insights, recommendations, reservations and any other important information on the proposed Project. Your views will be important in enriching the EIA and will be incorporated in the EIA Report before submission to NEMA. We kindly request you to answer the following questions.

**Is CGL's Department of Water, Environment and Natural Resources aware of the Proposed Project? If YES, what is the role of CGL in general and more specifically your Department in the Proposed Project?**

Yes. The County Government of Laikipia is well aware of the Proposed Project. Applications for CGL's approval have been received and are being reviewed by the relevant Departments. Approvals will be pegged on comments and recommendations from the overall licensing authority i.e. the Kenya Wildlife Service.

**What is the conservation significance of the proposed Loisaba Rhino Sanctuary as it relates to CGL's environment and wildlife conservation policy?**

The County Government of Laikipia appreciates the wildlife heritage in Laikipia. Laikipia is the leading County in Kenya in terms of hosting wildlife outside protected areas. We will continue tolerating and supporting wildlife in Laikipia close collaboration with all the stakeholders including the community, conservation NGOs such as LWF, The Nature Conservancy etc. and Government lead agencies including the KWS, NEMA and the Interior National Coordination of Government Ministry.

**In view of the role of your Department, what are imperatives before the actual re-introduction of the black rhino into Loisaba and other aspiring conservancies within Laikipia County?**



**CONSULTATIONS WITH MR EVANS KAMAU, CHIEF OFFICER, WATER,  
ENVIRONMENT AND NATURAL RESOURCES, COUNTY GOVERNMENT OF LAIKIPIA  
(CGL)**

**Introduction**

NAREDA Consultants, based in Nanyuki, is a NEMA registered/accredited Firm of Experts authorised to undertake Environmental Impact Assessments (EIAs) and Environmental Audits (EAs). NAREDA has been commissioned by Loisaba Conservancy to undertake an EIA for the Proposed Loisaba Rhino Sanctuary, Laikipia County, in accordance with EMCA 1999 and Environmental (Impact and Audit) Regulations 2003. A key tenet of the EIA process is Public Consultations and Disclosure. Section 17-1 of The Environmental-Impact Assessment and Audit Regulations, 2003 requires that an EIA should "seek the views of any person who may be affected by the project". It involves collating the views and concerns of the community neighbouring a development activity/project so that they get to know what the project entails and how the operations will affect their biophysical and human environments. The aim is to disseminate information to interested and affected parties (stakeholders), solicit their views and consult on sensitive issues.

The Proposed Loisaba Rhino Sanctuary, will principally involve the re-introduction of a founder population of eastern black rhino (*Diceros bicornis michaeli*) into a 64 km<sup>2</sup> fenced off and well secured sanctuary within Loisaba, with the ultimate aim of having a free-ranging population within the conservancy (230km<sup>2</sup>), in line with the Kenya Wildlife Service's Kenya Black Rhino Action Plan. This will be managed as an Intensive Protection Zone (IPZ). We have started the Public Consultation and Disclosure process and the County Government of Laikipia (CGL), a lead agency in the implementation of the Project, is one of the key stakeholders. In line with this we would like to understand your views, comments, insights, recommendations, reservations and any other important information on the proposed Project. Your views will be important in enriching the EIA and will be incorporated in the EIA Report before submission to NEMA. We kindly request you to answer the following questions.

**Is CGL's Department of Water, Environment and Natural Resources aware of the Proposed Project? If YES, what is the role of CGL in general and more specifically your Department in the Proposed Project?**

Yes. The County Government of Laikipia is well aware of the Proposed Project. Applications for CGL's approval have been received and are being reviewed by the relevant Departments. Approvals will be pegged on comments and recommendations from the overall licensing authority i.e. the Kenya Wildlife Service.

**What is the conservation significance of the proposed Loisaba Rhino Sanctuary as it relates to CGL's environment and wildlife conservation policy?**

The County Government of Laikipia appreciates the wildlife heritage in Laikipia. Laikipia is the leading County in Kenya in terms of hosting wildlife outside protected areas. We will continue tolerating and supporting wildlife in Laikipia close collaboration with all the stakeholders including the community, conservation NGOs such as LWF, The Nature Conservancy etc. and Government lead agencies including the KWS, NEMA and the Interior National Coordination of Government Ministry.

**In view of the role of your Department, what are imperatives before the actual re-introduction of the black rhino into Loisaba and other aspiring conservancies within Laikipia County?**

**KWS: RESEARCH SCIENTIST: MOUNTAIN CONSERVATION AREA**

**INTRODUCTION**

NAREDA Consultants, based in Nanyuki, is NEMA registered/accredited Firm of Experts authorised to undertake Environmental Impact Assessments (EIAs) and Environmental Audits (EAs). NAREDA has been commissioned by Loisaba Conservancy to undertake an EIA for the Proposed Loisaba Rhino Sanctuary in accordance with EMCA 1999 and Environmental (Impact and Audit) Regulations 2003. A key tenet of the EIA process is Public Consultations and Disclosure. Section 17-1 of The Environmental-Impact Assessment and Audit Regulations, 2003 requires that an EIA should "seek the views of any person who may be affected by the project". It involves collating the views and concerns of the community neighbouring a development activity/project so that they get to know what the project entails and how the operations will affect their biophysical and human environments. The aim is to disseminate information to interested and affected parties (stakeholders), solicit their views and consult on sensitive issues.

As you are well aware, The Proposed Loisaba Rhino Sanctuary, will principally involve the re-introduction of a founder population of eastern black rhino (*Diceros bicornis michaeli*) into a 64 km<sup>2</sup> fenced off and well secured sanctuary within Loisaba, with the ultimate aim of having a free-ranging population within the conservancy (230km<sup>2</sup>). This will be managed as an Intensive Protection Zone (IPZ). We have started the Public Consultation and Disclosure process and KWS, as the licensing authority and the lead agency in wildlife conservation in Kenya is one of the key stakeholders in the planning and implementation of the Proposed Loisaba Rhino Sanctuary. You have also specifically led a team that has carried out the *KWS Ecological, Water, Security, Veterinary/Disease Risk Assessments and Approval*.

In line with this we would like to understand your views, comments, insights, recommendations, reservations and any other important information on the proposed Project. Your views will be important for enriching the EIA and will be incorporated in the EIA Report before submission to NEMA. We kindly request you to answer the following questions.

1. Apart from the assessments that you have undertaken and approvals (a process which is ongoing) and other technical support to KWS, what is KWS' role in the whole project?

*Role of KWS is oversight and guidance through the whole process. We will also assist in ensuring compliance with various legislation and laws and that proper consultations are made with the adjacent facilities to reduce potential conflicts that may arise due to heightened security operations*

2. What is the conservation significance of the proposed Loisaba Rhino Sanctuary as it relates to the KWS Kenya Black Rhino Action Plan and Strategy and overall wildlife conservation in Kenya?

*The initiative is of great conservation significance it is in line with the recovery and action plan for Rhinos, it is offering an opportunity for Kenya to achieve its conservation targets. It will also enhance the security of other wildlife and eventually assist in their conservation*

3. What are the imperatives before the actual re-introduction of the black rhino into Loisaba?

*Loisaba conservancy has great habitat adequate water and requisite infrastructure to ensure adequate browse and security of Rhinos. The most urgent issue would be to*



*design the enclosure for the Rhino sanctuary, engage KWS to identify source of the founder populations*

4. During our consultations with the various stakeholders including LWF, the community and the neighbouring private conservancies and ranches, several concerns emerged. What is your take and comment on these concerns and how valid are they and how can they be addressed? These main concerns:

- The financial sustainability of the project considering that running rhino sanctuaries is quite an expensive undertaking;

*This is indeed true; a proper financial strategy is requisite. Loisaba needs to embark on fundraising and seeking strategic partners that can assist in the conservation efforts*

- Concerns about the fence line interfering with the wildlife migratory corridors and wildlife movement within and outside Loisaba and the neighbouring conservancies;

*This is not an issue, various corridors were identified and the fenceline along these areas can be designed to allow movement of other wildlife while restraining Rhinos. This is going on in other established rhino conservancies*

- Concerns about the ECC of the proposed sanctuary especially in the presence of significant elephant populations;

*Loisaba is a preferred elephant habitat and migration route, this is partly due to the enhanced security, availability of water and forage. It is difficult to control movement of Elephants but in the event that the heightened security led to increase in elephant numbers then a drive can be done. With active management of Elephants it's unlikely that the ECC will be disturbed*

- Concerns about possible deaths of rhinos and other undesirable and unintended effects such as increased stress levels due to movement of these rhinos to unfamiliar habitat;

*This is unlikely and Founder populations will be sought from similar habitats this will ensure that long distance and stress is minimized. Other veterinary precautions will be adhered to. Other assessments will be repeated just before translocations including Disease risk assessment from the source population, confirmation of any potential changes on the Water quality parameters and a RECCE on any other risks that may have arisen*

- The suggestion by some of the stakeholders on creating corridors among and between the Sanctuaries. The proposed corridors include: (i) Borana-Lewa-Ol Naishu-Lol Daiga-Segera-Ol Jogi (ii) Ol Pejeta-Segera-Eland Downs-Mutara ADC-Mpala-Loisaba.

*This is commendable and should be guided by animal movements and designed to exclude Rhino movement for a start*

5. Generally, what are positive impacts likely to be realized from implementation of this project?

*Increase in wildlife numbers, some locals will be employed, Growth in Rhino Numbers*



Heightened security may result in aggression from some local inhabitants - for this proper community engagement and consultations should be undertaken

SIGNED [Signature] MOBILE NO. 0733750243 DATE 06/11/2020



## ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER

### QUESTIONNAIRE

#### SUYIAN RACNH

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities? – **Yes we are aware of the proposed project which is that of a Rhino Sanctuary on Loisaba.**
2. What are the likely positive impacts of this proposed project? - **We see the Rhino Sanctuary as a positive project for several reasons: Dedicating safe space to a threatened and endangered species, black Rhino; improved security in the general area ; lifting the profile of Laikipia North as a preferred destination for visitors; an increase in employment due to the need for more rangers to protect Rhino.**
3. What are the likely negative impacts of the proposed project? – **Our main concerns were that there must be enough elephant corridors and other wildlife along the proposed fence to enable them to keep moving across the landscape as usual. Looking at the maps on the proposal, these corridors have been well thought out.**
4. How can the stated negative impacts be mitigated? – **We are confident that Loisaba will make sure that there are enough gaps in the fence so that elephants and other migratory species can keep moving in and out of the area easily.**



5. Additional comments/suggestions? – **No more suggestions**

Name: ANNE POWYS

Signature :



Id number: **8657459**

Date: **9<sup>th</sup> July 2020**



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER**

**QUESTIONNAIRE**

**SPACE FOR GIANTS**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

6. Are you aware of this proposed project and if so could you please describe the intended activities?

**Yes, am aware of the proposed fencing. Loisaba Conservancy is planning to re-introduce rhino conservation into the area. They invited KWS to conduct an ecological Assessment survey mid last year. One of the recommendation from KWS was fencing of the proposed sanctuary to minimize habitat destruction by the elephants before the reintroduction process. Upon reintroducing rhinos, the fence will also assist in controlling wildlife movement in and out of the sanctuary; this would also improve on rhino security. Therefore, some intended activities include: Clearing of shrubs & grass in the area fence would pass; actual erection of fences; Installation of the solar to enable functioning of the electric fence.**

7. are the likely positive impacts of this proposed project?

**Fencing would definitely improve on the sanctuary vegetation/Habitat restoration program especially from Elephants. Vegetation species richness and abundance would definitely increase in the sanctuary area due to controlled wildlife availability;**



**It will also minimize unnecessary human activities within the sanctuary, hence lowering wildlife disturbance rate; Fencing will improve on wildlife security, scientific rhino management would be easier in a fenced sanctuary system; Cases of wildlife diseases would easily be controlled in a fence set up area.**

8. What are the likely negative impacts of the proposed project?

**Fencing normally create habitat fragmentation, some wildlife corridors are blocked by such initiatives if not well implemented; Wildlife mortality due to electrocution might also be a problem if voltage is not controlled.**

9. How can the stated negative impacts be mitigated?

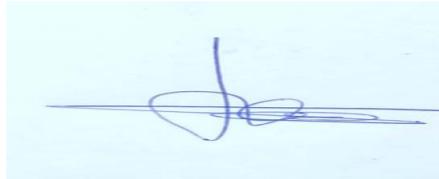
**The Negative impact can be mitigated through creation of opening along the active wildlife corridors; the openings could be in form of hanging wire strainers or close wood logs barriers, which only minimize elephant movement but allow other wildlife movement. Loisaba has been very efficient in monitoring fence voltage through the fence attendants; this has seen zero mortality of wildlife as compared to other areas. They should consider improving on the wire monitoring to zero rate the wildlife mortality**

Additional comments/suggestions?

**Having worked in large number of rhino areas in Kenya, 80 % of these areas are in fencing systems basically to minimize habitat destruction and reduce poaching effect, I would recommend Loisaba be given a positive green light to continue with the project. With the increasing human population, Kenya is determined to balance**



between both conservation and other land use. Fencing is the only optimal land solution in the current world. Loisaba has always been guided by the ecological concerns whenever executing such project, they should continue relying on expert opinions even in future.



Name: **Horris Wanyama**

Signature:

Id number: **24657539**

Date: **17<sup>th</sup> March 2020**



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER**  
**QUESTIONNAIRE**  
**TANGO MAOS RANCH**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities?.....Rhino sanctuary

2. What are the likely positive impacts of this proposed project?

Improvement of wildlife conservation; creation of local employment; tourism revenues, prestige for the area for hosting a globally important wildlife resource

3. What are the likely negative impacts of the proposed project?

As long as security and the rule of law are enforced and protected then there should be no negative impacts.

4. How can the stated negative impacts be mitigated?

Empowering Loisaba and surrounding conservation properties with to maintain security via NPR teams; improvement of telecommunications infrastructure

5. Additional comments/suggestions?

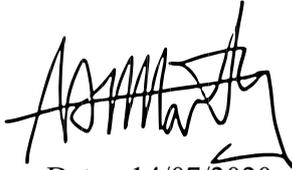
As a neighbour committed to wildlife conservation our interests are aligned with this project and we are 100% supporters of the initiative, which will raise the



profile of Laikipia North as a world class wildlife heritage site for the benefit of local communities.

Name: AIDAN HARTLEY

Signature:



ID: 186674

Date: 14/07/2020



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities?  
Yes, it will help conservation in endangered  
situation
2. What are the likely positive impacts of this proposed project?  
we will be able to bring guests to see  
the situation
3. What are the likely negative impacts of the proposed project?  
As long as there are migratory routes,  
and food security, it should be fine.
4. How can the stated negative impacts be mitigated?  
None really.
5. Additional comments/suggestions?  
I wish everyone good luck.

Name Verity Williams Signature Verity Williams

Id number 186890 Date 13/2/2020



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities? *Yes, the activity is creating a rhino sanctuary in Haiya conservancy and the sanctuary should be protected with an electric fence.*
2. What are the likely positive impacts of this proposed project?
  - *Biodiversity of the total population and enhancing the breeding.*
3. What are the likely negative impacts of the proposed project?
  - *Fencing and maintenance of the sanctuary is expensive.*
4. How can the stated negative impacts be mitigated?
  - *By having enough funds to maintain the sanctuary.*
5. Additional comments/suggestions?  
.....  
.....  
.....

Name *Daniel S. Yankere* Signature *[Signature]*

Id number *1101* Date *14/02/2020*



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

78km<sup>2</sup>

1. Are you aware of this proposed project and if so could you please describe the intended activities?

- Establishment of a Rhino Sanctuary
- Erecting of an electric fence.

2. What are the likely positive impacts of this proposed project?

- High profile tourism
- More job opportunities creation
- More community project support.

3. What are the likely negative impacts of the proposed project?

- Poaching threats.

4. How can the stated negative impacts be mitigated?

- Sophisticated and advanced Security systems

5. Additional comments/suggestions?

Name PAUL NAIPOUARI

Signature [Signature]

Id number 24611558

Date 14/02/2020



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities? YES. The intended activity is to reintroduce rhinos to Loisaba conservancy hence the need to fence a protected area for this endangered species.

2. What are the likely positive impacts of this proposed project?  
- Increasing the number of this critically endangered species to help the country to achieve its cream - target estimated population  
- Distributing the current pop. to diff. ecologies

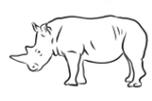
3. What are the likely negative impacts of the proposed project?  
- Reduction of the total available roaming area for the native/current species in Loisaba since the sanctuary will be surrounded by an electric fence

4. How can the stated negative impacts be mitigated?  
to make the whole of Loisaba conservancy a rhino sanctuary

5. Additional comments/suggestions?  
KWS, Loisaba conservancy management and all stakeholders should work together to make the whole conservancy a rhino sanctuary.

Name David Geroni Signature [Signature]

Id number 32470276 Date 14/02/2020



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities? Establishment of Black Rhino Sanctuary  
in Karsaba Conservancy
2. What are the likely positive impacts of this proposed project?  
→ Black Rhinos are key game species in grassland  
they maintain Karsaba conservancy grassland  
→ The project will enhance job opportunities to the region  
communities
3. What are the likely negative impacts of the proposed project?  
→ Potential poaching threats  
→ inadequate income for the black rhino due  
to inestates of illusive species
4. How can the stated negative impacts be mitigated?  
→ Poaching threats - improving security in the  
conservancy and community on  
Rhino conservation  
→ Eradication of illusive species
5. Additional comments/suggestions?  
→ improving community on rhino conservation  
→ improving security in the conservancy

Name Susan Okadusi Signature Susan

Id number 33.66.9090 Date 14/02/2020



## *Kirimuni and Koija Communities*

### ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities?  
..... Yes. I heard from other community members. ....
2. What are the likely positive impacts of this proposed project?  
..... • increased tourism in Loreaba which might overflow into Kirimuni and neighboring accommodation facilities. ....
3. What are the likely negative impacts of the proposed project?  
..... • presence of rhinos might attract unscrupulous characters like poachers, which will increase the insecurity in the area. ....
4. How can the stated negative impacts be mitigated?  
..... • involve the community to alert the conservancy if they spot any suspicious individuals. ....
5. Additional comments/suggestions?  
..... I support the plan. ....

Name..... John Lekushua ..... Signature..... [Signature] .....  
Manager Kirimuni Community  
Development Initiative.

Id number..... 32236943 ..... Date..... 14/02/2020 .....



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities? NO

2. What are the likely positive impacts of this proposed project?  
- creation of job opportunities  
- Promotes tourism - Foreign exchange  
- Enhance community relationship between <sup>with</sup> Lokata.

3. What are the likely negative impacts of the proposed project?  
If the intended land is not fenced this will increase human/wildlife conflict

4. How can the stated negative impacts be mitigated?  
If the intended project can be fenced, and reserve the land for grazing - (grazing plans).

5. Additional comments/suggestions?  
The project is wonderful because the local community members will have an opportunity to visit and have a look of them since it has been long time without the current generations to view.  
- As a government officer I recommend for the same.

Name LESOKOI STEPHEN STANLEY  
CHIEF OLOIBORJOI LOCATION.

Signature [Signature]

Id number 25588251

Date 14/02/2020



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

- 1. Are you aware of this proposed project and if so could you please describe the intended activities?  
..... Yes... I had heard but I wasn't sure of the specifics.....  
.....  
.....
- 2. What are the likely positive impacts of this proposed project?  
..... increased tourism.....  
..... job opportunities.....  
..... allow children to embrace to see the animals.....  
.....
- 3. What are the likely negative impacts of the proposed project?  
..... the presence of rhinos could interfere with the agreement between the conservancy and the community on grazing.....  
.....
- 4. How can the stated negative impacts be mitigated?  
..... put measures in place to ensure that the sanctuary doesn't cause a stop of the grazing agreement.....  
.....
- 5. Additional comments/suggestions?  
..... KIA.....  
.....  
.....

Name Simon Lokoyei Signature [Signature]

Id number 4358367 Date 14/02/2020







**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities?.....  
..... No .....
2. What are the likely positive impacts of this proposed project?  
..... more tourists who will also visit Kiriman conservancy .....
3. What are the likely negative impacts of the proposed project?  
..... None .....
4. How can the stated negative impacts be mitigated?  
..... N/A .....
5. Additional comments/suggestions?  
..... N/A .....

Name LEUMBO LEKISUYA Signature [Signature]

Id number 5164103 Date 14/02/2020



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities?  
.....  
Yes, had heard that rhinos might be brought to  
Loisaba.  
.....
2. What are the likely positive impacts of this proposed project?  
.....
  - more tourists in the area.
  - the young generation will be able to see the animals.
  - jobs for the youth.
3. What are the likely negative impacts of the proposed project?  
.....
  - possible human wildlife conflict if the rhinos get out.
  - increased insecurity due to the presence of the rhinos.
4. How can the stated negative impacts be mitigated?  
.....
  - increase security in the conservancy and involve the local community in being vigilant.
5. Additional comments/suggestions?  
.....  
N/A.  
.....

Name LEPITA MARIPET SAGE Signature [Signature]

Id number 5163502 Date 14/02/2020



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities?  
.....  
No. have just learnt about it today  
.....  
.....
2. What are the likely positive impacts of this proposed project?  
- more tourists in the area.  
- will employ local youth.  
.....  
.....
3. What are the likely negative impacts of the proposed project?  
• possibility of rhinos breaking out of the conservancy  
and terrorising the local community.  
.....  
.....
4. How can the stated negative impacts be mitigated?  
• improved security within the conservancy.  
.....  
.....
5. Additional comments/suggestions?  
.....  
N/A  
.....  
.....

Name Lenvi Lekuyayo Signature Lenvi

Id number 5164237 Date 14/02/2020



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities?.....  
..... NO .....
2. What are the likely positive impacts of this proposed project?  
..... the locals will be able to see the things which have not been seen in this area for a long time. .....
3. What are the likely negative impacts of the proposed project?  
..... increased insecurity because the rhinos might attract poachers. .....
4. How can the stated negative impacts be mitigated?  
..... increase the security measures .....
5. Additional comments/suggestions?  
..... N/A. .....

Name Labilwan Lenceloni Signature RL

Id number — Date 14/02/2020



## Appendix 12: Additional Stakeholders Consulted in undertaking EIA Study Report

### ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities? am aware yes  
Loisaba have some awareness meeting at Koisa village
2. What are the likely positive impacts of this proposed project?  
Community empowerment  
Marketing of Community Camps - Koisa Striped
3. What are the likely negative impacts of the proposed project?  
No
4. How can the stated negative impacts be mitigated?
5. Additional comments/suggestions?  
We appreciate the Loisaba Conservancy and entire team of this project of D.H.I.C and we will support and protect fall.

Name Ellie Mofest Signature [Signature]

Id number 22313162 Date 23/3/2021

0720266784  
maria chui



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities? YES.  
 Introduce rhino to Loisaba Sanctuary.  
 Ensure all surrounding communities are sensitised and are part of the project inception.
2. What are the likely positive impacts of this proposed project?  
 Increase the ecotourism activities in the region  
 Employment opportunities  
 Will increase community (ies) ~~to~~ Co-existence when all are focused in this activity.
3. What are the likely negative impacts of the proposed project?  
 ~~Reduce~~ Reduction in area of livestock grazing  
 Citizens movement probably will be restricted.
4. How can the stated negative impacts be mitigated?  
 Loisaba to invite communities to discuss wildlife and livestock grazing integration.  
 Communities to be given employment opportunities  
 Continuous/Routine community engagement meetings.
5. Additional comments/suggestions?  
 Community watchers at community level to be put in place as a measure of increasing surveillance & vigilance.  
 I saw invasive species (Opuntia) having dominated large part of land, request Loisaba to engage partners and Government to see how it can be totally eradicated.

Name..... FRANCIS JEKALASIMI ..... Signature..... 

Id number..... 20864911 ..... Date.....  
(Mobile) 0721836527 ..... 23/03/2021 .....

WARD ADMINISTRATOR



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities?  
.....  
The intended activity is introduction of Rhinos in Loisaba Conservancy. The purpose of the fence is to prevent the rhinos from movement.
2. What are the likely positive impacts of this proposed project?  
.....  
- To control the movement of Rhinos  
- To enable viewing/seeing the rhinos at a convenient place
3. What are the likely negative impacts of the proposed project?  
.....  
- It restrict movement of people  
- It takes alot of space  
- It is labour intensive
4. How can the stated negative impacts be mitigated?  
.....  
- by creating alternative route for people  
- by provision of more space  
- by having a post of patrolman
5. Additional comments/suggestions?  
.....  
Need for more consultation to the community surrounding the conservancy

Name R. KIMUTAP Signature 

Id number 29074702 Date 23/03/2021

ASSISTANT COUNTY COMMISSIONER  
KIRIMON DIV



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

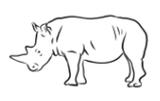
The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities? *Yes. The surrounding neighboring community will benefit. The impact of it at a tourism in Laikipia north will be high.*
2. What are the likely positive impacts of this proposed project?  
*Tourist attraction  
Great job opportunity  
The awareness between surrounding community and Laikipia will be high.*
3. What are the likely negative impacts of the proposed project?  
*Nothing will be very high  
The normal interaction in and out between the members of the community of Laikipia*
4. How can the stated negative impacts be mitigated?  
*Enough security should be deployed  
Fencing (electric)  
The community should not allow the people from other places to visit*
5. Additional comments/suggestions?  
*The project is very good*

Name *[Signature]* ~~William Smith~~ Signature *[Signature]*

Id number *27519243* Date *23/03/2021*

*CITARMAD - TIAMAMUJ*



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

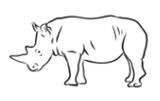
The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities? *Yes, it will focus on the reintroduction of black rhino to Loisaba*
2. What are the likely positive impacts of this proposed project? *It will be a huge conservation success not only for Loisaba but also for Laikipia more broadly. The neighboring conservancies will grow stronger.*
3. What are the likely negative impacts of the proposed project? *My one concern is the fencing and if this will fracture the ecosystem and prevent my wildlife connectivity for other species.*
4. How can the stated negative impacts be mitigated? *Effective corridor planning. Don't put the rhino fence in key movement areas. Coordination with other conservancies.*
5. Additional comments/suggestions? *Very exciting.*

Name *Brendan Beard* Signature *B. Beard*

Id number *700312* Date *March 23, 2021*

*Executive Director, Laikipia Conservancy Association  
0729-179343*



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities? YES! Direct introduction to Loisaba Conservancy
2. What are the likely positive impacts of this proposed project?  
Boost tourism  
promote livelihood to the surrounding communities
3. What are the likely negative impacts of the proposed project?  
I don't think there is any.
4. How can the stated negative impacts be mitigated?  
N/A
5. Additional comments/suggestions?  
None. Introduction is a sign of ownership that communities own Wildlife.

Name Sandra Wilson Signature [Signature]

Id number 25528193 Date 23/03/2021

WARBUNGA Upper Unit chairman



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities?  
*Yes*  
*(i) Enhance ecotourism*  
*(ii) Enhance breeding of Rhinos*  
*(iii) Protect Rhinos and introduce some other species*
2. What are the likely positive impacts of this proposed project?  
*(i) - The community benefits to have Rhinos nearer.*  
*- Restricted movement*  
*(ii) - Enhance conservation (iv) Advanced game drive*  
*(iii) - Promote eco-tourism of Kenya through Rhinos.*
3. What are the likely negative impacts of the proposed project?  
*- Restricted movement.*
4. How can the stated negative impacts be mitigated?  
*Through communication where those who what that have to tolerate to communicate in advance.*
5. Additional comments/suggestions?  
*- Through the introduction of Rhinos, employment of staff should factor in the neighboring communities.*

Name *Naipari Mathew* Signature *Naipari Mathew*

Id number *25778070* Date *23/03/2021*

CHAIRMAN NAIBUNGA LOWER UNIT



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities?  
Yes. I am. These intended activities is for conserving and protecting the rhino and other wildlife activities.
2. What are the likely positive impacts of this proposed project?
  - It will enhance security of both wildlife and human around.
  - It will create employment.
  - It will improve economy on the surrounding.
3. What are the likely negative impacts of the proposed project?
  - It will control the movement of human activities in the surrounding.
4. How can the stated negative impacts be mitigated?  
NO more negative impacts.
5. Additional comments/suggestions?
  - more community sensitization is encouraged and bring them on board.

Name: Paul Lebluyco Signature: [Signature]

Id number: 24108766 Date: 23.03.2021

FORMER WARD ADAM

FORMER MCA



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities? *Yes to put all surrounding Community together.*
2. What are the likely positive impacts of this proposed project?  
*To make our Community to know about it and live for generations*  
*- The security should increase in number*  
*- Community should be united*
3. What are the likely negative impacts of the proposed project?  
*- putting and removing of Cattle should stop*  
*- Movement of different people should decrease in number.*
4. How can the stated negative impacts be mitigated?
5. Additional comments/suggestions?  
*to put more relationship between the all Community as long*

Name *JACOB TIAWHE* Signature *[Signature]*

Id number *6099920* Date *23/03/2021*

*IKMOTION LOCATION CHIEF*



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities? *Yes - Enlarge the population of the Rhinos*  
*- Promotes conservation.*  
*- The surrounding community within Loisaba will benefit from the Rhinos conservation.*
2. What are the likely positive impacts of this proposed project?  
*- Ownership.*  
*- Resource sharing*
3. What are the likely negative impacts of the proposed project?  
*if there will be no community engagement*
4. How can the stated negative impacts be mitigated?  
*- Sensitization and fully community engagement.*
5. Additional comments/suggestions?  
*- The number of the Rhinos to be increased.*  
*- more human resource required.*

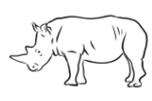
Name *LESSIKOT SCAPTON*

Signature *[Handwritten Signature]*

Id number *25588257*

Date *23/03/2021*

*OGBORSDIT CHIEF*

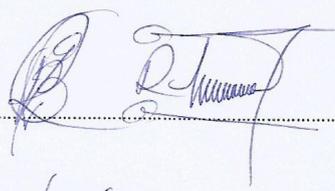


**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities?  
*Yes, The proposed project fence is to protect & conserve the project DP which is Loisaba conservancy*
2. What are the likely positive impacts of this proposed project?  
*- Protection of rhinos in the conservancy  
- Security  
- Animal movements of animals within the said project  
- Conservation of environment*
3. What are the likely negative impacts of the proposed project?  
*- Animal movement around the area  
- Restriction of animals around the said area.*
4. How can the stated negative impacts be mitigated?  
*- Everyone around the surrounding community should be alerted & report any unwholesome persons.  
- Animals should not be restricted at long but both parties agree on the grazing areas.*
5. Additional comments/suggestions?  
*- Communities around should be involved in the security.  
- A lot of community education should be done by the Loisaba conservancy*

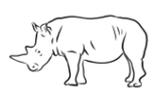
Name *Robert Lalakypiani*

Signature 

Id number *22266128*

Date *23/3/21*

*NDIAPA COMMUNITY  
MEMBER*



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities?  
..... Community awareness  
..... - fencing  
..... Transportation of Rhinos
2. What are the likely positive impacts of this proposed project?  
..... - community income increases  
..... - Job opportunities
3. What are the likely negative impacts of the proposed project?  
..... Restricted movement  
..... Fear of unknown
4. How can the stated negative impacts be mitigated?  
..... community fully participation
5. Additional comments/suggestions?  
..... Turn us up to us  
..... If benefits to all  
..... Export ivory.

Name..... Teo Kisungu ..... Signature..... [Signature] .....

Id number..... 23127416 ..... Date..... 23/03/2021 .....

NANAPA CHAIRMAN



**ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE**

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities? *Yes. The goal is increase rhinos' population to uplift them from the brink of extinction*
2. What are the likely positive impacts of this proposed project?  
*1. Increased rhino population in Kenya  
2. Attract tourist for the neighbouring communities  
3. Employment for neighbouring communities*
3. What are the likely negative impacts of the proposed project?  
*Increased insecurity - poaching*
4. How can the stated negative impacts be mitigated?  
*Community ownership of the project*
5. Additional comments/suggestions?  
*I'll take personal efforts to create awareness for our rhino's security.*

Name *Pirant Masiary* Signature *[Signature]*

Id number *2701854* Date *23/3/2021*

*Manager - Naibunga lower unit*



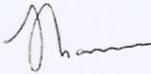
### ENVIRONMENTAL IMPACT ASSESSMENT STAKEHOLDER QUESTIONNAIRE

The proponent intends to undertake an Environmental Impact Assessment for the proposed construction of a three strand fence line along a section of the conservancy. One of the key requirements of EMCA 1999 is stakeholder consultations. To achieve this for this particular project we would like to get your views on the proposed development. Kindly assist us by filling this questionnaire.

1. Are you aware of this proposed project and if so could you please describe the intended activities? I am aware of the proposal to install a 3-strand fence around a part of Loisaba conservancy. This is a requirement to becoming a rhino conservancy in Kenya. I believe that the intended design is considerably LESS ecologically impactful than alternatives and should therefore be encouraged.
2. What are the likely positive impacts of this proposed project? The positive impacts of this project are that they will allow Loisaba conservancy to host rhinos. Rhino range expansion in encapsulated within the Kenya Black Rhino Action Plan 2017 – 2021. This plan also help Loisaba to strategically mitigate human-wildlife conflict.
3. What are the likely negative impacts of the proposed project? Fences are unfortunately a necessary mechanism to restrict wildlife movement in some instances. Aesthetically they are arguably displeasing but Loisaba have selected a short fence configuration that allows for free wildlife movement “with the exception of rhinos”. This latter element is a prerequisite to receiving rhinos as mandated by the KWS.
4. How can the stated negative impacts be mitigated? They are being mitigated by the short configuration selected and strategic wildlife corridors will be incorporated in the fence to facilitate wildlife movement.
5. Additional comments/suggestions? In The instance that the short fence configuration in adopted, two elements are recommended: 1) Ensure that the fence voltages are high enough to repel megafauna, 2) that the corridors are positioned strategically along historical wildlife migration routes, 3) that animals are not restricted access to water by the fence 4) That neighboring communities are consulted to determine whether they would like to restrict wildlife movement into their lands or not.

Name: Jamie Gaymer

Signature:



id number: 24861155

Mobile: +254 (0)722 228634 Date: 26/03/21

Designation: Ol Jogi Conservancy Conservation Manager, Chair of the “Association of Private and Community Land Rhino Sanctuaries (APLRS), Member of the Kenya Rhino Steering Committee (RSC), Member of the East African Community Rhino Management Group (EACRMG), Member of the IUCN SSC African Rhino Specialist Group (AfRSG)



## Appendix 13: CVS of the EIA Study Experts

### **MARTIN KAMAU GITAU**

**Family name:** Gitau  
**First names:** Martin Kamau  
**Nationality:** Kenyan  
**Civil status:** Married  
**Employer:** Nareda Consultants  
**Address:** P. O. Box 1001, 10400 Nanyuki (Kenya).  
**Mobile:** +254 722 312508./ 735 805381  
**E-mail:** [naredacons99@yahoo.com](mailto:naredacons99@yahoo.com)

#### **Education:**

<b>Institution [ Date from - Date to ]</b>	<b>Degree(s) or Diploma(s) obtained:</b>
Knightsbridge University, Denmark (2006)	Master of Public Administration (MPA)
Institute of Cultural Affairs International (ICAI) in Brussels (1995)	Diploma, Community Development Practitioner
University of Applied Sciences, Basel (FHBB), Institute of Environmental Technology (2004)	Certificate: Management of Hazardous Substances and Goods
The Global Development Learning Network (2005)	Certificate: Strategic Planning for Public Involvement in the Environment Assessment Process, World Bank Financed Project

#### **Membership of Professional Associations:**

- Kenya Aloe Working Group
- Environment Institute of Kenya- EIA Lead Expert (No. 7283)

**Language skills:** English and Kiswahili – Excellent in reading, speaking and writing.

#### **Key qualifications/ Core Competencies (Capability Statement)**

Mr. Gitau is a highly experienced socio-economist, livelihood and environmentalist. He has wide experience in facilitating community to manage their natural resources using Community Based Natural Resource Management (CBNRM) and Sustainable Land Management Guidelines for Impact Monitoring (SLM-IM). He has worked for over 15 years with communities in Kenya, Uganda, Tanzania, Ethiopia, Somali and Sudan. He is now finalizing on Baseline Survey for Kenya Development Response to Displacement Impacts Project in Turkana, Wajir and Garissa counties (KE-DASAR-14290-QCBS-RFP), a five-year National Government project implemented by Department of Development of Arid and Semi-Arid Regions and supported by the World Bank. He is the team leader in a consortia providing facilitation services for implementation of Banana and Indigenous Chicken Value Chains whose objective is to increase productivity, increase resilience and reduce greenhouse gases i.e. triple wins in the various Value Chains" in Nyeri and Laikipia counties under Kenya Climate Smart Agriculture Project (KCSAP). He led a team of



consultants to undertake a Baseline Survey in 14 arid and semi-arid counties in Kenya on a contract by State Department of Livestock, Ministry of Agriculture, Livestock and Fisheries implementing IGAD project: Regional Pastoral Livelihood Resilient Project (RPLRP), being implemented in three countries- Kenya Uganda and Ethiopia. Recently, he completed a Livelihood and economic Mapping survey report for UNDP Kenya's "Restoration and stabilization of livelihoods for drought affected and host communities in Turkana and Garissa Districts" of which WASH was a major component; and on a contract by FAO-SWALIM to facilitate the Capacity Needs Assessment and Capacity Development Plan of Action for Water, Land, Natural Resources and Environmental Information and Management in Somalia. He was part of a multidisciplinary team that undertook feasibility study for rural water supply for ENNDA. Mr. Gitau was contracted by ILO on NRM Sector Study for Somaliland and Puntland and on NRM local institutionalization and Environmental regulations and enforcement in a devolved service delivery system under the auspices of the Joint Programme on Local Governance and Decentralized Service Delivery (JPLG). In Laikipia, Nyeri and Isiolo counties, Mr Gitau facilitated 6 Water Resource Users Association in the preparation of Sub Catchment Management Plan in line with WDC Toolkit Working Document which was organized by the Laikipia Wildlife Forum and in Tharaka Nithi.

Mr. Gitau has conducted as the lead consultant or participated in several baseline and feasibility studies including: Baseline study for Burguret River Catchment area, a UNDP supported programme under COMPACT; Jinja Municipal water supply status, Agenda 21<sup>st</sup> Model programme; Tree is Life environmental conservation and protection programme, a UNDP supported programme under COMPACT; Small-scale enterprise in Laikipia District, ASAL supported initiative; conducted a Feasibility Study on formation of a National Irrigation and Drainage Association, Kenya, study was sponsored by APIA (Amelioration des Performances des Perimetres Irrigues en Afrique in Collaboration with Kenya Agricultural Research Institute (KARI). He led a team of engineers in evaluating FAO and CARE Agricultural and water & sanitation projects in Somalia. Mr. Gitau has conducted numerous Organizational Development and Institutional Strengthening (ODIS) to numerous CBOs and meso-level organizations supported by SNV/ SARDEP in Laikipia and Kajiado Districts. Marketing, value addition and business development plans formed part of the assignment.

Other direct experience of Mr. gitau include: Lead socio-economist for End of Project External Evaluation for COOPI's Pastoralist Livelihood Emergency Assistance in Sool, Sanaag (Somaliland) and Bari (Puntland) regions; applying Community Based Natural Resource Management (CBNRM); principal socio-economist for the Evaluation of Plan International's Family and Basic Community Services Programme. He was one of the facilitating trainer/consultants in NETWAS organized international training workshop in, "Gender in Water and Environmental Sanitation (WES) and presenter of two papers on Communication Skills-Techniques and Method Application and, A Case Study for Jinja Urban Wetland Women Project. Mr. Gitau facilitated a strategic planning workshop for Samburu pastoral community in Wamba organized under Samburu Integrated Development Project (SIDEPE) in collaboration with Netherlands Development Organization (SNV); was contracted by International Institute of Environment and Development (IIED), London, to carry out evaluations of Agenda 21 programmes of Jinja Municipality.

He has been the principal consultant in numerous Environmental and Social Impact (ESIA) and EAs undertaken by the Company and has handled issues on safeguards and resettlement which are major elements in prevention and mitigation of undue harm to people and their environment in the development process. He was contracted by Horn Relief to carry out Environmental Impact Assessment on Alternative Livelihoods Area Economic Recovery Programme, in Somaliland. Team Leader for a Norwegian People's Aid funded Community Resource Mapping Project



(COREMAP), using Participatory Land Use Planning, (PLUP tool) in Aluakluak and Ngop Payams, Yirol County, South Sudan; Lead consultant in land tenure (and use) change scenario study for P&D Ranch; the principal socio-economist for local (national) Market Survey for the Aloe Trade in Kenya commissioned by Laikipia Wildlife Forum; Rural Livelihoods, Food Security and Poverty Reduction survey in Suba and Bomet Districts for International Crops Research Institute for the Semi Arid Tropics (ICRISAT) in conjunction with the Ministry of Labour and Human Resource Development and UNDP Nairobi; and Sustainable Livelihoods Study in Kianjuki and Githumu Communities, Embu District, contracted by LIRI System- Wide Livestock Programme, funded by DFID, among others.

### Professional Experience:

Period	Employing organization	Country	Summary of activities performed relevant to the assignment
February 2021	IGAD: HoA-Groundwater Initiative	Kenya and Somali	Part of a multi-disciplinary team undertaking a feasibility study on the Merti Aquifer (between Kenya and Somalia) to complement the knowledge, set up guidelines for groundwater exploration, management and protection and provide detailed plans to develop water related infrastructure for socio-economic development including preliminary cost estimates and an assessment of the associated environmental and social safeguards risks and mitigation measures. The Merti is a transboundary aquifer (TBA) between Kenya and Somalia. I am responsible for the socio-economic and environmental issues around water developments and opportunities; Assessment of the status of water security in the project area; and the transboundary management issues related to shared waters
Sept 2020	UNDP	Ethiopia	Part of a multi-disciplinary team undertaking Midterm evaluation for the Regional Programme 2018-2021 for Africa which is an instrument for realising the SDGs set out in the UNDP SP 2018 – 2021. The four year regional programme focuses on three strategic priority areas namely: <b>Priority 1:</b> African Union and RECs deliver on their mandate, especially cross-cutting issues related to resilience-building (contributes to SP Outcome 2) <b>Priority 2:</b> Regional growth is inclusive, transformational and sustainable with reduced economic inequalities, and characterised by structural transformation (contributes to SP Outcome 2) <b>Priority 3:</b> Regional institutions sustain peace and build resilience to crises and shocks (contributes to SP Outcome 3). I am handling M&E role
December 2019-	County Government of Nyeri	Kenya	Through Nareda-Acacia Consortia which was awarded contract as the Service Provide to facilitate implementation of Banana Value Chain under Kenya Climate Smart Agriculture Project



2020			(KCSAP, I was hired as the lead consultants in the provision of specialized services to County Development Value Chain Development Committee involved in Banana project. The project seeks to “provide farmers with services that enhance increased productivity, increased resilience and reduced greenhouse gases i.e. triple wins in the various Value Chains”.
October 2019-2020	County Government of Laikipia	Kenya	Through Nareda which was awarded contract as the Service Provide to facilitate implementation of Indigenous Poultry Value Chain under Kenya Climate Smart Agriculture Project (KCSAP, I was hired as the lead consultants in the provision of specialized services to County Development Value Chain Development Committee involved in indigenous poultry project. The project seeks to “provide farmers with services that enhance increased productivity, increased resilience and reduced greenhouse gases i.e. triple wins in the various Value Chains”.
June 2019	County Government of Laikipia		<b>Team Leader:</b> In Development of a Climate Change Policy for Laikipia County Government so as to secure its development interventions and the climate change and its associated impacts. The overall purpose is to establish an effective and efficient institutional and legal framework for mainstreaming climate change into county development plans and programmes through a participatory process and by adopting economic and social political incentives and integrated management.
March 2019	The Executive office of the President	Kenya	<b>Team Leader:</b> The Kenya Response to Displacement Impacts Project (KDRDIP) is a five-year National Government project implemented by Department of Development of Arid and Semi-Arid Regions and supported by the World Bank. It aims to give support to the refugee host communities of Garissa (Dadaab, Fafi and Lagdera), Wajir (Wajir South) and Turkana (Turkana West) counties to mitigate the impacts of protracted presence of refugees through community-driven sustainable projects. The project objective is to improve access to basic services, expand economic opportunities, and enhance environmental management for communities hosting refugees in the target areas. The baseline survey objective is to establish and provide information base against which to monitor and assess the progress and effectiveness of implementation of KDRDIP
October 2018 to March 2019	Kenya Red Cross Society	Kenya	<b>Assisting Team Leader:</b> Carried out Endline Evaluation of the Disaster Management Strengthening of the Kenya Red Cross Society staff's and partners capacity in disaster preparedness and response. With funding from British Red Cross (BRC), Finnish Red Cross, Department for International Development (DFID) and European Civil Protection and Humanitarian Aid Operations (ECHO), the project to strengthen KRCS' disaster preparedness and response capacity by investing in three key output areas namely: increased KRCS response capacity, response efficiency and sharing of learning from preparedness and response operations which contribute to improved capacity of KRCS to prepare for and respond to the needs of people



			affected by disasters.
April 2018- June 2018	County Government of Tharaka Nithi	Kenya	<b>Team Leader:</b> Undertake a “Detailed Study on Improvement of the Traditional High Value Crops Value Chain and Development of Concept Paper for Improving the Traditional High Value Crops Value Chain in Tharaka-Nithi County”.
April 2018- June 2018	County Government of Tharaka Nithi	Kenya	<b>Team Leader:</b> Undertake a “Detailed Study on Improvement of the Banana Value Chain and Development of Concept Paper for Improving the Banana Value Chain in Tharaka-Nithi County”
Sep 2016- March 2017	State Department of Livestock, Ministry of Agriculture, Livestock and Fisheries	Kenya	<b>Team Leader:</b> To undertake baseline study for IGAD implemented project: Regional Pastoral Livelihood Resilient Project (RPLRP), being implemented in three countries- Kenya Uganda and Ethiopia, The Baseline Survey covered 14 arid and semi arid counties in Kenya. The development objective of the project is increasing resilience of vulnerable agro-pastoral communities to address natural resource management, market access, livelihood options and disaster risks
March 2016- June 2016	NPA South Sudan	South Sudan (	<b>Lead Consultant:</b> to undertake end of project evaluation for Emergency Special Operations (ESO) implemented with support from USAID/Office for Foreign Disaster Assistance (OFDA) and Food For Peace (FFP) in response to the ongoing emergency in SPLM-N controlled areas of Blue Nile since 2012
May 2015- July 2016	Iguana Africa, Nairobi	Kenya	<b>Lead Consultant:</b> Baseline Survey for Tharaka Nithi County in Kenya. The work entailed assessing and documenting the pre-investment levels of the key performance indicators (KPI's) within the Counties identified for support under the equitable access to quality water and strengthened water resources management programme supported by the Governments of Kenya, Sweden and Finland
Sept 2015 – Jan 2016	NPA South Sudan	Yirol West, Rumbek East & Mvolo Counties in Lakes States, South Sudan	<b>Principle Consultant – Rural Development/ Livelihood Expert: Baseline Assessment for the Conflict Transformation &amp; Livelihoods Recovery Project.</b> NPA received a 2 year funding to implements a “Conflict Transformation & Livelihoods Recovery Project” a project which seeks to build social cohesion and trust between adversarial communities.  The consultant conducted a social assessment using Participatory Rural Appraisal techniques that will update the analyses of the cultural, social and marketing processes in the targeted communities. The social assessment will also determine the extent to which market traders are willing to pay additional fees for better facilities. The assessment will also assess the potential supply and demand to determine the existing or likely flows through markets that will be identified for rehabilitation. It will also focus on: (i) review crop and livestock production, to identify the quantities that could be marketed; (ii) review the role of market channels, to find out where the produce is presently going;(iii) review existing consumption, on the basis of average food consumption levels;(iv) determine on-farm use, to identify what is retained by the farmers for their own use; and



			(v) determine non-market sales, to quantify how much produce is not likely to go through the market. The assessment will also include a micro-level conflict analysis. Key questions that will be the focus of the conflict analysis are: (i) what is the conflict profile of the project area? (ii) What are the causes of conflict in the project areas? (iii) Who are the conflict actors? and (iv) what are the conflict dynamics?
July-October 2015	UNICEF Kenya	Kenya	<b>Principal Consultant: Monitoring and Quality Assurance of CERF Funded Emergency Wash Assistance for Disaster Affected Communities in Kenya.</b> The Central Emergency Response Fund (CERF) is a project being implemented by UNICEF Kenya country office in seven counties in the country, namely Marsabit, Mandera, Wajir, Turkana, Baringo, Tana River and Lamu counties. The project targets disaster affected persons facing complex emergency needs. The CERF project seeks to prevent and control outbreak of diarrheal diseases and contribute to improved nutrition of children in particular, and population in general facing humanitarian crisis in Kenya. The main outcome of the project is reduced cases of diarrheal and improved nutrition status for the children and women affected by conflict and drought.
Nov 2014-March 2015	UNOPS-International Labour office (ILO)	Somalia	<b>Principal Consultant: Consultancy Services for Capacity Building for Decentralised Natural Resource Management -</b> To operationalise the decentralised NRM framework and further develop capacity of local NRM stakeholders to facilitate and implement the decentralised NRM planning processes, prepare district NRM plans, prioritise and implement local NRM projects. This will be building on work already done in establishing the NRM planning framework, the development of the CBNRM tools and training and data collection and preparation of draft district NRM plans for Burao in SL and Gardho in PL.
September 2014	FAO	Somalia	<b>Capacity assessment expert: Capacity Needs Assessment Study For Water, Land, Natural Resources and Environmental Information and Management Project in Somalia.</b> The specific objectives of the study were to: Assess and analyse the capacity of key Somali institutions and organizations for managing information in water, land, natural resources and environment. The assessment and analysis will include existing and required policies, acts and legal frameworks, the mandates of the different institutions, organization structure and resources and partnership and coordination between key Somali institutions and organizations; and Identify and document capacity gaps and recommend desired changes and capacity development plans through a participatory process led by the Somali institutions and organizations involved in water, land, natural resources and environment information management.
June - July 2014 -	Norwegian People's Aid (NPA)	Lakes State, South Sudan	<b>Lead Consultant: South Sudan NPA South Sudan Baseline Survey for NPA's Smallholder Animal Traction Capacity and Extension Services in Lakes State Project under the SORUDEV Program.</b> The objective of the baseline survey was



			to determine the baseline situation on agriculture production systems and value chains at household, community and institutional levels and factors that influence them as a benchmark of monitoring project progress in reference to the key indicators provided in the proposal and as a base for future impact assessment prior to project inception.
July – Sept 2014	Alshahid Centre for Research and Media Studies	Somalia	<b>Lead socio-economist:</b> carrying out comprehensive baseline survey in Somalia (Somaliland, Puntland and South and central Somalia). The baseline covered natural resources, economic activities, infrastructure development and social services. The study aimed at collecting baseline information on Socio-Economic infrastructure, Natural resources and Social service Sector, which will provide information necessary for reconstruction and development of central and south Somalia.
June – August 2014	Norwegian People's Aid (NPA)	Lakes State, South Sudan	<b>Trainer: Training Local NGOs' Staff Lakes State on Results-Based Monitoring and Evaluation NPA South Sudan South Sudan.</b> The training was to help local NGOs track progress and demonstrate the impact. Not only that but also helps them to move beyond an emphasis on inputs and outputs to a greater focus on outcomes and impacts. The monitoring and evaluation will provide a continuous flow of information that is useful both internally and externally.
March – June 2014	UNICEF	Kenya	<b>Lead Consultant: Baseline Survey for the Alternative Provision of Basic Education Programme in Dadaab for UNICEF Kenya:</b> Dadaab is one of the largest and oldest refugee settlements in the world; education is a luxury denied most of the 90,739 children who live there. Set up at the outset of Somalia's civil war in 1991 to accommodate 90,000 refugees, three camps near the north eastern Kenyan town of Dadaab - Hagadera, Ifo and Dagahaley - are now home to more than three times that number, and persistent conflict in Somalia, from where 95 percent of the refugees originate, means the population grows daily. According to the UN Children's Fund (UNICEF), the primary school attendance rate is 43 percent while in secondary schools the rate is just 12 percent. Across the three camps, there are 19 primary schools, funded by the UN Refugee Agency (UNHCR). In addition there are 11 private, fee-paying primary and six secondary schools. In 2010, some 2,500 refugee children sat for the Kenya Certificate of Primary Education. Of these, barely a fifth won a place at secondary school. National statistics for Kenya are considerably higher, at 82 percent and 49 percent for primary and secondary attendance respectively. The picture is far worse in Somalia itself, where primary school enrolment is 20 percent, with fewer than 10 percent going on to secondary school, according to UNICEF.
Nov 2013- Feb 2014	UNOPS- International Labour office (ILO)	Puntland & Somaliland	<b>Principal Consultant: Capacity Building for Decentralised Natural Resource Management in Puntland and Somaliland.</b> Specifically the consultant is expected to, <ul style="list-style-type: none"> <li>• Increase awareness and understanding of NRM</li> <li>• Building capacity of NRM stakeholders to facilitate NRM planning</li> </ul>



			<ul style="list-style-type: none"> <li>• Drafting district NRM plans and implementation plans</li> <li>• Increased public and private sector awareness and compliance with Environmental Impact Assessment guidelines</li> </ul>
July – Dec 2013	Cordaid, CARE, VSFG and COOPI	Kenya & Ethiopia	<p><b>Lead Consultants: External Evaluation of the ECHO funded Drought Risk Reduction Action Plan (DRRAP), 2012-2013 being implemented in Northern Kenya and southern Ethiopia-</b> The <u>purpose</u> of this evaluation is to assess, quantify and document the joint contributions of the actions towards the principle objective of the DRRAP, which is to increase resilience and reduce vulnerability in the local communities through support to strategies to mitigate and respond to drought. The <u>specific objectives</u> of this evaluation are to assess (i) the relevance, effectiveness, efficiency, impact and sustainability of the action(s) towards meeting the specific objectives and (ii) the contributions of the joint actions to drought risk management.</p>
April-June 2013	World Vision	South Sudan	<p><b>Lead consultant: Baseline Survey for the Warrap Reconstruction for Peace and Human Security.</b> The baseline survey was a multi county survey that will benchmark core indicators in Health, WASH, Education, Food Security and Livelihood and protection and peace building sectors in five counties of Warrap. The statistically valid information gathered will also serve as the basis for comparison with the same type information to be collected during the final evaluation. The comparison between the baseline and final evaluation data will be to measure the achievement and impact of the program brought about by program intervention.</p>
April 2013	East Africa Wild Life Society	Kenya	<p><b>Facilitator: Facilitating the Human-Wildlife Conflict Stakeholders’ Meeting for Laikipia County. Specifically the consultant,</b></p> <ul style="list-style-type: none"> <li>• Prepared some background material to inform the meeting</li> <li>• Set the objectives and outcomes/deliverables jointly with the Laikipia County Governor’s office</li> <li>• Facilitated the discussions between stakeholders</li> <li>• Prepared the proceedings report and</li> <li>• Prepared a concise technical paper on recommendations for short, medium and long-term interventions.</li> </ul>
October 2012-Jan 2013	Firetail Limited, 3 Dean Trench St, London, SW1P 3HB +44 207 148 0910 <a href="http://www.firetail.co.uk">http://www.firetail.co.uk</a> Registered in England & Wales (05428065)	Kenya, Uganda	<p><b>Socio-economist: Independent Study of the Hub Model Approach in the Pilot Phase of the East Africa Dairy Development Program, (EADD) -</b> The East Africa Dairy Development (EADD) project is part of a 10 year regional dairy industry development programme. It is implemented by a consortium consisting of Heifer International (HI), Technoserve (TNS), the International Livestock Research Institute (ILRI), African Breeders Total Cattle Management (ABS-TCM) and the World Agro Forestry Centre (ICRAF). The project operates in selected areas of Kenya, Uganda and Rwanda, with a budget of USD 51.32 million granted by the Bill &amp; Melinda Gates Foundation (BMGF). EADD seeks to promote small-scale dairy production as a profitable and sustainable livelihood strategy for poor farmers. Its goal is to double dairy-derived income among</p>



			<p>179,000 farming families by 2017 through knowledge-based interventions that enhance both dairy production and market access. By combining the latest research on regional dairy industries with technological improvements in livestock feeding and breeding practices and on-going business training for both farmers and service providers, the projects seeks to add value to milk production and deliver direct economic benefits to rural farming households throughout the region. The project seeks to achieve its vision of improved income for small-holder dairy farmers by focusing on three project objectives (PO):</p> <ul style="list-style-type: none"> <li>• PO1: Generate information for informed decision-making on the dairy value chain and develop innovative solutions for use of resources that increase income</li> <li>• PO2: Expand dairy markets and increase market access for smallholder farmers</li> <li>• PO3: Sustainably increase dairy productivity and efficiency</li> </ul> <p>This is an interim study commissioned and financed by the ALINe Network at Firetail on behalf of BMGF. The purpose of this interim study is twofold:</p> <ul style="list-style-type: none"> <li>• To assess how responsive hub development has been to the circumstances of small-holder farmers</li> <li>• To identify key internal and external contextual factors that influence the functionality, success and resilience of the diary hub approach.</li> </ul> <p>This study will provide input into an impact assessment of Phase I of EADD, which will be financed and managed by the project, commencing in Feb. 2013. The findings will inform the design of Phase II and provide evidence that BMGF may use to advocate the model to other donors.</p>
Dec 2012-	UNDP	Kenya	<p><b>Lead Consultant: Providing Monitoring and Evaluation Framework: “Restoration and Stabilization of Livelihoods for Drought Affected and Host Communities in Turkana and Garissa Districts-</b> Working as an assistant consultant for <b>Level I: Inception</b> - At this stage the consultant will have initial meetings with the client to discuss issues dealing with the contract, sampling, workplan, development of inception report and training manual.</p> <ul style="list-style-type: none"> <li>• <b>Level I: Inception</b> – Held initial meetings with the client to discuss issues dealing with, sampling, workplan, development of inception report and training manual.</li> <li>• <b>Level II: Baseline Survey and data for the project; and Livelihoods and economic opportunities mapping.</b></li> <li>• <b>Level III: Development of the Project Management Monitoring Services Tools-</b></li> <li>• <b>Level IV: Host Communities Project Evaluation and Impact Analysis-</b></li> </ul> <p>The consultants are using the following <b>participatory approaches and methodologies to undertake the assignment</b>; Random and purposive sampling, Desk study, Administration of Household questionnaires, Community</p>



			consultative meetings, Focused discussions with key informants/resource persons, Field investigations (site visits) and validation, Study feedback workshops and reporting.
Sep 2012	Care Sudan /Somalia	Puntland	<b>Lead Consultant: Assessment and Design a NRM Proposal for the Rangeland Rehabilitation and Community Management Components.</b> The consultant conducted an assessment in Nugal and Karkar regions assessing on the role of existing / prior supported pastoralist institutions and the current status of degradation in Nugal and Karkar, and priority actions for addressing these with the MoE and communities, coordinating this with the plans of Adeso to ensure technical consistency; Developed a plan for Result 1 and Result 2 targeting environmental degradation (1) and community management and conflict mitigation; Developed logframe for these results, with indicators, activities, means and costs; Developed the activity budget for these 2 results; Wrote the problem/needs analysis of the proposal and providing technical support and guidance to the institutional specialist who will be working on result 4. The consultant is finalising the reports with the client.
Aug 2012	Norwegian People's Aid	South Sudan	<b>Lead Evaluator: End of Project Evaluation of the Rural Development Program Support to Agriculture and Forestry Development Project (Small Grants Management) in states of Eastern and Central Equatoria, Jonglei, Unity and Upper Nile.</b> The evaluation was to have an external, professional and independent structured presentation of the projects' activities, outputs and outcomes and draw key learning in order to inform future project design and implementations towards achieving desired the mutual objectives. The specific objectives include, <ul style="list-style-type: none"> <li>• To assess the degree to which desired objectives of the SAFDP project have been achieved both qualitatively and quantitatively</li> <li>• To assess the relevance, efficiency, effectiveness, impact, reporting and sustainability mechanisms of the project</li> </ul> To make key observations, draw conclusions and make recommendations to inform future interventions.
2012	International Labour Organization (ILO)	Somalil and/ Puntland	<b>Lead consultant: Conducted a Natural Resource Management (NRM) Sector Study for Somaliland and Puntland.</b> This was followed up by preparations of NRM plans and trainings using Community Based Natural Resource Management (CBNRM) to decentralized NRM committees at the district level. The project will be implemented under the auspices of the Joint Programme on Local Governance and Decentralized Service Delivery (JPLG).
2011	Valid International	Kenya	<b>Associate consultant:</b> Joined a team of three international consultants hired by Valid International to undertake <b>Real Time Evaluation (RTE) to Ethiopia and Kenya on East Africa Crisis Appeal.</b> The main of objectives of the RTE were: To review Member Agencies' response to the crisis in Ethiopia and Kenya using the Disasters Emergency Committee (DEC) Accountability Priorities as the basis of the RTE framework; To



			review the extent to which agencies correctly identified the key risks to a quality disaster response and implemented suitable mitigating actions; and To advise on any programme adjustments or modification and highlight any unmet needs or unnecessary overlap that should be addressed in Phase 2.
2011	Norwegian People's Aid (NPA).	South Sudan	<b>Lead consultant: Carrying out a Community Based Natural Resource CBNRM in Rumbek County, South Sudan.</b> The study is geared towards understanding the utilization and management of the natural resources by the urban, peri-urban and the rural community and the existing interaction dynamics that impedes/ promotes their utilization and management.
August and September 2011	Netherlands Red cross	Isiolo, Kenya	<b>Research Assistant: Involved in a baseline survey for the Netherlands Red cross for the "Climate-Proof Disaster Risk Reduction Programme in Kenya".</b> The overall objective of the baseline survey is to generate data and information for guiding Partners for Resilience (PfR) CPDRRP planning, implementation, M&E processes, and results tracking. Was a co-consultant and was involved in tool formulation, data collection and report writing.
2011	Practical Action NGO	Somalil and	<b>Principal consultant:</b> Carried out a <b>Natural Resource Management (NRM) assessment aimed at strengthening the Value Chain Upgrading Project</b> through identification of resources constraints and opportunities and sources of resource-based conflict. The NRM assessment was implemented under Sustainable Employment and Economic Development (SEED) project which is being implemented by ILO for employment creation in Somaliland.
2011	FAO- Somalia	Southern Somalia	<b>Team Leader livelihood: Final Project Evaluation ARDOPIII in Lower Shabelle – Marka district of Somalia.</b> The project is expected to increase agricultural productivity through the rehabilitation of irrigation infrastructure and to improve incomes through better and sustainable access to markets. The underlying assumption of this project was that farming households in former banana growing regions could increase their production, assets and/or income through access to and use of irrigation infrastructure and improved access to markets. Specifically, the project aimed at reaching the target. The Evaluation mission was to describe what the project achieved compared to the agreed plan and indicators, and assessed the following factors: <ul style="list-style-type: none"> <li>• Relevance and quality of project design</li> <li>• Efficiency and adequacy of project implementation</li> <li>• Effectiveness</li> <li>• Impact</li> <li>• Sustainability</li> </ul> The consultant prepared and presented the final report and awaiting final comments from the client.
2011	Norwegian Church Aid	Gedo, Puntland & Mogadi	<b>Team Leader: Comprehensive Baseline Assessment of the Somalia Programme in Gedo, Puntland and Mogadishu Areas.</b> The baseline is a precursor to the implementation of the Somalia Country Plan 2011-15. The study is being implemented



		shu	by the Norwegian Church Aid.
2011	CARE Sudan	South Sudan	<b>Consultant:</b> Contracted to analyze and prepare report for CARE 2020 Household Livelihood Security Assessment Survey for Unity State, South Sudan.
2010	Norwegians People's Aids	Southern Sudan	<b>Team leader:</b> Water Resource Management and Operations and Maintenance training in Yirol County, South Sudan. The project is funded by the Norwegians People's Aids under the Rural Development Programme.
Sep 2010	Norwegian Church Aid	Somalia /Puntland	<b>Principal Consultant: Evaluation of the Norwegian Church Aid- Somalia Programme in Gedo, Puntland and Mogadishu Areas (NCA).</b> The overall objective of the evaluation was determine whether or not the project had achieved its stated objectives and had made an impact both as a life -saving activity as well as being a long-term intervention for livelihood security. And the extent to which the program had contributed to opening up spaces for women rights and overall rights advocacy for the vulnerable in Somalia. The consultant is editing the final report.
August 2010	World Vision Kenya	Kenya	<b>Lead Consultant: End Of Programme Evaluation for Marsabit-Moyale Integrated Area.</b> The Purpose of the evaluation is to Assess the extent of realization of the programme goal and objectives as envisaged at the design stage and by extension, World Vision Kenya's development approach for the Marsabit-Moyale IPA/ADP, and assess the extent of realization of the project goals and objectives as indicated in the proposal funded by World Vision Hong Kong for the Food Security Recovery Project. The Consultant is finalizing the report.
2010	Norwegian People's Aid	Southern Sudan	<b>Lead socio-economist: Community Resource Mapping (COREMAP) Project in South Sudan, Mvollo County,</b> a project implemented by the Norwegian People's Aid under Rural Development Programme.
2010	CDTF Programme	Kenya	<b>Lead facilitator:</b> Training of Oreteti Environmental Conservation Committee on Gender Mainstreaming. The project is supported by the Community Environmental Facility of the EU funded, CDTF Programme.
2010	Roads 2000 Nyanza & Kenya Rural Roads Authority (KeRRA).	Kenya	<b>Lead consultant:</b> Undertaking Thematic Studies and Policy Instruments for Cross-Cutting Issues on Road Sub Sector which seek to develop policy and guidelines for road sub sector. The study focus on mainstreaming Gender, Community Participation, HIV and AIDS, and Persons with Disability concerns, interests, priority and potentials in the road sub sector. The study is funded by Roads 2000 Nyanza and Kenya Rural Roads Authority (KeRRA).
2009	Mt. Kenya-Burguret Conservation Forum	Kenya	<b>Lead Socio-economist /Business Development expert:</b> Undertook eco-tourism enterprise and Mineral and Borehole Water Supply Enterprise for Mt. Kenya-Burguret Conservation Forum. The activity is funded through Community Environmental Facility, a project of the Community Development Trust Fund, EU.
Dec 2009	UNICEF Kenya	Kenya	<b>Consultant: Evaluation of the Sustainable Water Management and Governance for Poor in Drought and Flood</b>



			<b>Prone Areas of Kenya (EU Project).</b> The consultant will; Measure the extent to which the project is successful in achieving its purpose; Identity key impacts of the project in management of water resources; Analyse strengths and weaknesses of the project and identify lessons learned and Prepare recommendations in regard to: Project management (including monitoring); Implementation (including approaches) and relations with stakeholders in the project area. The recommendation will be placed into the framework of developing the way forward in relation to enhanced project implementation and sustainability. On the basis of foregoing Acacia will examine the following aspects of the project.
2009	Care S. Sudan	Southern Sudan	<b>Consultant: Environmental Impact Assessment, Screening and Mini Baseline Survey of the CIDA - PRIRHC Project in Upper Nile State, South Sudan.</b> The consultant reviewed the approved PRIRHC project proposal, proposed activities and additional field data; Identified the potential environmental effects of the PRIRHC project; determined the likely significance of any potential negative effects; Identified ways to eliminate, reduce control or compensate for any potential negative effects (mitigation measures); and Determined whether or not a follow-up program is required for residual or unknown environmental effect.
2009	TIST	Kenya	<b>Team Leader</b> in undertaking Environmental Audit for The International Small Groups and Tree Planting Programme (TIST) a USA based programme.
2009	Oxfam GB	Southern Sudan	<b>Consultant:</b> Baseline Survey on Food and Income Security Project to be implemented in Cueibet County, Lakes State, Southern Sudan.
2009	World Vision Kenya	Kenya	<b>Consultant undertaking Lorroki ADP First Phase Programme Evaluation.</b> The programme is implementing the following development interventions: Education, Water and Sanitation; Health and HIV and AIDS; Economic Enterprise (KADET Micro Credit); Nutrition and Sponsorship Programme.
2009	Magarini CDF and Malindi Water and Sewerage Company	Kenya	<b>Lead consultant:</b> Undertook EIA for Sambaki Water Project for Magarini Division (currently uplifted to district status- July, 2009). The project is funded by Magarini CDF and Malindi Water and Sewerage Company (MAWASCO).
June 2009- July 2009	FAO	Kenya	<b>Lead Consultant: Evaluation on the impact, effectiveness and efficiency of the support of FAO and implementing partners in the various animal health intervention initiatives (RVF, PPR and others) and other livestock related drought preparedness and emergency interventions in the Arid and Semi-Arid regions of Northern Kenya.</b> The assignment requires an evaluation of the how the results achieved by each intervention contribute to the improved livelihoods of the pastoral communities.  This assignment required an inception report, after which the workplan was planned and arranged with FAO stakeholders.



			Field visits were then conducted with FAO partners and the beneficiary communities. These results were disseminated in a workshop in Nairobi, with the feedback from the stakeholders being included in the final report. The final report will also give suggestions, based on the interventions, on how future implementations can be carried out more effectively.
2009	Community Development Trust Fund/ EU	Kenya	<b>Lead Consultant:</b> Preparation of Participatory Forest Management Plan for Gathiuru Forest Block. The forest block is part of the Mt. Kenya Forest system.
2008	EC	Kenya	<b>Consultant: Conducted a Mid-term Evaluation of Community Development for the Environmental Management Programme (CDEMP).</b> Specifically, worked as a Participatory Facilitator and covered the Poverty Alleviation components of the Community Environmental Facility and Capacity Building Facility for NEMA.
2008	SORALO	Kenya	<b>Consultant and Team Leader: Conducted a feasibility study on Potential Community Based Tourism Sites in South Rift Region.</b> The study sought to establish circuit that link Maasai Mara with Amboseli National Park, and if possible with the entire Kenyan tourism destinations in order to benefit the communities of the South Rift region. The study brought together a multi-disciplinary team, composed of biodiversity, structural engineer, tourism entrepreneur and socio-economic and institutional development expertise.
2008	World Vision Kenya	Kenya	<b>Consultant:</b> Carried out an End of Term Evaluation of the Taita Taveta Food Security Recovery- Project Phase II.
2008	CARE Somalia	South and Central Somalia	<b>Consultant:</b> Conducted a Mid-Term Evaluation of a water rehabilitation project in the two districts of Dolow and Luuq in the northern part of Gedo Region of South & Central Somalia.
2008	World Vision Kenya	Kenya	<b>Consultant:</b> Conducted a Mid-Term Evaluation of the Mashuru ADP project. The aim of the evaluation was to assess the impact of the program in relation to the set objectives set out in the previous phase. The evaluation was integrated with Transformation Development Indicator (TDI) assessment.
2008	FAO	Southern Somalia	<b>Consultant and Team Leader:</b> Carried out a Mid-Term evaluation for the CEFA and AGROSPHERE implemented project named the "Agricultural Rehabilitation and Diversification of High Potential Irrigation Schemes in Southern Somalia (ARDOPIS)".
2008	LAINYA CBO	Kenya	<b>Lead Trainer:</b> Conducted training for Community Based Natural Resources Management (CBNRM) in Organizational Development and Institutional Strengthening (ODIS). This CBO was supported by the CDTF Community Environment Facility to manage forest resources in Nyandarua and Laikipia Districts.
2007	UNDP	Kenya	<b>Team Leader:</b> Carried out an End of Term Evaluation of the Small Grants Programmes of GEF. The programme was supported Burguret River Water Users Association, which was in turn a COMPACT project.
2007	Concern South	South	<b>Consultant:</b> Conducted an evaluation on the Food Security



	Sudan	Sudan	Programme in Yirol, Aweil West and Aweil East Counties, and the Nubian Mountains. The assignment involved the evaluation of the organization's various approaches and actions it had taken from January 2004 towards meeting its objectives of food security and self-reliance.
2007	Swedish Cooperative Centre (SCC)/ Vi Agroforestry	Kenya/ Tanzania/ Uganda / Rwanda	<b>Team leader:</b> Carried out a baseline survey and Environmental Impact Assessment of the Lake Victoria Development Programme (LVDP). This included an evaluation of the partners and stakeholder project activities in the lake region.
2007	Laikipia Wildlife Forum	Kenya	<b>Consultant Trainer and Lead Facilitator:</b> Was involved in the formation and strengthening of the River Water Users Associations (RWUAs) to manage Ngobit River, Rongai River, Ewaso Ngiro River and Mutara River, whose watershed is Mt. Kenya and the Aberdare Ranges. Also conducted the training of the RWUAs which was conducted in phases: (i) Phase one was capacity building in Organizational Development and Institutional Strengthening (ODIS) (ii) Phase two was on Institutionalization of the RWUAs through constitutional and by-law development (iii) The final phase was on the development of river catchment management plans.
2005-2006	Norwegian People's Aid/ Government of Southern Sudan	South Sudan	<b>Team Leader:</b> Was involved in the Community Based Natural Resources Management for Communities of Yirol West County of Lakes State, South Sudan. This Project is being implemented as part of the COREMAP (Community-Based Resource Management Project).
2005	COOPI	Somalil and/ Puntland	<b>Lead Socio-Economist:</b> Conducted the Project External Evaluation for the "Pastoralist Livelihood Emergency Assistance" in Sool, Sanaag, Somaliland and Bari, Puntland regions.
2004	(Natural Resource Management and Development Agency) NAREDA Consultants	Kenya	<b>Principal Consultant</b> for thirteen Environmental Audits covering floricultural, mining, ranching, tourism and wildlife conservation.
2004	Laikipia Wildlife Forum	Kenya	<b>Team leader</b> in the preparation of an Integrated Natural Resources Management Plan for the 43,000-acre Naibunga Conservancy based in West Mukogodo, Laikipia District.
2003	NAREDA Consultants	Kenya	<b>Consultant:</b> Conducted a socio-economic baseline survey for the Burguret River Water Users Association.
2003	Community Management of Protected Areas (COMPACT)/	Kenya	<b>Consultant:</b> Conducted a baseline survey for the "Tree is Life" project.



	UNDP		
2002	GEF (Global Environment Facility)	Kenya	<b>Environmental Economist and Sociologist:</b> Carried out a feasibility study for Community Conservation Initiatives on the management of the Timau Forest Block. The study was commissioned by COMPACT (Community Management of Protected Areas Conservation)
2002	SARDEP	Kenya	<b>Consultant:</b> Provided backstopping support, logistical and technical assistance to Resource Management Area Committees, during their institutionalization process. Also provided support in the implementation of commonly used natural resources development projects funded by the Programme. Responsibilities also included development of Community-Based Natural Resources Management manual and training of trainers. The training of trainers included training of a technical support team comprising of government and private sector staff in Laikipia, Kajiado and Marakwet Districts.
2001	International Crops Research Ministry of Labour and Human Resource Development / UNDP.	Kenya	<b>Consultant:</b> Conducted an evaluation on the "Rural Livelihoods, Food Security and Poverty Reduction" study in Suba district.
1997-1998	Jinja Urban Wetland Women Project (JUWWP)	Kenya	JUWWP is an association of twenty-five self- help women's' groups with a membership of five-hundred women who had been identified as the major users of the wetland located within Jinja Municipality. The project was seeking to reconcile the socio-economic activities with the protection of the wetland ecology for the benefit of the present and for future generations. He was employed by the Jinja Urban Wetland Women Project, (JUWWP), in Uganda to compile a handbook entitled, "Self-Help Groups' Leadership, Book-keeping and Business Management". This would then prepare JUWWP to take charge of their handicraft business and also to manage their revolving fund.
1997	Association for Appropriate Technologie	Kenya	Was employed by FAKT (Association for Appropriate Technologies), a German NGO working in Kenya, to conduct a survey, on rainwater harvesting in Laikipia District"
1994-1997	Government of Kenya	Kenya	Mr. Kamau worked for the Government of Kenya in compiling a Farms' Compendium for Laikipia District. This was expected to reveal problems that have emerged due to the dynamics of Land-use and Land Ownership transition during; pre-independent, colonial and post independent era. During this period, Martin was also one of the authors of the "Population Development Dynamics and Social Development Sub-Themes" for the Laikipia District Atlas Project. From 1994 to 1995, Martin Kamau was one of the key team members in a "Land-use Change Scenario Study", aimed at



			designing and evaluating economically viable scenarios for implementation in light of environmental, economic, social and cultural settings of immigrants in subdivided farms in Arid and Semi-Arid Lands (ASALs) of Laikipia District.
<b>1992-1994</b>	ICA Kenya	Kenya	Martin worked for ICA Kenya in gender development with his role being to train women's self-help groups in identifying and developing income generating projects, through building the capacity of the women in Business Management, Leadership and Bookkeeping.
<b>1986-1992</b>	Laikipia Research Programme (LRP)	Kenya	Laikipia Research Programme is a division of the Swiss Development Co-operation (SDC) research programme dealing in Natural Resource Potential, Use and Management. Some studies he was involved in include; "Assessing and monitoring the Impact of the Water Projects Implemented by the Laikipia Rural Development Programme (LRDP)", "Peasant Self-Help Groups in Rural Development: Laikipia, Kenya". This study aimed at establishing the dynamics of self-help groups, their main activities and the role played by the women in the development of the rural economy.

### References

David M. Kinyua  
Regional Head for Environmental Policies and Procedures  
USAID-REDSO/FS  
P. O. Box 30261, 00100, Nairobi, Kenya  
Tel 254-020-862400 ext 2327  
Email: [dkinyua@usaid.gov](mailto:dkinyua@usaid.gov)

Dr. Corinne Wacker  
Zurich University  
Department of Ethnology  
Schindlerstr.15  
8006 Zurich, Switzerland  
Tel: 0041 16344832  
Fax: 0041 16344997  
E-mail: [corinne.wacker@bluewin.ch](mailto:corinne.wacker@bluewin.ch)

Claus Mortesen,  
Managing Director  
Mugie Ranch Ltd.  
P.O. Box 30, Rumuruti  
Mobile: 0722903179  
Email: [claus@mugie.org](mailto:claus@mugie.org)/ [office@mugie.org](mailto:office@mugie.org)



## VASCO NYAGA GUPTA CV

**Family name:** Gumptha  
**First names:** Vasco Nyaga  
**Nationality:** Kenyan  
**Employer:** Kenyatta University (Associate Consultant)  
**Address:** P.O Box 68722-00200 Nairobi.  
**Mobile:** +254777870412; +254733750243  
**E-mail:** [vanyandu@gmail.com](mailto:vanyandu@gmail.com)

**Discipline:** *Wildlife Ecological Assessments, Ecosystem Services and Ecosystem Valuation; Environmental Planning and Management / Natural Resources Management*

### 1. **Work experience**

- a. Dates 4th May 2012 to Date  
Position held **Assistant Lecturer, Department of Land Resources Planning and Management**  
Employer Jomo Kenyatta University of Agriculture and Technology, P.O Box 62000 – 00200, Nairobi., Kenya  
Type of business or sector Teaching, Research and Innovation
- b. Dates 14th June 2011 to 30th April 2012  
Position held **Project Development officer / GIS Specialist**  
Employer K-energy Renewables Limited, P.O 49887 – 00100, Nairobi, Kenya  
Type of business or sector Wind development Limited Company
- c. Dates February 2010 to April 2012  
Position held **Part Time Lecturer, Department of Environmental Planning and Management**  
Employer Kenyatta University, P.O Box 43844 – 00100, Nairobi, Kenya  
Type of business or sector Teaching and Research
- d. Dates 9 – 13th August 2010  
Position held **Part Time Lecturer, Department of Wildlife Management**  
Responsibilities Teaching in the field of Protected Areas planning and Management  
Employer Kenya Wildlife Service Training Institute, P.O Box 842 Naivasha, Kenya  
Type of business or sector Natural Conservation and Training - Training Institute
- e. Dates 5th Dec 2005 – 30th October 2007  
Position held **Project Team Leader**  
Employer The David Sheldrick Wildlife Trust, Tsavo National Park P.O Box 15555-00503 Mbagathi  
Type of business or sector Non Profit Making Wildlife Conservation Trust

### 2. **Consultancy Work**

- a. **Dates April 2011 – January 2012**  
Consultancy National Risk Hazard Vulnerability and Capacity Assessment for Coast, North Eastern, Eastern and Rift  
Valley Province (MOSSP and UNDP). REPORT: PROJECT ID: 00071619, AWARD NO: 00057861



3KEN 09003

Client Ministry of State for Special Programmes (MOSSP) and United Nations Development Programme (UNDP)

**b. Dates 31st May 2010 to 31st Aug 2010**

Consultancy **Private Service Provider** for Mount Kenya East Pilot Project for Natural Resources Management, Meru Central and Imenti South Districts  
Client Ministry of Water and Irrigation and IFAD Mount Kenya East Pilot Project for Natural Resources Management, P.O Box 996 Embu, Tel 068 -31376

**c. Dates June 2009 – August 2009**

Consultancy Training and development of participatory integrated watershed management Action plan (World Bank funded project)  
Client Lake Victoria North Water Resources Management Authority and Western Kenya Flood Mitigation Project

**d. Dates May – June 2011**

Consultancy Hydrological Water Balance of Lake Chala Watershed  
Client Coast Development Authority

**e. Dates April – May 2011**

Consultancy Kisauni Constituency Strategic Plan 2011 – 2013  
Client Kisauni CDF Committee

**f. Dates January 2010**

Consultancy NEMA Certified Lead expert (Reg No. 2131)  
Conducting Environmental Impact Assessments and Environmental Audits.  
Client Project developers

**3. Education and training**

**i) Dates August 2007 – December 2009**

Qualification Master of Environmental Planning and Management  
Institution Kenyatta University, Kenya

**ii) Dates 10th June to 21st July 2005**

Qualification Certificate in Field and Course work in Anthropology  
Institution Rutgers, The State University of New Jersey (Study Abroad Program)

**iii) Dates August 2001 – December 2005**

Qualification Bachelor of Science in Wildlife Management (Second Class Honours – Upper Division)  
Institution Moi University, Kenya

**4. Extra professional training**

**a. Dates 24th – 4th August 2009**

Qualification Certificate in African Reference Frame (AFREF) & Global Navigation Satellite Systems (GNSS) Processing

**b.** Institution Regional Centre for Mapping of Resources for Development,

P.O Box 632, 00618 Ruaraka Nairobi

**c. Dates 24th March to 2nd April 2009**

Qualification Building Ecosystem Services Research Capacity for Semi-Arid Africa  
Training workshop held in Nairobi and Embu

Institution The world Agroforestry Centre and Macaulay Land Use Research Institute

**d. Dates 7th – 18th April 2008**

Qualification Certificate in Introduction to Remote Sensing  
Institution Regional Centre for Mapping of Resources for Development,  
P.O Box 632, 00618 Ruaraka Nairobi



## 5. Conference Papers and Research Projects

- I. Nyaga, V.G., and Mburu, D.M (2012) '**Assessment of Potential Landslides Areas in the Upper Tana-Athi Watershed, Kenya**', paper presented at the *7th Esri Eastern Africa User Conference (EUAC)*, at Lake Naivasha Sopa Lodge, Naivasha Kenya, 3-5 October 2012.
- II. Mburu, D.M., and Nyaga, V.G (2012) '**Effect of land use change on Agro-ecosystem in Kijabe – Longonot Area**', paper presented at the *7th Esri Eastern Africa User Conference (EUAC)*, at Lake Naivasha Sopa Lodge, Naivasha Kenya, 3-5 October 2012.
- III. Nyaga, V.G (2012) '**Forest Loss and its Implications on Precipitation and Stream Discharge: The Case of Ewaso Ngiro South River Catchment, Kenya**'. Heinrich-Bocking: LAP LAMBERT Academic Publishing.
- IV. Nyaga, V.G, and Onywere, S.M (2010). '**The Effects of Forest Loss on Precipitation in the Upper Catchment of the Ewaso Ngiro South River Basin**', paper presented at *Alexander Von Humboldt Alumni Association Conference: Synergy and Networking to Enhance Research and Development*, at the Meridian Hotel, Nairobi Kenya, 25 November 2010.
- V. Nyaga, V.G. (2009). '**Assessment of the Effects of Deforestation on Precipitation and Stream Discharge in the Upper Catchment of the Ewaso Ngiro South River Basin**'. Thesis (M. Env. P. M) Kenyatta University, Nairobi.
- VI. Nyaga, V.G., Njogu, J.W., Ahmed, J.K., and Wambugu, G. W. (2009). '**Community-based Conservancies as an Alternative Paradigm for Wildlife Conservation in the Greater Mount Kenya Region, Laikipia district**'. (Regional Planning Studio, Unpublished).
- VII. Nyaga, V.G., Njogu, J.W., Ahmed, J.K., and Wambugu, G. W. (2009). '**Sustainable Development Plan for the Revitalization of the Mwea Irrigation Scheme, Kirinyaga District**'. (Rural Planning Studio, Unpublished).
- VIII. Nyaga, V.G, Njogu, J.W., Ahmed, J.K., and Wambugu, G. W (2008). '**Sustainable Development of Mombasa Seaport City – Environmental challenges**'. (Urban Planning Studio, Unpublished).

## 6. Personal skills and competences

- a. Excellent computer skills – Windows XP and Vista OS, Microsoft office 97-2003 and 2007 (Excel, Word, Publisher, Power point and Access), SPSS 11.5, Adobe and Nero suite.
- b. Geographical Information System and Remote Sensing using Global Mapper, Map Info, Arcview 3.x, ArcGIS 9.x and 10; IDRISI Kilimanjaro and ERDAS imagine 8.x, 9.x and 11



- c. Outstanding data collection, analytical, and writing skills
- d. Excellent organizational, interpersonal and communication skills.



## Referees

- **Dr. Simon Onywere, Deputy Director**  
Research Capacity Building and Dissemination, Kenyatta University,  
P.O Box 43844, Nairobi, Phone: 0722358814  
Email: onyweres@yahoo.com
- **Dr. Caleb Mireri, Senior lecturer,**  
Department of Environmental Planning and Management, Kenyatta University,  
P.O Box 43844, Nairobi, Phone: 0722839691  
Email: calebmireri@yahoo.com
- **Dr. Fred Omengo, Senior Research Scientist**  
Department of Biodiversity Research and planning,  
Kenya Wildlife Service 0722870412 0713230077  
Email: fomengo@kws.go.ke



# James Kamenju Wakiru

**Profession:** WASH & Environmental Management Expert  
**Date of Birth:** 1974  
**Nationality:** Kenyan  
**Contact Address:** P. O. Box 100405 – 00101, Nairobi  
**Telephone:** +254 721 670095  
**Email:** kamenjujames@gmail.com

## PROFILE

A result oriented Water & Environmental Management expert working with private companies, International and local NGOs in various capacities. Have 18 years' working experience in Horn of Africa (Kenya, Uganda, Tanzania, Ethiopia, Sudan and South Sudan) of which 13 years are in Arid and Semi-Arid Lands. Part of team/lead in multi-million & multi-sectoral development and relief/emergency programmes and projects including Water, Environment and Natural Resource Management. Actions funded by ECHO, OFDA, UN OCHA, EU, Italian Development Cooperation, AUSaid, Sida, DFID, UNICEF, AfDB and IFAD. I have served in various capacities in private companies, International and local NGOs and cooperatives. I have management flexibility and broad industry knowledge to lead numerous and successful multi-million dollar programmes and project and demonstrated a unique combination of strategic planning, budgeting, and management including technical and human resources, policy framework, monitoring, evaluation, learning and reporting. I am currently a Freelance Consultant in Water, Environment and Natural resources Management.

## CORE FIELDS OF EXPERTISE

- Groundwater resources investigation (geophysical surveys), development and management
- Integrated Water Resources Management
- Water Utilities Management
- Water and Environmental Sanitation
- Environmental management through support of activities that are linked towards environmental protection and conservation
- Community Managed Disaster Risk Reduction (CMDRR).

### ***Other relevant educational background trainings***

Solid Waste Management, Environmental Assessment and Wastewater Treatment

## CORE COMPETENCIES



- Planning and organisation: Wide experience in programmes/projects cycle management - result-oriented approach to delivery of programmes/projects and contractual obligations.
- Delivery effectiveness: I am proactive in setting up and managing priorities and deliverables against realistic deadlines and within allocated resources.
- Leadership & Teamwork: I have led teams of diverse professionals in delivery of the projects and assignments in diverse socio-economic, socio-cultural and environmental contexts.
- Communications: Exercising open door policy and clearly articulating ideas, approaches and concepts to teams and stakeholders at formal and informal setups.
- Quality of work and client focus: My minimum focus is adhering to contract requirements and keeping high standards of deliverables within set timelines. I strive to meet client and employer expectations.
- Analytical capability: Being proficient with a range of analytical tools has enabled me to carry out assignments at different levels and extents of results.

---

#### **MEMBERSHIP IN PROFESSIONAL SOCIETIES AND PLATFORMS:**

- Professional Member of Geological Society of Kenya (MGSK)
- Licensed Water Resource Professional (Hydro-geologist) by Ministry of Water and Irrigation:
- Member of Rural Water Supply and Sanitation Network – global network of actors in the sector

#### Membership to Technical Working Groups

- Steering Committee member of Kenya Water Industrial Alliance (KIWA) supported by 2030WRG and GIZ
- Technical member of Kiambu County Water Stewardship supported by GIZ and a member of KIWA
- Technical Member of Upper Tana Catchment - Nairobi Water Fund

---

#### **KEY PROFESSIONAL TRAINING AND COURSES**

- Certificate, Water and Wastewater Audit by Kenya Manufacturers Association (KAM) and Federal Industrial Chamber of Commerce of India (FICCI) for 1 week, Nairobi, 2017.
- Certificate, Green Energy and Low Carbon Development by UNEP-DTU for 2 weeks, UN City in Denmark, 2016.



- Certificate, International Training Program on Climate Change mitigation and Adaptation by Swedish Meteorological and Hydrological Institute for 5 weeks in Ethiopia, Sweden and Rwanda, 2015.
- Certificate, Facilitation Skills: Act! – Act Change Transform for 1 week, Kenya, 2015.
- Certificate, Holistic Asset Management for Progressive Utilities: Water, Engineering and Development Centre (WEDC) for 2 days, 2013.
- Certificate, Community Managed Disaster Risk Reduction: Cordaid for 4 days, Kenya, 2012.
- Certificate, Training on No Harm Approach by Mercy Corps for 2 days, Ethiopia, 2010.
- Certificate, Holistic Asset Management for Progressive Utilities: Water, Engineering and Development Centre of Loughborough University, Nakuru, 2013.

## **RELEVANT EXPERIENCE IN PROGRAMME/PROJECT CYCLE MANAGEMENT IN WASH AND ENVIRONMENTAL MANAGEMENT IN KENYA, ETHIOPIA, SUDAN, SOUTH SUDAN AND TANZANIA.**

### **Consultancies**

- **Feb-Mar2021: NRM Expert** conducting Post Implementation Knowledge, Attitude and Practise (KAP) Survey on Cash transfer, Protection of livelihoods and WASH intervention for vulnerable IDP and host communities in South Central Somalia and Mandera, Kenya for Nomadic Assistance for Peace and Development (NAPAD). Roles included holding consultative with stakeholders and communities, data collection, report writing, presentations.
- **Nov 2020-Feb 2021: Team member - Water Expert** – of Capital Strategies Ltd conducting final Impact Assessment Study of an 8-year multisector Upper Tana Natural Resources Management Project (UTaNRMP) covering 6 counties in Kenya funded by International Fund for Agricultural development (IFAD), Government of Kenya, Spanish Trust and Communities. Roles included holding consultative with stakeholders and communities, data collection, report writing, presentations.
- **Jul 2020: Consulting Hydrogeologist handling** tendering process and supervision of drilling, construction, test pumping and equipping of a borehole in Lavington, Nairobi.
- **Jun 2020: Consulting Hydrogeologist** leading Supervision of borehole equipping with solar system and installation of water pipeline in Ol Moran ward, Laikipia County.
- **Nov 2019-Feb 2020: Team member (Water and Sanitation Technical Lead)** of Alpex Consulting Africa Ltd conducting independent end-term evaluation of the 12-year World Bank & Government of Kenya funded Kenya Water and Sanitation



Services Improvement Project (WASSIP) and preparation of Implementation Completion and Results Report (ICR). Roles included development of data collection tools, collaborating with stakeholders, reporting writing, presentations at workshops.

- **Aug-Nov 2019: Environment and Natural resources Management- Technical Lead** conducting assessment and designing of 3-year Sustainable Ecosystem Based Management project for Lake Naivasha Basin led by World Wide Fund for Nature (WWF) and National Environmental Trust Fund (NETFUND) to be funded by Global Environmental Facility (GEF). Roles included facilitating consultative multi stakeholders' workshops, baseline study, report writing.
- **July-Aug 2019: Team member –WASH Specialist** - of consultants conducting Joint Case Study: A 6-year Watershed Partnership and the Health Systems Advocacy Partnership in Kajjado, Kenya funded by the Netherlands Embassy. Roles included facilitating consultative multi stakeholders' workshops, data collection, report writing, presentations.
- **June-July 2019: Consulting Hydrogeologist - Team member-** of Afrique Water and Geotechnical Services Ltd conducting hydrogeological survey in Marsabit and Turkana Counties for VSF-Germany.
- **Aug-Sept 2018: WASH Consultant** conducting Water Access & Transparency Audit & Inclusive and Equity Policy Analysis focusing at National and more on Laikipia County implemented by Kenya Water for Health Organisation (KWAHO) under auspices of Watershed programme. Roles included development,
- **Jun-Aug 2018: Part of SIDO water consultants** carrying out Water Stewardship Scoping Study around Upper Ewasong'iro North Basin and Lake Naivasha Basin & developing a 3-Year Project Plan for WWF Kenya. Planned activities included improvement of water quality in rivers and reduction of untreated wastewater into the environment. Roles included facilitating consultative multi stakeholders' workshops, data collection, report writing, presentations.
- **April 2018: Consulting Hydrogeologists- team member** for Afrique Water and Geotechnical Services Ltd supervising drilling, construction of boreholes under Kwale County Water Master Plan in Kenya.
- **Mar 2018: Voluntary lead trainer** of Water Resources Users Associations in Nairobi under auspices of Kenya Water Industrial Alliance (KIWA) & facilitated by GIZ. Assignment involved facilitating consultative multi stakeholders' workshops, data collection, report writing, presentations.
- **Nov 2017 to Mar 2018: Act Change Transform co-trainer**, using Public Achievement Model, to 4 Community Resource groups in Turkana County on Communal Utilization of Land Access Compensation Fund, a Project funded by Tullow Oil Ltd. Roles included facilitating consultative multi stakeholders' workshops, presentations, holding community meetings.



- **Jun 2017: Consulting WASH Expert – team member-** for Final evaluation of 3-year WASH and Health Project implemented by iNGOs (LVIA and CCM) in Isiolo County funded by Italian Development Cooperation. Roles included holding consultative with stakeholders and communities.
- **Mar 2017: Consulting Water Expert – team member** - for Final Evaluation of 6-year Kimira-Oluoch Irrigation Scheme in Homa Bay County funded by Government of Kenya and AfDB. Handled infrastructure part. Roles included holding consultative with stakeholders and communities.
- **April 2017: Need assessment team member** for supporting Community Forest Associations and Water Resources Users Associations to conserve and protect forests and catchments areas in Kiambu County funded by GIZ. Roles included facilitating consultative multi stakeholders’ workshops, presentations, holding community meetings.
- **Jan-Mar 2017: Team member - Water Expert** – of Infodev Consultants conducting Mid-term Impact Assessment of 8-year Upper Tana Natural Resources Management Project (UTaNRMP) covering 6 counties in Kenya funded by International Fund for Agricultural development (IFAD), Government of Kenya, Spanish Trust and Communities. Roles included holding consultative with stakeholders and communities, data collection, report writing, presentations.

## **Employment History**

**Apr 2014-Dec 2016: Programme Officer then Senior Programme Officer at Act Change Transform** -former Pact Kenya (national grant management NGO) offering Technical and managerial support to **20** development partners (sub grantees) implementing 26 projects in 18 counties under a national Water, Environment and Natural Resources Management programme.

### Key duties

- Leading in development of sectorial strategic plans in context of government, donor and organizational strategies, plans, programmes and policy framework
- Contributed in the development of 6 programme concepts and 4 programme proposals for mobilization of financial resources. Two programmes were funded by DFID and SIDA and 1 project funded by EU.
- A focal person offering technical and managerial support to development partners. Water sector fields involved Water and Environmental Sanitation; Water Utilities Management; Integrated Water Resources Management, Environment Management mostly water subcatchments and forests, and Policy framework (support of County water policies, climate change mainstreaming guidelines, sand harvesting conservation & utilization, etc) .



- Supported the partners in designing of projects, planning, implementing, monitoring, evaluation, learning and reporting of their projects sub granted by Act Change Transform. Projects beneficiaries were government in terms of supporting policy framework; capacity building to WRUAs, WUAs, Community cooperatives, CFAs, small holder farmers, etc.
- Organizational Capacity Assessments (holding Institutional Capacity Assessments and developing Institutional Implementation Plans) for 10 partners.
- Documentation of interventions (Reports, success stories, write-shop)
- Team leader of water sector to 10 national and regional forums and meetings, and share back to Act! data and information
- Building strategic partnerships with NGOs & CBOs, Public and Private sector
- Taking leadership in organizing and facilitating learning events among multisector stakeholders

**Jun 2011-Nov 2013: Expatriate Project Manager at Cooperazione Internazionale (COOPI) - iNGO - for 5 projects (Community Managed Disaster Risk Reduction and Drought resilience) in Mandera and Garissa County in Kenya. Projects funded by ECHO, AUsaid & Unicef, Italian Development Cooperation and FAO.**

Key duties

- Leading in development of sectoral strategic plans in context of government, donor and organizational strategies, plans, programmes and policy framework
- Project development & resource mobilization: Baseline/Assessment and development of new WASH, environmental and natural resources management projects; team member liaising with donors for funding. Activities involved WASH and agricultural infrastructure and trainings of WRUAs, WUAs, Community Health Workers, Pastoral Field Schools etc
- Programme and project implementation; monitoring and evaluation; documentation and reporting.
- Building strategic partnerships with NGOs & CBOs, Public and Private sector
- Technical, financial and human resource management
- Manage donors visits, liaising with the Head of Mission and Project support team
- Facilitating external evaluations of all projects

**Feb 2007 – Oct 2010 & Jan-Apr 2011: Expatriate Water and Sanitation Officer and Project Manager at COOPI for 6 projects (Community Managed Disaster Risk Reduction, Drought Resilience and Emergencies) in Guji and Liben zones in Oromia and Somali Regional States, Ethiopia.** Projects funded by ECHO, OFDA & UN OCHA.



### Key duties:

- Leading in development of sectoral strategic plans in context of government, donor and organizational strategies, plans, programmes and policy framework
- Project development & resource mobilization: Baseline/Assessment and development of new cross border (Kenya-Ethiopia) and in country WASH, environmental and natural resources management projects; team member liaising with donors for funding. Activities involved WASH and agricultural infrastructure and trainings of CBOs such as WUAs, Community Health workers, Pastoral Field Schools etc
- Programme and project implementation; monitoring and evaluation; documentation and reporting.
- Building strategic partnerships with NGOs & CBOs, Public and Private sector and overseeing implementation of projects by partners.
- Technical, financial and human resource management
- Manage donors visits, liaising with the Head of Mission and Project support team
- Facilitating external evaluations of all projects

**Nov 2005 - Dec 2006: Expatriate Water and Sanitation Officer at COOPI** in Salha and Umkadadah localities in **North Darfur State, Sudan**: Managed 2 Drought resilience projects funded by ECHO and Unicef. (assessments, construction and rehabilitation of water and sanitation facilities and WASH trainings to WUAs, CBOs and Government officials) in Salha and Umkadadah localities in North Darfur State, Sudan. Managed partnerships and collaborations with CBOs, NGOS, Governments and WUAs. Facilitated external evaluations of all projects funded by ECHO and Unicef.

**Apr - Oct 2015: Hydrogeologist at Groundwater Survey (K) Ltd** involved in Groundwater investigation in Morogoro and Dodoma regions funded by Government of **Tanzania** and French government, and Mkomanzi gamepark funded by Mkomanzi rhino trustee; groundwater investigation for Japanese Nippon Koei Foundation in present Machakos, Kitui and Makueni Counties, **Kenya**; and Groundwater investigation (30 boreholes) for Medair (Swiss NGO) in Payeur, Atar and Ayod counties in **South Sudan** and for a range of other individual clients (about 30) in Kenya which involved EIA for projects.

**Apr 2002 - Aug 2003: Site geologist at Foundation Engineering Ltd** in **Uganda and Kenya** superintending site investigations and piled foundations for building, bridges and water inlets structures; and on site staff and machinery management

### **EDUCATION:**

- 2012: Master of Science in Water and Environmental Management: Loughborough University, UK.



- 2001: Bachelor of Science in Geology (Hydrogeologist). University of Nairobi, Kenya.

---

## REFEREES

Dr. Michael Karanja (PHD), Senior M & E Consultant, Independent Development and Learning Group, michael.karanja@gmail.com, +254 722 896249

Irene Gai, WASH Strategist, Oxfam, +254 727 597413, lgai@Oxfam.org.uk;  
ajurgai@gmail.com

Pius Kamau, Project Management and Social Development Consultant, Managing Director, Capital Strategies Ltd, piuskn@yahoo.com, pius@capitalstrategies.co.ke, +254 721224206

---

Date: **January 25, 2021**

James K. Wakiru



KEN MWITHIRWA GATOBU

**Family name:** Gatobu  
**First names:** Ken Mwithirwa  
**Nationality:** Kenyan  
**Civil status:** Married  
**Employer:** Nareda Consultants (Associate)  
**Address:** P. O. Box 1001, 10400 Nanyuki (Kenya).  
**Mobile:** +254 722 312508./ 735 805381

**Education**

<i>Date</i>	<i>Institution</i>	<i>Degree/Certificate</i>
2010	Kenyatta university	Master of Environmental Science-(Agro forestry and Rural Development)
2005	Kenyatta university	Bachelor of environmental studies-(Community Development)

**Membership of Professional Bodies**

Registered Lead Expert with NEMA ( No.1623)  
Member Environment Institute of Kenya

**Core Competencies**

Mr Gatobu is an experienced rural development consultant. He has over ten years progressive experience in EIAs/EAs, project management, community development, environmental conservation, natural resources management and community development in Kenya. In addition Mr.Gatobu is skilled and experienced in analytical tools including Participatory Rural Appraisal, Sustainable Livelihoods Analysis, and Monitoring and Evaluation; Good in lobbying, community mobilization and training, advocacy and networking skills including liaising with Governmental institutions, the civil society and the private sector

Some of the projects in which he has been involved include; Development of Wajir Water Supply Project, Town Water Supply Evaluation Study, Mwingi Township, Kitui; Water supply for Madogashi township; Laisamis borehole drilling and water supply; Mandera Township Water Supply; Water supply schemes at 5 refugee camps in Kenya: Walde, Mandera, Liboi, Kakuma, and Marafa; Advisory work for the Water Programme of the Diocese of Arusha; Review of design and construction of small dams and water pans in Kitui and Makueni Districts; International Food and Policy Research Institute (IFPRI): Investigating effects of Aflatoxin on community development and health; Lariak Conservation Forest: Participatory Forest Management Plan (2010-2015) for Castle Forest and Kangaita forests in Kirinyaga County.

He was also consulted in undertaking a project aimed at Improving community livelihood through Lariaki forest conservation, funded by Cornell University (USA) and Media information for



empowering small scale farmers in Kenya a project initiated by Shamba Shape Up programme (Kenya)

**Languages Spoken and Written Fluently:**

English and Kiswahili



**PROFESSIONAL EXPERIENCE**

<b>Duration</b>	<b>Location</b>	<b>Company/institution</b>	<b>Position</b>	<b>Duties and responsibilities</b>
<b>September 2015-to date</b>	KENYA	Water Sector Trust Fund (WSTF) – (Meru and Tharaka Nithi Counties )	M&E Consultant	Monitoring and Evaluation of WSTF funded project in the two counties Overseeing successful implementation of WSTF funded project (data collection, analyses and reporting) Conducting baseline survey for all proposed and funded project Conducting Social Economic and Environmental Impact assessment for all funded projects in the region Training and Guiding the implementing partners to enhance project sustainability Liaising and spearheading WSTF with collaborations and partnership with relevant stakeholders
<b>2013-2014</b>	Kenya	International Food and Policy Research Institute (IFPRI)	Project Manager	Social Economic Analyses of the target community Recruiting, Managing and training the project field officers Formulating and coordinating the project field activities Monitoring and Evaluation of the project Mobilizing of community and training them Designing the project work plan Monitoring and controlling the quality of data collected Monitoring the project progress, achievements and challenges
<b>2013-2014</b>	Kenya	Lariak Conservation Forest	Consultant	Conducting the project social economic baseline survey Developing community training materials and training information Designing the project evaluation framework, identifying the indicators and verification methods Conducting trainings to various farmers groups and farmers associations Compiling and writing the final report to the donor Developing the funding proposals for the second phase funding
<b>2012-2013</b>	Kenya	Cornell University (USA) and Shamba Shape Up programme (Kenya)	Consultant	Training farmers on modern farming skills and benefits Evaluating the impacts of media in empowering small scale rural farmers through radio and T.V designed channels Identifying the opportunities and challenges of media in improving farming systems for the small scale rural farmers Developing evaluation tools for monitoring the impacts of ongoing farmers target programmes through local T.V channels



				Developing data collections tool, training of the research assistants, data collection monitoring, analysis and report writing
<b>2011-2012</b>		Maryland university, USA	Research Manager	Baseline survey Managing all the projects activities Monitoring and evaluation of the project Project budgeting Periodic progress report Recruiting of project staff and training Monitoring the quality of data and data analyses
<b>2010-2011</b>	Kenya	Ministry of Water, Samburu County	Consultant	Stakeholders training and capacity building on communal natural water points conservation Training of community members, leaders and other stakeholders on integrated water management system Development of training manual for sustainable communal water sources management Monitoring and mapping all water points in the county
<b>2008-2010</b>	Kenya	Bio-sciences for East and Central Africa (BeCA-ILRI)	Project Manager	Overseeing the project activities including: Budget development recruiting of staff and training conducting farmers seminars and trainings coordination of field work sampling of villages and districts where the project was to be implemented data management, analyses and presentation, representing the project in meetings and conferences, negotiated contracts and research permits with Government and other relevant stakeholders, Preparing, review, and submit reports to donors and prime investigators
<b>January-March 2008</b>	Kenya	Catholic Relief Services (CRS)	Volunteer	Developed, planned, organized, and administered training programmes for farmers on importance of cassava production on food security the nutritional values of cassava multiplication methods of cassava value adding processes including packaging Group management and enterprising for livelihood improvement.

## PUBLICATIONS



- Influence of integration of open-air markets on food security in Meru South and Mbeere Districts, Kenya." Masters thesis, Kenyatta University
- Aflatoxin Contamination and Consumer Valuation of Maize in Western Kenya". No 61903, 2010 Annual Meeting, July 25-27, 2010, Denver, Colorado from Agricultural and Applied Economics Association. Vivian Hoffmann, Samuel Mutiga, Rebecca Nelson, Ken Gatobu, Michael Milgroom and Jagger Harvey
- Do preferences for maize quality lead to self-provisioning? Preferences and behavior of farm households in Western Kenya. July 2010. Vivian Hoffmann and Ken Gatobu.



**REFERENCES:**

Dr. James Mutegi  
Soil Scientist & Farming Systems Analyst  
IPNI-Sub-Saharan Africa Program  
Phone +254 (20) 863 2732  
Mobile +254 737 799456  
Fax: +254 (20) 863 2029  
Email: [jmutegi@ipni.net](mailto:jmutegi@ipni.net)

Prof. Vivian Hoffmann, PhD,  
Assistant Professor,  
University of Maryland- USA,  
[vivianhoffmann@gmail.com](mailto:vivianhoffmann@gmail.com)  
Phone: +13014050000  
Fax: (301) 314-9091  
Doreen Kathambi  
Lecture KEMU University  
Email: [dorrka@gmail.com](mailto:dorrka@gmail.com)  
Tel: 0707763147



## CURRICULUM VITAE (CV)

**Family name:** Wachira  
**First names:** William Goerge  
**Nationality:** Kenyan  
**Civil status:** Married  
**Employer:** Nareda Consultants  
**Address:** P. O. Box 1001, 10400 Nanyuki (Kenya). Mobile: +254 722 312508./795390869  
**E-mail:** [naredacons99@yahoo.com](mailto:naredacons99@yahoo.com)

### Education:

Institution [ Date from - Date to ]	Degree(s) or Diploma(s) obtained:
School of Science and Engineering American International University (AIU) (2013)	Bsc. Environmental Studies
University of Bern, Switzerland (Centre for Development & Environment)-1996	Diploma Geo-Information Management (GIM) and Project Management
Regional Centre for Mapping of Resources for Development)-1993	Diploma Mapping & Remote Sensing
Mombasa Institute of Personnel Training and Consultancy- 1988	Diploma in Human Resource Management

Date	Placing of Training	Course Completed
2012	ESRI	ArcGIS 9.3 training
2011	ESRI	Remote sensing training
2010	ENVI	Image analysis training
2004	GISCI	GIS certification
2003	RCMRD	ArcInfo 8.0, Arcview.
2002	RCMRD	Application of GIS in Project Planning & Management
2001	Survey Dept- Luzern Swiss	ArcInfo workstation 8.0
2000	Centre for Development & Environment	GIM (Geographic Information Management)
1997	Department of Urban & Regional Planning	Cartography and Cadastral Mapping
1995	ICRAF	Image Processing & Photo Interpretation

**Language skills:** English and Kiswahili – Excellent in reading, speaking and writing.

### Key qualifications/ Core Competencies (Capability Statement)



William Wachira has over 20 years' experience as a GIS and Remote Sensing Specialist, and has carried out Resource Mapping, CBNRM, PRA, PLUP etc over the years. He has carried out these activities in Kenya, i.e., Laikipia, Samburu, TransNzoia, Kajiado, Kitui and Machakos Counties under Swiss Development Cooperation funded Laikipia Research Programme, CETRAD and Mpala Research Centre under the Smithsonian Institution's funding. He lead the team that carried out mapping (landuse/landcover mapping of Mt Elgon Ecosystem, analysis of vegetation categories of Mt. Elgon Forest, Mt. Elgon National Reserve and Mt. Elgon National Park. Mapped all the infrastructures in Mt. Elgon National Park and the National Reserve and a 10 kilometer human interface bordering the forest reserve and the park In South Sudan he participated and coordinated similar activities carried out in all Counties of Lakes State and a few other counties in Jonglei, Cental and Western Equatoria States under Norwegian People's Aid. As a GIS trainer, he has also carried out GIS training programmes for various institutions and and organizations e.g., Training GIS Technicians in the Department of Georgraphy University of Nairobi and Egerton University organized by Centre for Development and Environment (CDE) University of Berne, Switzerland. Kenya Wild Service and Forest Department in TransNzoia under the IUCN partnership. Finally he has been a consultant in the same disciplines, Team Leader and Project Coordinator for Community Resources Management and Planning Project in South Sudan; a project of Norwegian People's Aid.

**Employment record relevant to the assignment**

<b>Period</b>	<b>Employing organization and your title/position.</b>	<b>Country</b>	<b>Summary of activities performed relevant to the Assignment</b>
2014 to date	<b>Norwegian People's Aid, South Sudan Programme</b>  <b>Project Coordinator / GIS Specialist COREMAP</b>	S. Sudan	<input type="checkbox"/> Overall supervision of the team <input type="checkbox"/> Develop annual activity plans for the project (COREMAP) <input type="checkbox"/> develop resource mapping strategy <input type="checkbox"/> train resource mapping assistants <input type="checkbox"/> guiding participatory mapping and field resource mapping



			<ul style="list-style-type: none"> <li><input type="checkbox"/> liaising with partners eg South Sudan Land Commission, State line Ministries</li> <li><input type="checkbox"/> conceptual buck stopping</li> <li><input type="checkbox"/> capacity building of the seconded staff from partners</li> <li><input type="checkbox"/> guide COREMAP project to achieve core mandate</li> <li><input type="checkbox"/> ensure implementation and completion of the planned activities</li> <li><input type="checkbox"/> generate resource mapping / NRM reports</li> <li><input type="checkbox"/> generating thematic / resource maps</li> <li><input type="checkbox"/> integrated Power Point presentations of COREMAP activities</li> <li><input type="checkbox"/> generating progress report and making regular updates to DPM/FSL / management</li> <li><input type="checkbox"/> report on the proceedings of all meetings where COREMAP is involved</li> </ul>
<b>2006 to 2013</b>	<b>Team Leader / GIS Specialist COREMAP NPA</b>	S. Sudan	<ul style="list-style-type: none"> <li><input type="checkbox"/> Tasks accomplished includes Maps and CBNRM reports for Yirol West and Rumbek East counties Lakes State</li> <li><input type="checkbox"/> Mapping of mined area of Bungu in Juba county for future demining and settlement of returnees.</li> <li><input type="checkbox"/> Community based resource management and mapping for Twic East county, Jonglei State</li> <li><input type="checkbox"/> CBNRM Rumbek Centre, Rumbek North, Cueibet &amp; Awerial County</li> <li><input type="checkbox"/> South Sudan Forestry Pilot Project, a UNEP and NPA partnership</li> </ul>
<b>2005</b>	<b>Development Officer, Development Programme Catholic Diocese of Nairobi</b>	Kenya	<ul style="list-style-type: none"> <li><input type="checkbox"/> Contracted by Development Office of Catholic Archdiocese of Nairobi to do a Digital mapping covering the whole Diocese and the proposed projects sites in readiness for implementation development projects.</li> <li><input type="checkbox"/> Surveying and mapping land property owned by the Arc-diocese of Nairobi</li> </ul>
<b>2004 - 2005</b>	<b>GIS Consultant: Natural Resources Development Agency (NAREDA)</b>	Kenya	<ul style="list-style-type: none"> <li><input type="checkbox"/> Resource Mapping and GIS data analysis</li> <li><input type="checkbox"/> GIS Consultant for NAREDA for Naibunga Wildlife Conservancy Planning assignment in Mukogodo Division Laikipia District. The project overall goal was land use planning, where 43,000 hectares were set aside for a Wildlife Conservancy Programme</li> <li><input type="checkbox"/></li> </ul>



<b>2004</b>	<b>Land Planning and Management Consultant: Catholic Diocese of Eldoret</b>	<b>Kenya</b>	<input type="checkbox"/> Main task being to Map all the facilities, deaneries & parishes within the ecclesiastical boundaries of the diocese and establishing a GIS based database as a planning tool.
-------------	---	--------------	--



2003	<b>GIS Consultant: Mpala Research Centre</b>	<b>Kenya</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Mapping of Human – Elephant Conflict Zone in Laikipia for the establishment of Ewaso Incident Reporting System (EIRS)</li> <li><input type="checkbox"/> Developed a Crop Raiding Response System for Laikipia, Meru &amp; Samburu Districts in Kenya.</li> <li><input type="checkbox"/> Mapping land use and land cover in Laikipia / Samburu Ecosystem in the context of alleviating human-wildlife conflict from a GIS perspective by defining the geographic context of the conflict zone in spatially explicit format. USAID funded project for Mpala Research Trust</li> <li><input type="checkbox"/> Mapping for Lion distribution in Laikipia</li> </ul>
2002	<b>Land Planning and Management Consultant: Catholic Diocese of Nakuru</b>	<b>Kenya</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Mapping all the deaneries and parishes and their boundaries and hence compile a comprehensive report for the same. GPS location of all the projects that fall under the CDN e.g., Water, health facilities, schools, small homes, churches.</li> <li><input type="checkbox"/> Surveying settlement area for IDPs in Elementaita Scheme, Nakuru</li> <li><input type="checkbox"/> Establishing a digital GIS database at Catholic Diocese of Nakuru.</li> </ul>
2001	<b>KENDAT</b>	<b>Kenya</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Project Activities area mapping for Kenya Drought Animal Technology (KENDAT) in Mwea, Machakos-Kalama division, Kiambu-Lari division Kajiando-Ngurumani division and Busia district</li> </ul>



2000	<b>GIS Specialist / Trainer: IUCN – Mt. Elgon Integrated Conservation &amp; Development Project - Kitale</b>	<b>Kenya</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Setting up a GIS Laboratory</li> <li><input type="checkbox"/> GIS Specialist, Database Manager and Training Consultant.</li> <li><input type="checkbox"/> Employed photogrammetry / remote sensing landuse / landcover map of Mt Elgon Ecosystem, Analysis of vegetation categories of Mt. Elgon Forest, Mt. Elgon National Reserve and Mt. Elgon National Park</li> <li><input type="checkbox"/> Mapped all the infrastructures in Mt. Elgon National Park and the National Reserve</li> <li><input type="checkbox"/> Training of staff from Kenya Wildlife Service and Forest Department attached to Mt. Elgon Integrated Conservation and Development Project (MEICDP) in mapping and analysis of Vegetation Cover using Geographic Information Systems and Remote Sensing for conservation purposes.</li> </ul>
------	--	--------------	---



<p><b>1995 - 1999</b></p>	<p><b>GIS Specialist: CETRAD – Centre for Training &amp; Integrated Research in ASAL Development</b></p>	<p><b>Kenya</b></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Electric Fence Surveying and Mapping for KWS Eastern Region – Cobra Project</li> <li><input type="checkbox"/> Mapping for Lion distribution in Laikipia District for Lion Project of Behavioral Research University of California</li> <li><input type="checkbox"/> Prepared baseline maps for GTZ and UNDP Projects in Kitui and Mwingi Districts, Eastern Province, Kenya.</li> <li><input type="checkbox"/> Prepared Planning Maps for Lonrho Agribusiness (Sotik Tea Estates) through Rural Focus Limited and Laikipia Research Programme.</li> <li><input type="checkbox"/> Captured through GIS mapping Elephant Dispersal Routes for Kenya Wildlife Service European Union Elephant funded Programme for Kenya Wildlife Service Eastern Region.</li> <li><input type="checkbox"/> Updated the Landuse and Land cover map for Laikipia District using GIS facility.</li> <li><input type="checkbox"/> Updated the Laikipia District Infrastructure &amp; Administrative Units Map.</li> <li><input type="checkbox"/> Geo-referenced all infrastructural facilities in Laikipia District and part of the Upper EwasoNg'iro river basin (Isiolo, Samburu, part of Nyandarua, Nyeri and Meru).</li> <li><input type="checkbox"/> Trained University of Nairobi Geography Department Technicians in Geographic Information Systems at Laikipia Research Programme.</li> <li><input type="checkbox"/> Setting up and restructuring Laikipia Research Programme GIS Database Participated in preparation of the Eastern and Southern African Geographical Journal</li> <li><input type="checkbox"/> Participated in Wildlife Count in the Samburu / Laikipia Ecosystem for Mpala Research Centre – Nanyuki.(Cobra Project</li> </ul>
---------------------------	--	---------------------	--



<b>1991 - 1994</b>	<b>GIS Technician /Surveying and Mapping Laikipia Research Programme</b>	<b>Kenya</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Participated in overview surveys of various areas of Laikipia District where several studies and surveys (ecological and Socio-economic) were carried out by Swiss Cooperation for International Development and University of Bern – Switzerland</li> <li><input type="checkbox"/> Participated in District Water Inventory survey for Laikipia District.</li> <li><input type="checkbox"/> Participated in the study on the Performance of Central Places in Laikipia District.</li> <li><input type="checkbox"/> Team Leader from Laikipia Research</li> </ul>
------------------------	--	--------------	---



			Programme that participated in a collaborative survey with Kenya Energy Non-Governmental Organization, (KENGO) on Women in Conservation and Fuel Wood in West Laikipia; Laikipia District and Kwanza, Trans-Nzoia District.
<b>1989</b>	<b>Teacher Kenyatta High School, Nyeri</b>	<b>Kenya</b>	<input type="checkbox"/> Taught geography & Maths

**Membership in Professional Associations:**

- GIS Users Group (Kenya)
- GISCI Certified User, ESRI
- Trade Fair Judge for Mt. Kenya Agricultural Society of Kenya Show in Nanyuki
- Official of the Nanyuki International Camel Derby

**Consultancies**

- Training GIS Technicians and setting up GIS facility, University of Nairobi Geography Department, through a partnership programme between Institute of Geography, University of Berne (CDE), Switzerland. Laikipia Research Programme
- Trade Fair Judge for Mt. Kenya Agricultural Society of Kenya Show in Nanyuki
- Setting up GIS facility and training GIS technicians at Egerton University Department of Geography

**Language Skills:**

- English; written and spoken
- Arabic; can understand
- Kiswahili; written and spoken

**Other courses attended.**

**RESPONSIBILITIES**

- Head of Section & trainer; Geographical Information Systems (GIS) – Laikipia Research Programme. Database Responsible; Laikipia Research Programme.
- Geographic Information Systems Head/Consultant incharge of Database, Mount Elgon Integrated Conservation and Development Project (MEICDP) - IUCN (World Conservation Union) Kitale.
- Member of the Management Planning Team for IUCN-Mt. Elgon Project.
- GIS Consultant, Catholic Diocese of Nakuru, Eldoret and Archdiocese of Nairobi
- Kenya Drought Animal Technology (KENDAT)
- Setting up a GIS facility / lab for Catholic Diocese of Nakuru



- GIS Consultant Human – Elephant Conflict zone exercise Mpala Research Centre (a USAID Project)
- Head of GIS Division NAREDA Consultants in charge of Mapping and data analysis.
- COREMAP Team leader & GIS and NRM mapping Specialist
- Project Coordinator – COREMAP Project

**Referees:**

Diress Mengistu  
Food Security & Livelihoods Consultant  
[diress.mengistu@gmail.com](mailto:diress.mengistu@gmail.com)

Andreas Heinemann  
GIS & Information Technology Expert  
Centre for Development & Environment  
Department of Geography,  
University of Bern, Switzerland  
[andreas.heinemann@cde.unibe.ch](mailto:andreas.heinemann@cde.unibe.ch)



## Appendix 14: List of All people consulted

### Consultations carried out during Fieldwork (February 2020 to March 2021)

#	Name	Institution	Designation
1	Tom Silvester	Loisaba Conservancy	CEO
2	Colin Francombe	OI Malo	Managing Director
3	William Varily	Sabuk Lodge	Managing Director/ Owner
4	Anne Powys	Suyian Ranch	Managing Director/ Owner
5	Aidan Hartley	Tango Mouse	Managing Director
6	Horris Wanyama	Space for Giant	Loisaba Conservation Officer
7	Dr. Fred Omengo	KWS	Research Scientist, Mountain Conservation Area
8	Dr. Peter Heitze	Laikipia Wildlife Forum	Managing Director
9	Evans Kamau	Laikipia County Government	Chief Officer, Water, Environment and Natural Resources, Laikipia County
10	Jemima Mburugu	Laikipia County Government	Chief Officer, Trade, Tourism and Cooperatives, Laikipia County
11	Paul Laiyanta Kimiri	Laikipia County Government	Trade and Tourism Officer, Laikipia County
12	Lesonkoi Stephen Stanley	Local Administration	Chief, Oloiborosot Location
13	John Lekushwa	Kirimun Community Development Initiative	Manager
14	Jonathan Rotich	<b>Kirimun National Youth Camp</b>	Manager (0722 456521)
<b>Loisaba Employees</b>			



15	Daniel S. Yionkere	Loisaba Conservancy	Security Manager
16	David Soroni	Loisaba Conservancy	Security Administrator
17	Susan Nkadiwa	Loisaba Conservancy	Community Development and Liaison Officer
18	Paul Naiputari	Loisaba Conservancy	Assistant Conservation Officer
<b>Community Members/ Elders of Kirimun, Koiya and Lokodojek Community</b>			
19	Samin Lokokoyei		
20	Joseph Lengirnas		
21	Benson Leere		
22	Letumbo Lekisuya		
23	Lepita Maripet Saole		
24	Henri Lekuyuyo		
25	Lbiliwan Lenkorooni		



**Deliberations deriving from Community Consultation Meetings (16<sup>th</sup>. 17<sup>th</sup> and 18<sup>th</sup> March 2021)**

**List of Participants**

#	Name	Community	Designation
1.	Daniel Yiankere	Loisaba conservancy	Security manger
2.	Paul Naiputari	Loisaba conservancy	Development officer
3.	Peter Meshami	Loisaba conservancy	Security supervisor
4.	Boniface Ewoi	Loisaba conservancy	sergent
5.	Stephen Lesonkoi	Area Chief	
6.	Nicholas Letowon	KMC	Chairman
7.	Petona Lodokole	KMC	Member
8.	Lipinua Lesore	KMC	Member
9.	Nasia Letoijoni	KMC	Member
10.	Eunice Lemeteki	KMC	Member
11.	Nangai Lolmoodoni	KMC	Member
12.	Namanu Lakaal	KMC	Member
13.	Natapuki Lesibia	KMC	Member
14.	Njamani Lowakutuk	KMC	Member
15.	Mangei Lempirdany	KMC	Member
16.	Christ Lesuuda	KMC	Member
17.	Amina Lendoos	KMC	Member
18.	Paton Lekilelei	KMC	Member
19.	Gelina Lenamaldo	KMC	Member
20.	Disalon Leparsaya	KMC	Member
21.	Elizabeth Lekairab	KMC	Member
22.	Nabore Lolmoodoni	KMC	Member
23.	Nalipu Lekiyaa	KMC	Member
24.	Jane Letaato	KMC	Member
25.	Magret Lempirdany	KMC	Member
26.	Lesibia	KMC	Member
27.	Lebarleya	KMC	Member
28.	John Leilato	Ntumodet	Chairman
29.	Ltudugwa Leoti	Ntumodet	Member
30.	Nkoro Leikatogo	Ntumodet	Member
31.	Daniel Lekaitogo	Ntumodet	Member
32.	Kuria Lesaan	Ntumodet	Member
33.	Lenaigwasia Rena	Ntumodet	Member
34.	Leilato Lkishami	Ntumodet	Member
35.	Ltaniu Lenaigwasia	Ntumodet	Member



36	Lelemua Amos	Ntumodet	Member
37	Naserian Lemiruni	Ntumodet	Member
38	Ndukak Lekumo	Ntumodet	Member
39	Ntoinjoni Lemagas	Ntumodet	Member
40	Intila Leoti	Ntumodet	Member
41	Lucy Letimpa	Ntumodet	Member
42	Mampuli Lemusei	Ntumodet	Member
43	Kasete Leadura	Koija	Member
44	Naponu Leshao	Koija	Member
45	Selina Lengoliai	Koija	Member
46	Nabanoi Muchet	Koija	Member
47	Yapaso Beneiyo	Koija	Member
48	Susan Lekidotu	Koija	Member
49	Napeyok Kalemae	Koija	Member
50	Jane Manyas	Koija	Member
51	Cherito Lolmereny	Koija	Member
52	Monica Naiputari	Koija	Member
53	Namai Letimaiya	Koija	Member
54	Seketo Lenawala	Koija	Member
55	Mungai Lekilit	Koija	Member
56	Namusu Lekolooni	Koija	Member
57	Ellie Modesta	Koija	Member
58	Kalano Lolepet	Koija	Member
59	Miriam Leadura	Koija	Member
60	Kaderius Lemooge	Koija	Member
61	Nasieku Leadura	Koija	Member
62	Moi Naiputari	Koija	Member
63	Paul Lebeneiyo	Koija	Member
64	Jackson Leshidid	Koija	Member
65	Lekurende	Koija	Member
66	Lekutaas Parsoroi	Koija	Member
67	Naisaba Naiputari	Koija	Member
68	Lorumu Lekurtut	Nannapa unit	
69	Leruso	Nannapa unit	Chairman
70	Dominic Leeresh	Nannapa unit	
71	Asepi Lekurtut	Nannapa unit	
72	Lakaal Mike	Nannapa unit	
73	Letimalo Peter	Nannapa unit	
74	Lenduda	Nannapa unit	
75	Legrama Leerete	Nannapa unit	
76	John Lekartiwa	Nannapa unit	



77	Lewangu	Nannapa unit	
78	Lerosion william	Nannapa unit	
79	James Leiririo	Sagumai	Chairman
80	Mary Lengala	Sagumai	
81	Naiswaku Leere	Sagumai	
82	Napita Lengolooni	Sagumai	
83	Stephen Lekartiwa	Sagumai	
84	Ngeli Lekaritiwa	Sagumai	
85	Lemasian Lodido	Sagumai	
86	Lengoloni	sagumai	
87	Lekula	sagumai	
88			



**Combined Consultative Meeting Report (23<sup>rd</sup> March 2021)**

**List of participants**



LOISABA RHINO SANCTUARY: COMMUNITY CONSULTATION AND DISCLOSURE MEETINGS

Dates... 23/03/2021 Location/ Area... LOISABA

#	Name	Which Community	Community Responsibility	ID	Mobile No.	Signature
1	Nicholas Letowan	KMC	Chairman	21384066	071925882	
2	Letowan Leutiyani	KMC	MEMBER	08083718	072146940	
3	Hussein Lemaicelo	KMC	MEMBER	3041064	071152169	
4	Margaret Lempikany	KMC	MEMBER		072932114	
5	Eunice Lemeteki	KMC	Secretary	36223278	071350120	
6	Moangi Lekuka	KMC	Treasurer			
7	Kwandi Letowan	KMC	MEMBER		079851220	
8	Lohdare Werusa	Lobanisheteki	Chairman	24807407	0718041504	
9	Jackson Lewangy	Lobanisheteki	Committee	24094420	0711851343	
10	Helen Weresh	Lobanisheteki	Community finance	36173714	079648794	
11	Loremo Lekurtut	Lobanisheteki	Security	12875485	075963266	
12	ANDREW LERAAZ	Lobanisheteki	Grassing Committee	22675625	074572510	
13	MENEGETI LERETI	Lobanisheteki	Chairman (KMC)	05587229	0792661195	
14	LUREU LEROJON	PEACE LAB	Peace Ambassador	253000	07435035	
15	PANTON LERUJETI	KMC	MEMBER	30215125	0703855181	
16	FRED KISANTHE	NAVAPA	CHAIRMAN	23127416	072741670	
17	ROBERT KARAKIPIANI	HATAPA	COMMUNITY	2226685	0728385555	
18	KUTET LEPASROI	KOITA	SECURITY	079028712	075162284	
19	William SIZISIT	TUTUMUZI	Chairman	07519203	0711076396	
20	Tone perikirewera	TUTUMUZI	Community member	1582000	070069415	
21	Susini Lekidoto	KOJA	community	25602924	070530317	
22	KARUSHA KESHINE	KOJA	Community	7287500	079043780	





# LOISABA CONSERVANCY

## LOISABA RHINO SANCTUARY: COMMUNITY CONSULTATION AND DISCLOSURE MEETINGS

Dates: 23/03/21

Location/ Area: LOISABA

#	Name	Which Community	Community Responsibility	ID	Mobile No.	Signature
1	Piranti Masiani	Nabungu	Manager	27561254	0713227238	[Signature]
2	Kayisi Lolepet	Koija	Committee Writing	6587570	079403585	[Signature]
3	Rafa Leandura	Koija	Coaching Committee	24292358	0729719707	[Signature]
4	Lentari Lekhaya	Koija	MEMBER	5164237	076122444	[Signature]
5	ANTONY GATHUMU	-	MEMBER	2084550	0769309887	[Signature]
6	James Nangere	Nabungu	Board member	31683797	0714509977	[Signature]
7	LOLMARI LEIKATO	NTUMDET	MEMBER	2619188	070268470	[Signature]
8	PETER LEITIKIK	NTUMDET	MEMBER	.	0708801852	[Signature]
9	LJANIW LENENGUAS	PINGUAN	MEMBER	30215076	0718894458	[Signature]
10	SEMETA LESIRIA	KMC	MEMBER	20532421	0719379457	[Signature]
11	NASERIAN LEMIRON	PINGUAN	MEMBER	9052075	0700571485	[Signature]
12	DUKALE LEKUMO	PINGUAN	MEMBER	12871355	0720605551	[Signature]
13	Mary Lagala	MORITO	Member	20564218	0705510187	[Signature]
14	KENKEI SPATTA	OLIDARSAIT	CHIEF	2552227	073415034	[Signature]
15	JITHI LEKUSHULA	AKIRIMON	MANAGER	30236943	072511018	[Signature]
16	Brandon Buzzard	CCA	Pastor	700312	07229179343	[Signature]
17	Naptari Nathon	Nabungu	Chairman	2577007	073324901	[Signature]
18	JACOB TIAKHERO	Nabungu	CHIEF	6699920	0710683453	[Signature]
19	RICHARD Kimuri	KERIMON	ACL	2402472	072472531	[Signature]
20	FRANCIS LEKALAGMI	OLDONJIRE	WARD ADMINISTRATOR	2086491	072183627	[Signature]
21						
22						





# LOISABA CONSERVANCY

## LOISABA RHINO SANCTUARY: COMMUNITY CONSULTATION AND DISCLOSURE MEETINGS

Dates..... 23.10.21 .....

Location/ Area..... LOISABA .....

#	Name	Which Community	Community Responsibility	ID	Mobile No.	Signature
1	MOI NAIPUTARI	KOIJIA	Grazing Commtee	1189426	072378466	
2	PAUL LEBENETO	Koija	MEMBER	240844	02230588	
3	NTIKEN LEKALDERO	KOIJIA	MEMBER	27055113	074292320	
4	Thomas Shilo	Loisaba	CEO	135042	0727706	
5	S. Kuseven	WAAKUS	WARDEN	1168766	0720455	
6	J. KAPAMURITO	Chontiro	CHIEF	1127514	072372971	
7	Elie Modesti	KOIJIA	Nabungo	2231362	070266184	
8	SUMAT SIMBALE	KOIJIA	MEMBER	6699925	072674888	
9	Joh Leilato	PND	CHAIRMAN	11642140	072070516	
10	AMOS LELEMWA	NTUMUDET	MEMBER	2709711	071476594	
11	PETER LEKALDERO		Committee	805356	071178856	
12	KIPUKI LEWARI	Morijo	member	25075	070907907	
13	GABRIEL LEILATO	NTUMUDET	Member	10219374	079876242 07967632	
14	LELAI LELONGOLAI	MORJO	Chairman	456367	071588768	
15	LEILA LEKIMAMANI	MORJO	MEMBER	516357	0728410743	
16	MATHEW LEUKALA	MORJO	MEMBER	37136237	070195223	
17	CATHERINE SIKIRY	MORJO	MEMBER	2124215	0725761854	
18	LOWISO LEMSIAMI	MORJO	MEMBER	2521203	0764 02 635-4890	
19	JAMES LEKIRIO	MORJO	MEMBER	30212934	0720538321	
20	PETER MESHAMU	LOISABA	SS 2	2009040	0727696364	
21	PAUL NAIPUTARI	LOISABA	CDO	2461558	071462707	
22						





# LOISABA CONSERVANCY

## LOISABA RHINO SANCTUARY: COMMUNITY CONSULTATION AND DISCLOSURE MEETINGS

Dates: 23/03/2021

Location/ Area: LOISABA

#	Name	Which Community	Community Responsibility	ID	Mobile No.	Signature
1	Simon Masingi	TW	Leader	22602626	0798050967	
2	Samuel Brown	KD	leader	28413590	0706881659	
3	Abanya Lemau	Leopard	leader	28413590	0714839871	
4	Kilimo Simwani	Narungu	Chairman	25544155	0725291352	
5	Paul Sasaia	NARUNGU	Manager	3154504	020313284	
6	RITA KULAMO	LOISABA	SECURITY	3248764	0707151551	
7	SUSAN LENTAAM	LOISABA	CONSERVATION	3267909	0746397481	
8	Josh Ombani	LOISABA	CONSERVATION	3143524	0701587707	
9	David Saruni	Loisaba	SECURITY	3247027	0703300376	
10	MAMIN KAMAU	NAREDA			0722312508	
11	FRED OMERZO	KWS	Research	1312520	0733750248	
12	Samuel Mutinya	QPEJETA	CONSERVATION	2173514	075528231	
13	Stephen Kibere	KWS	COMMUNITY	11680706	072909532	
14	Coleth Kithari	NAREDA		316121001	0791013163	
15						
16						
17						
18						
19						
20						
21						
22						



23	EKENTON LENAWALA	KOJA	Community	7812973	011031258	✱
24	ANKOI LENAIPUTARI	KOJA	CHAIRLADY	803332	071086831	✱
25	SANTAIYAN LENDRIAR	KOJA	MEMBER	1189885	070505736	☺



