Ngai Ndethya National Reserve Management Plan 2025-2035



Planning carried out by the Government of Makueni County in collaboration with stakeholders

In accordance with

KWS PROTECTED AREAS PLANNING FRAMEWORK

September 2025

ACKNOWLEDGEMENTS

APPROVAL PAGE

The Government of Makueni County has approved the implementation of this 10-year management plan for Ngai Ndethya National Reserve.

On behalf of the

Government of Makueni County

_____

H.E. Mutula Kilonzo Jnr. CBS

The Governor

Government of Makueni County

Date:

ENDORSEMENT PAGE

The Kenya Wildlife Service Management has approved the implementation of this 10-year Management Plan for Ngai Ndethya National Reserve.

On behalf of the

Kenya Wildlife Service

Prof. Erustus Kanga, PhD, EBS.

Director General

Kenya Wildlife Service

Date:

EXECUTIVE SUMMARY

Ngai Ndethya National Reserve (NNNR) is located in Kibwezi East Sub-County, Makueni County and covers 212 km^2. The reserve was gazetted vide Gazette Notice No. 9 of 1st January 1976 under boundary plan no. 216/32. NNNR borders Athi-Galana-Sabaki River, Mtito River and

Kambu River, and is a critical wildlife dispersal area for Tsavo East and West National Parks. In 1992, a settlement scheme was initiated to allocate approximately 21,200 ha from the reserve to the Settlement Fund Trustees. The reserve comprises settled areas and wildlife conservancies.

This 10-year management plan (2025-2035) is a collaborative initiative led by the Government of Makueni County in partnership with key stakeholders, aimed at conserving the reserve's wildlife and habitats while promoting human-wildlife coexistence. The plan seeks to strike a balance between ecological integrity, community livelihoods, and sustainable tourism. The planning process was carried out in accordance with the Kenya Wildlife Service Protected Areas Planning Framework (PAPF), the Wildlife Conservation and Management Act (WCMA), 2013, and relevant legal and regulatory frameworks.

The plan is structured into five key components:

1. **Plan Foundations:** The plan foundations provide a description of the planning process and outlines the geographic scope of the plan, vision, purpose statement, and Exceptional Resource Values.
2. **Zonation Scheme:** The zonation scheme sets out different goals to be achieved in different parts of NNNR. Four (4) zones have been identified: Conservation Core Zone, Riparian zone, Community-Wildlife Coexistence Zone and Community Settlement Zone
3. **Management Programmes:** The plan comprises four management programmes which address conservation and administration issues in the reserve. Each programme contains a specific purpose, guiding principles, and management objectives and actions designed to achieve the overall goal of the reserve. The management programmes include:

- **Ecological Management Programme**

The purpose of the Ecological Management Programme is to promote sustainable conservation and management of wildlife and communities for a balanced coexistence. Key in achieving this aim is ensuring that conservation status of NNNR's threatened species and habitat is restored, payment for ecosystem services is developed, and targeted ecological monitoring and management-oriented ecological research is carried out.

- **Tourism Development and Management Programme**

The purpose of this programme is to position NNNR as a sustainable tourism destination by enhancing visitor experiences and promoting product diversification, investments, and preserving cultural heritage in collaboration with stakeholders. This will be achieved through developing and upgrading tourism-support infrastructure; diversifying and marketing tourism products and experiences; and developing tourism administration and management strategies.

- **Community Development and Conservation Education Programme**

The purpose of the Community Development and Conservation Education Programme is to integrate community and wildlife coexistence within NNNR. The programme aims to achieve this purpose through implementation of a set of objectives that focus on; enhancing human-wildlife coexistence, improving benefit sharing from conservation initiatives and strengthening community participation in conservation**.**

- **NNNR Operations and Security Programme**

The purpose of the NNNR Operations and Security Programme is to ensure the protection of Ngai Ndethya National Reserve's resources, visitors, and assets through effective operational systems that support the delivery of management programmes. This programme focuses on enhancing infrastructure and communications systems; establishing and strengthening human capital; securing land tenure to promote conservation-community co-existence; promoting collaborative engagements with conservation partners for effective security in the reserve; and ensuring security of visitors, wildlife, and assets.

4. **Plan Monitoring**: Establishes a framework for assessing and evaluating the positive and negative impacts of plan implementation through measurable indicators.
5. **Three-year activity plans**: Provides implementation matrices that outline the specific actions and activities, responsibilities and timeframe for plan implementation.

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ACRONYMS AND ABBREVIATIONS

CAK	Conservation Alliance of Kenya
CAP	Conservation Action Planning
CCTV	Closed-Circuit Television
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPT	Core Planning Team
EDRRS	Early Detection and Rapid Response System
ERVs	Exceptional Resource Values
GIS	Geographic Information System
GMC	Government of Makueni County
GPS	Global Positioning System
HWC	Human-wildlife conflict
HWCRC	Human Wildlife Conflict Resolution Committees
IUCN	International Union for Conservation of Nature
KATO	Kenya Association of Tour Operators
KEAs	Key Ecological Attributes
KMD	Kenya Meteorological Department
KPLC	Kenya Power and Lighting Company
KTB	Kenya Tourism Board
KWCA	Kenya Wildlife Conservancies Association
KWS	Kenya Wildlife Service
M&E	Monitoring and Evaluation
METT	Management Effectiveness Tracking Tool
NEMA	National Environment Management Authority
NGAO	National Government Administrative Officers
NGOs	Non-Governmental Organization
NMK	National Museums of Kenya
NNNR	Ngai Ndethya National Reserve
PA	Protected Area
PAC	Problem Animal Control
PAPF	Protected Areas Planning Framework
SAGE	Site level Assessment of Governance and Equity
SAPA	Social Assessment of Protected Areas
SGR	Standard Gauge Railway
SWT	Sheldrick Wildlife Trust
TEM	Targeted Ecological Monitoring
TNC	The Nature Conservancy
TRA	Tourism Regulatory Authority
WCMA	Wildlife Conservation and Management Act
WRA	Water Resources Authority
WRTI	Wildlife Research and Training Institute
WRUA	Water Resource User Association

PLAN FOUNDATIONS

The Plan

This 10-year (2025-2035) management plan for Ngai Ndethya National Reserve provides a long-term strategic framework to enhance management effectiveness within the reserve. The plan has been developed in accordance with the KWS Protected Areas Planning Framework (PAPF) and the Wildlife Conservation and Management Act, 2013. The management plan serves as a framework for planning and decision making. This plan has been developed through a collaborative process involving various stakeholders. It outlines the goals, prescriptions and management actions for successful implementation and long-term conservation of the reserve.

Plan Structure

The plan structure has been developed to be as simple as possible, and as such, easily understood by stakeholders and implemented by NNNR managers. The table below sets out the key elements of the NNNR management plan.

Table 1: NNNR Management Plan Structure

Chapter	Functions and Contents
Plan Foundations	• Introduces the plan and sets out a basis on which the management plan has been developed. • Provides a description of the plan's geographical scope. • Outlines the Vision Statement, Purpose Statement, Exceptional Resource Values, major issues of concern and the planning process.
Zonation Scheme	• Details the land uses within NNNR, illustrated by a zonation map, and provides descriptions and prescriptions for each zone.
Management Programmes	• Comprises four management programmes: 1. Ecological Management Programme 2. Tourism Development and Management Programme 3. Community Development and Conservation Education Programme 4. NNNR Operations and Security Programme • Each programme includes a purpose statement which sets out the overall goal of the programme, and guiding principles that support the development and implementation of management objectives and actions.
Plan Monitoring	• Provides a framework for the assessment of potential impacts (positive or negative) of plan implementation.
3-Year Activity Plans	• Break down the individual management actions into a series of management activities, sets out the timeframe for their implementation and allocate responsibilities and milestones that the NNNR management aims to achieve.

The Planning Process

In line with the KWS PAPF, this plan has been developed through a highly participatory process, incorporating and building on ideas from a broad cross-section of NNNR stakeholders. To ensure meaningful engagement, three principal mechanisms were employed: the Core Planning Team, Stakeholder Workshops, and Expert Working Groups. The key planning activities and events that led to the development of this plan are illustrated in the figure below.

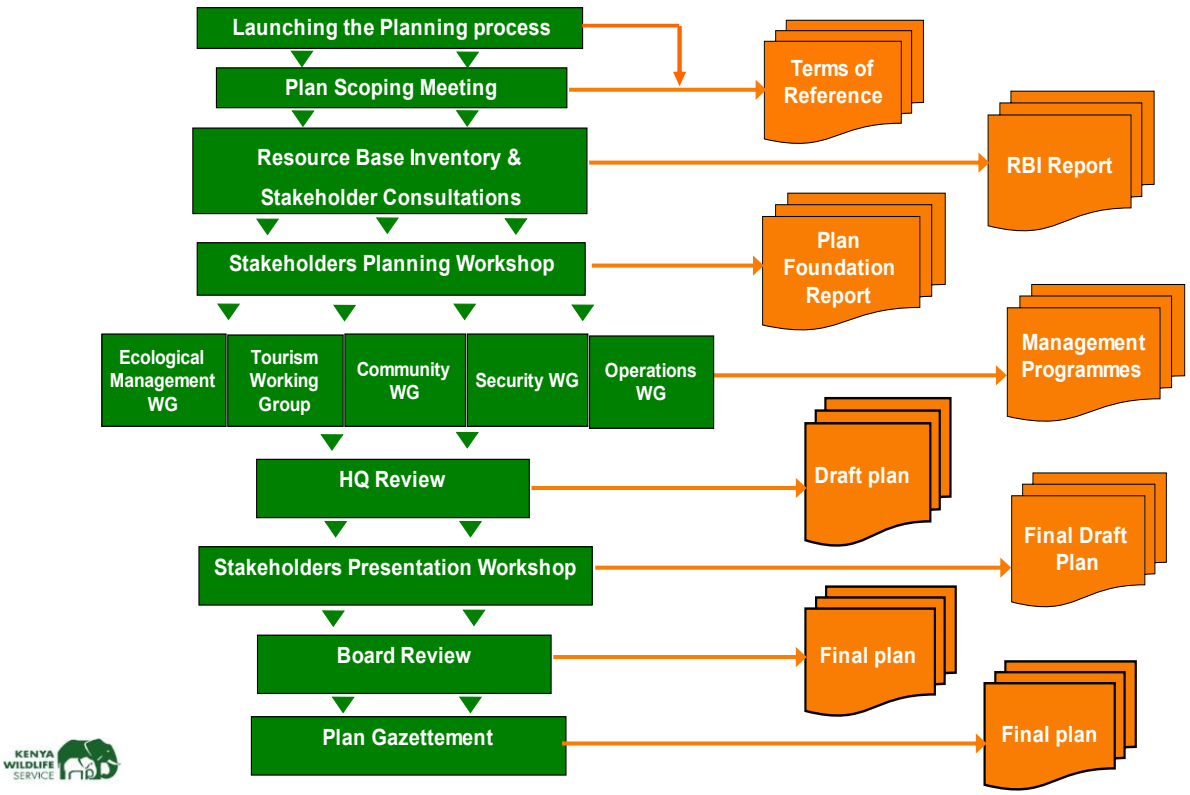


Figure 1: PAPF Planning Process

NGAI NDETHYA NATIONAL RESERVE

Area Description

Ngai Ndethya National Reserve (NNNR) was gazetted vide Gazette Notice No. 9 of 1st January 1976 and boundary plan 216/32. The reserve is located within the southern tip of Makueni County bordering Tsavo East National Park to the east, and Tsavo West National Park to the south. The reserve covers an approximate area of 21,200Ha (212Km^2) and is rich in dryland biodiversity.

Vision Statement

The Vision Statement describes the desired future state of NNNR and provides a clear and insightful statement of what stakeholders would like NNNR to be at the end of the plan's 10-year timeframe. The vision statement of Ngai Ndethya National Reserve is to be:

> ***A model reserve, sustainably managed and conserved, rich in biodiversity and supportive of community livelihoods.***

NNNR Purpose Statement

The purpose statement summarizes the importance of NNNR, clarifies the main reasons for its existence and provides the overall goals that NNNR managers are striving to achieve. The purpose of NNNR is:

> ***To sustainably protect and conserve the Reserve's Exceptional Resource Values, enhance coexistence and support local community development.***

Supplementary Purpose Statements

1. To support monitoring of key wildlife populations, wildlife corridor, and local community development index of the Reserve under the Tsavo East National Park ecological management programme
2. To promote NNNR as a unique ecotourism destination.
3. To promote equitable livelihood opportunities that empower local communities as key partners in conservation.
4. To strengthen partnerships between NNNR and stakeholders for improved conservation efforts
5. To enhance wildlife security in the region
6. To support the regularization of human settlements through provision of secure land tenure and title deeds, ensuring coexistence with conservation goals

NNNR Exceptional Resource Values (ERVs)

Exceptional Resource Values (ERVs) are the resources within the protected area that provide benefits to local, national or international stakeholders. They are classified into four categories: biodiversity, scenic, social and cultural values as set out in the table below.

Table 2: NNNR Exceptional Resource Values

Category	Exceptional Resource Values
Biodiversity	► Wildlife (dik diks, lions, leopards, cheetahs, porcupines, wild dogs, elephants, antelopes, warthogs andtortoise etc)
	► Habitats (woodlands, *Acacia tortilis*)
	► River system (Athi, Mtito and Kambu Rivers)
	► Birds (Guinea fowl)
	► Aquatic species (hippos, crocodiles)
	► Indigenous trees (Baobab trees, *Melia volkensii* (Mukau)
Scenic	► Rivers (Athi, Mtito, Kambu andNgai Ndethya Rivers)
	► Yatta Plateau
	► Ntunguni rocks
	► Iviani rock
Social	► Water sources; Water pans, earth dams and boreholes, Iviani rock catchment
	► Economic activities such as livestock keeping and crop farming with major crops grown including cowpeas and green grams
	► Education and health services
	► Trade; market centres
	► Employment e.g., at the conservancies
	► Tourism and recreation
	► Carbon sequestration
	► Infrastructure – roads, railway, airstrips, electricity
	► Administrative units
	► Worship centres (churches)
Cultural	► Shrines; Iviani rock
	► Cultural ceremonies (Ngone mwaitu)
	► Traditional attires
	► Traditional dances (kamungi dancers and actors, Ilovoto dancers)
	► Kamba culture
	► Traditional drinks (kaluvu brewing)
	► Hand crafts, weaving, wood carving
	► Traditional weddings
	► History of long-distance trade and slave trade

Biodiversity Values

Mammal Fauna

African wild dog (Lycaon pictus) and the African elephant (Loxodonta Africana) are categorized as endangered species as per IUCN Red List. The kirk's dik dik is locally targeted for bushmeat. The megafauna comprise charismatic and keystone species.

Wildlife Corridor and Dispersal Area

The Reserve is an active wildlife dispersal area and wildlife corridor extending to Tsavo East National Park.

Habitat- Woodlands

Two species of conservation value included *Senegalia thomasii* (Harms) Kyal. & Boatwr. **NT** (Kenya endemic). Issue with *S.t*. is range restriction and habitat degradation. *Populus ilicifolia* (Engl.) Rouleau **VU.** Popularly known as Tanariver Poplar (strictly riparian species in Athi – Galana R, Tana R. and Ewaso Nyiro R. (Kenya & E. Tanzania). The only indigenous species in Africa.

Adansonia digitata keystone species in the African savanna. Its structure, longevity, and ecological roles support biodiversity and ecosystem stability. *Melia volkensii* (locally called Mukau) is highly valued both ecologically and economically, making it a cornerstone of dryland restoration and livelihoods. The woodlands provide suitable habitats for antelopes and megafauna species, carbon sequestration services.

Scenic Values

Iviani/Nthunguni Rock

The Iviani/Nthunguni rock is a unique geological formation with a stunning backdrop and glow of the setting sun. The elevation of the rock offers panoramic views of the reserve and can provide a stunning spot for visitors to enjoy picnics and sundowners against a vibrant and colorful sky as the sun dips below the horizon. The massive rock(*Ivia*) was known as the birth place for elephants. It is believed to appear in Nthunguni area and disappears underground before reappearing again at a place called Iviani. The rock deck has the potential of drawing in photographers to capture mesmerizing images enhanced by the sunset's light that highlights the uniqueness of the landscape. In addition, rock climbing or hiking activities can be explored on this rock.

Rivers (Athi, Mtito Andei & Kambu)

Rivers provide picturesque environments and immersive experiences for water-based activities and nature lovers. The River Athi is the second-longest river in Kenya and is also known as the Galana or Sabaki in its lower course. River Athi, Mtito Andei and Kambu flow along the boundary of Ngai Ndethya N. Reserve. The rivers contribute to the natural beauty of the landscape and can be exploited as part of tourism offerings and opportunities for recreational activities such as boating, kayaking, river cruises, sport fishing, picnics and sightseeing etc.

Yatta Plateau

The Yatta Plateau is renowned as the world's largest lava flow and a key attraction within the Tsavo ecosystem. The Yatta plateau borders the Ngai Ndethya National Reserve along the Athi

River and rises up to 450 meters above sea level, providing panoramic views of the vast plains below it. The plateau also has wildlife such as elephants, giraffe, buffalos, leopards, cheetahs, lions and birdlife.

Kinyeki Hill

The Kinyeki hill is located at the border of Ngai Ndethya Reserve next to Kathekani chief's office and holds a significant historical value during the world war II. The hill features three caves that were used as hideouts by the German and British soldiers. The hill also contains approximately 17 types of precious stones and minerals including blue sapphire, blue diamond, yellow tourmaline, spinel, ruby and red granite. A mineral/ precious stone display centre would be a great attraction to tourists visiting Ngai Ndethya N. Reserves and its environs.

Social Values

Water Sources

The reserve's geographic position and erratic rainfall patterns necessitate the development and maintenance of water sources such as water pans, earth dams, boreholes, and the Iviani rock catchment. These provide essential water for both people and wildlife e.g., Athi River, Kambu River, Mtito Andei River etc.

Economic Activities

Communities within and adjacent to the reserve engage in crop farming (cowpeas, pigeon peas, sorghum, green grams) and livestock keeping, particularly goat rearing, as key livelihood activities.

Education and Health Services

Learning institutions and health facilities within the reserve provide essential services, bridging gaps in education and healthcare for surrounding communities in this conservation-sensitive area.

Trade

Local market centers support trade by facilitating access to goods and services, contributing to community livelihoods and broader economic growth.

Employment

Conservation generates jobs ranging from rangers and scouts to tourism, education, and outreach programmes. These opportunities provide income and empower communities to actively participate in and benefit from conservation.

Tourism and Recreation

Facilities such as Kamungi Bandas promote eco-tourism, creating employment and generating revenue that directly benefits local communities.

Carbon Sequestration

The reserve's vegetation provides significant carbon storage, offering potential for carbon credit initiatives and sustainable land management projects that enhance community livelihoods and revenue for the County Government.

Infrastructure

The reserve's strategic location is enhanced by feeder roads, the railway, electricity, and potential for airstrip development. This infrastructure enhances connectivity between Tsavo East, Tsavo West, and other protected areas, while facilitating access to the reserve.

Administrative Units

Local administrative structures play a crucial role in maintaining security and delivering essential social services to both communities and wildlife within the reserve.

Worship Centres

Spiritual institutions foster social cohesion, provide moral guidance, and act as important community communication platforms.

Cultural Values

The culture and heritage give a community its unique identity. It is an expression of the ways of living developed by a community and passed on from generation to generation, including customs, practices, places, objects, artistic expressions and values. The culture of the local community is broadly depicted in the language, beliefs, music, dance, art and craft of the Akamba people.

Traditional Kamba Drink (*Kaluvu*)

In Kamba culture, *kaluvu* is a traditional fermented brew with deep cultural, social, and ritualistic significance. It is not a casual drink for everyday consumption but is reserved for specific ceremonies and occasions such as traditional wedding ceremonies, rituals, prayers, sealing agreements, elders' meetings, healing and medicinal purposes.

Traditional Kamba Attire

The traditional attire is a powerful symbol of cultural identity, especially during festivals, weddings, and other significant events. The intricate beadwork and ornaments continue to be highly valued, representing a rich heritage of craftsmanship and a deep connection to the community's history.

The traditional attire of the Akamba people is still worn for important ceremonies and cultural events. Traditionally, clothing was made from tanned animal hides, such as duiker, antelopes, and goatskin, as well as fibres from tree bark. A man's attire is not complete without his weapons, including a long fighting sword (*simi*), a throwing club, and a bow with poisoned arrows. Beadwork, body ornaments such as necklaces, bracelets, ear ornaments and anklets are a key part of the traditional Kamba attire.

Traditional Kamba House

The traditional house of the Kamba people of Kenya is called a *kisukuu* (plural: *isukuu*). These houses are a key part of a Kamba homestead (*musyi*) which also includes other structures like a kitchen, granary, and cowshed.

The houses are typically round and have a conical, grass-thatched roof that often extends all the way to the ground. They are constructed using locally sourced materials such as a framework of branches (*Mikonzo*). The construction of the house is a communal effort, though only men are

traditionally allowed to build the main house itself. The interior of a traditional *kisukuu* is a single, open space without any internal rooms or subdivisions and have a single entrance but no windows. Over time, the design has evolved to include mud walls and, more recently, iron sheet roofs have replaced the traditional grass thatch.

Traditional Kamba Musical Instruments

The traditional music of the Kamba people is deeply tied to their vibrant culture, particularly their dances, which are known for their high-energy, acrobatic movements. The musical instruments used are primarily percussive and stringed instruments, often made from locally available materials.

The key traditional Kamba musical instruments are drums (*ngoma*) such as *Kilumi*, *Mbeni*, and *Mwasa*; and string instruments such as *Mbeve and Uta wa mundu mue.* Other instruments include horns *(Uvy'a),* beaded necklaces and bells are a form of percussion, worn by dancers to create rhythm and enhance the sound of the music.

Traditional Kamba Dance

***Kilumi* dance** is both a cultural and spiritual expression of the Akamba, blending music, rhythm, and ritual to link the people with their ancestors, nature, and God. It is deeply rooted in spirituality and communal life, often performed as a prayer ritual for rain, healing, protection, thanksgiving and a way of seeking blessings. It is also used to honor ancestral spirits and strengthen communal unity. The dance is accompanied by heavy drumming using large traditional drums also called kilumi (hence the name of the dance).

Traditionally, the main performers are women, but men may join in drumming and sometimes dancing. Women wear colorful *lesos* (wrappers), beads, bangles, and brass rings, which jingle as they dance. Dancers move in circular formations, swaying their bodies, stamping their feet, and clapping rhythmically. The movements are intense and repetitive, creating a trance-like atmosphere that allows connection with the spiritual realm. Handclapping, ululations, and singing of traditional chants add to the rhythm.

Shrines

Kambu River

History of Long-Distance and Slave Trade

The reserve historically served as a stopover along caravan routes, including the slave trade, embedding it with significant cultural and historical heritage that contributes to its national value.

ZONATION SCHEME

Zonation Considerations

(a) Human settlement density

(b) Wildlife movement data

(c) Established overarching land use

(d) Habitat sensitivity

(e) Ease of plan implementation

Zonation Map

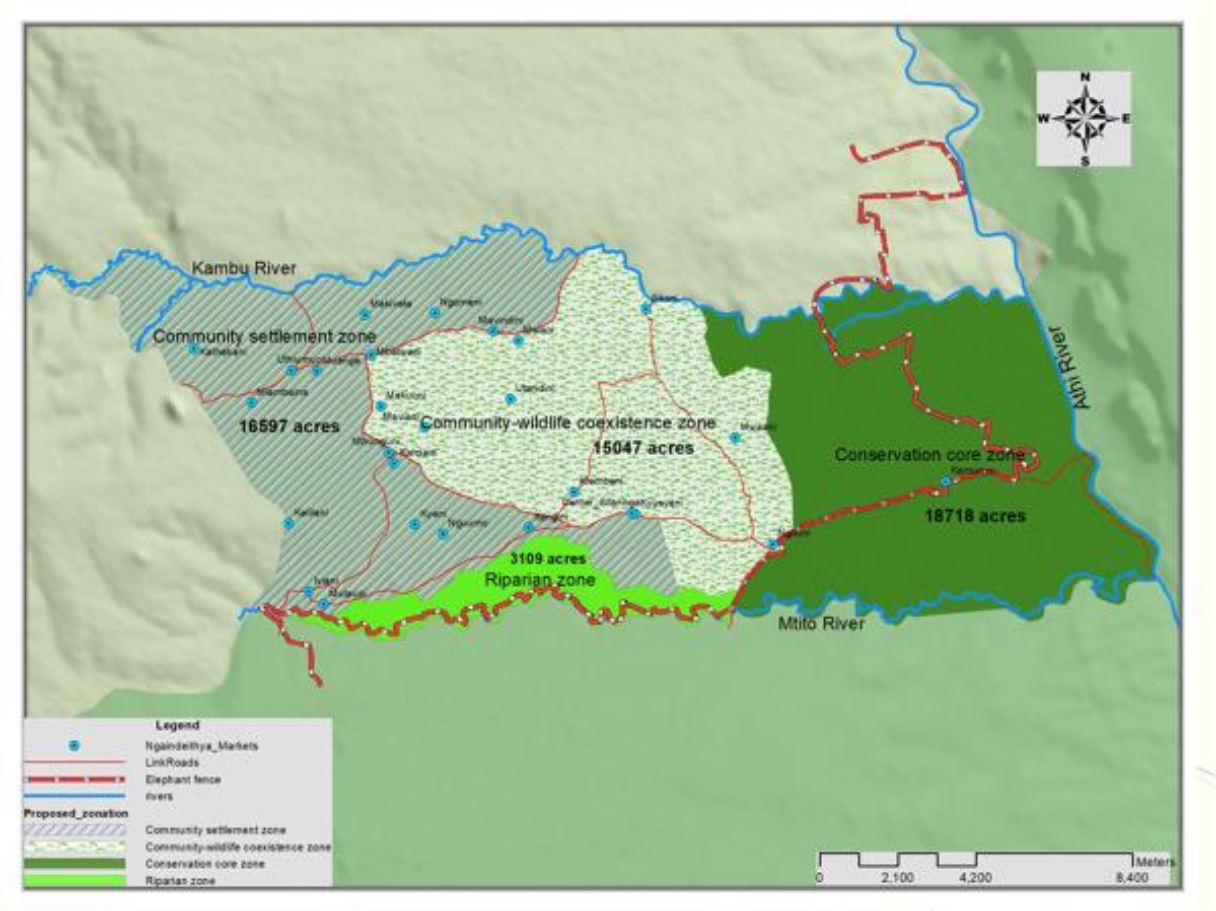


Figure 2: NNNR Zonation Map

Zone Description

Conservation Core Zone

Measuring about 18,718 acres, this zone is contiguous with Tsavo National Park. It is highly patronized by wildlife as evidenced by ranging patterns of collared elephants and collared lion data as well as aerial and ground wildlife data collected over the years. It is set aside for wildlife conservation alongside tourism support infrastructure.

Riparian zone

Zone set aside to protect highly sensitive and fragile riverine ecosystem along Mtito river. It measures about 3,109 acres.

Community–Wildlife Coexistence Zone

This zone includes areas where communities are settled but also overlaps with wildlife habitats and movement routes. It measures approximately 15,047 acres. Management will emphasize reducing human–wildlife conflicts, promoting coexistence, and allowing regulated community activities that do not compromise conservation.

Community Settlement Zone

This zone encompasses areas predominantly occupied by local community for settlement alongside livelihood support facilities/ infrastructure. It measures about 16,597 acres. Management will focus on supporting sustainable livelihoods, providing services, and creating linkages with conservation.

ECOLOGICAL MANAGEMENT PROGRAMME

Programme Purpose and Strategy

The purpose of the Ecological Management Programme is:

> ***To promote sustainable conservation and management of wildlife and communities for a balanced coexistence.***

Guiding Principles

Ecological integrity

Upholding ecological integrity of the NNNR through protection of species and improvement of habitats, while providing for functional ecosystem services.

This principle emphasizes the protection of species and the restoration and improvement of habitats to maintain the ecological balance of the reserve. By safeguarding biodiversity and ensuring resilience, NNNR will continue to provide essential ecosystem services such as water regulation, soil fertility, pollination, and carbon sequestration. Maintaining ecological integrity also ensures that conservation interventions are not only focused on individual species but also are designed to sustain the overall functionality and health of the ecosystem, hence supporting both biodiversity and community.

Interconnectedness principle

This principle underscores the importance of providing unimpeded movement of species and the flow of natural processes, like water and nutrient cycles, across a landscape, allowing habitats to function and species to thrive. It maintains biodiversity, supports ecosystem services such as pollination, and enhances resilience to climate change by enabling species to move and adapt to new conditions.

The principle guides sustaining connectivity between NNNR and the adjacent Tsavo East and West National Parks. Connectivity ensures that species can easily access critical resources such as water, forage, and breeding grounds beyond the reserve's boundary, thereby reducing ecological isolation and enhancing population viability. By maintaining the natural corridors and reducing barriers to movement, the reserve will continue contributing to the broader landscape-level conservation, support genetic diversity, and strengthen the resilience of wildlife populations to environmental change and human pressures.

Ecological restoration principle

Through rehabilitating and restoring degraded habitats to sustain ecological processes.

This principle highlights the need to actively address habitat degradation within NNNR to sustain key ecological processes. Restoration and rehabilitation efforts such as reforestation, soil and water conservation, and control of invasive species are essential to recover the productivity and resilience of ecosystems. By restoring degraded habitats, the reserve will enhance habitat quality for wildlife, secure ecosystem functions such as nutrient cycling and water regulation, and enhance the capacity of the landscape to support biodiversity and human well-being through sustainable community livelihood practices.

Human-wildlife co-existence

This principle emphasizes the importance of reducing conflict and fostering coexistence between local communities and wildlife in and around NNNR. HWC mitigation measures such as participatory conflict response mechanisms and improved livestock husbandry will reduce losses and improve community tolerance towards wildlife. At the same time, promoting land-use options that are compatible with conservation, including conservation-friendly farming and community conservancies, ensures local livelihoods can thrive alongside biodiversity. By integrating conflict mitigation with sustainable land-use planning, this principle seeks to build long-term support for conservation while safeguarding human well-being.

Adaptive Management

This principle provides for flexible management actions that are capable of adjusting to new information and changing conditions, including climate change and natural disasters.

Targeting Ecological Management Action

The KWS PAPF prescribes the use of The Nature Conservancy's (TNC) Conservation Action Planning (CAP) process as a foundation for designing the Ecological Management Programme for protected areas. The CAP methodology provides a tried and tested mechanism for targeting ecological management, by identifying and developing an accurate definition and understanding of the PA's most important ecological features and their management needs, and the major threats to these features. In line with the PAPF, this management programme also adopts the CAP framework.

The PAPF outlines three key stages in applying the CAP methodology: the selection of conservation targets; the identification and ranking of threats to the conservation targets; and the development of management objectives and actions to address these threats as well as to enhance the conservation of the targets.

Conservation Targets

The CAP process involves the definition of identified conservation targets which represent the unique biodiversity contained within the protected area. A comprehensive ecological definition and understanding of each of these targets is then achieved through the further identification of the "key ecological attributes" (KEAs), which are the ecological parameters upon which long-term survival of each conservation target depends. The conservation targets, the rationale behind their selection, important subsidiary targets (i.e. other ecosystem components that share KEAs and threats with the conservation target concerned), and each of the KEAs for each target are set out in the following sections.

Table 3: NNNR Conservation targets and KEAs

Category	Conservation target	Rationale for selection	Subsidiary targets	Key ecological attributes
HABITAT	*Acacia - Commiphora* Woodland	The *Acacia-Commiphora* woodlands of the NNNR have suffered dramatic declines primarily through a combination of impacts from both uncontrolled human settlements, lack of conservation measures as well as from elephants foraging. These habitats are vital for a number of species, community livelihoods and evidence suggests continued lack of conservation will affect vegetation resources within the Reserve.	*Acacia sp* *Commiphora sp*	I. Area Coverage II. Plant species composition III. Vegetation structure IV. Wood biomass, carbon sequestration
HABITAT	Riverine	Provides perennial aquatic conditions for local humans water use, carnivore shelter and hunting, water fowl micro-habitat	Hippopotamus Nile crocodile Water fowl diversity Lion	I. River water level II. River water quality III. Riverine vegetation cover IV. Corridor connectivity
SPECIES	Tana River Poplar*(Populus ilicifolia)*	It is listed as a Vulnerable species under IUCN Red list. A range restricted species, strictly a riparian only found in three ecological zones (i.e. Athi – Galana R, Tana R. and Ewaso Nyiro R). The only indigenous species occurring in Africa	*Vachelia elitor*	I. Habitat availability II. Habitat quality III. Number of trees
SPECIES	Baobab *(Adansonia digitata)*	Keystone species in the African savanna. Its structure, longevity, and ecological roles support biodiversity and ecosystem stability.	*Melia volkensii* *Delonix elata*	I. Habitat quality II. Tree cover III. Tree density IV. Seedlings recruitment

Category	Conservation target	Rationale for selection	Subsidiary targets	Key ecological attributes
SPECIES	Elephant (*Loxodonta africana*)	African elephant is Endangered (EN) under IUCN Red List. Elephants are powerful habitat modifiers, also known as "ecosystem engineers" that significantly alter landscapes by uprooting trees, stripping bark, creating openings in dense vegetation, and digging ground for water.	**Maasai giraffe (*Giraffa tippelskirchi*)**	I. Elephant number II. Water availability III. Mortality IV. Forage availability
SPECIES	African Wild dog (*Lycaon pictus*)	AWD are wide-ranging species listed as Endangered in the IUCN species red-list NNNR is a key dispersal area for the species considering the declining population of AWD and other large carnivores nationally. AWD are highly threatened by habitat loss and diseases An important human-wildlife conflict species	Lions Black - backed Jackal Leopard Wild cats Spotted Hyena Mongoose	I. Habitat availability and connectivity II. Availability of prey species III. Presence of competing carnivores
SPECIES	Nile Crocodile (C*rocodylus niloticus*)	Listed in CITES Appendix II, indicating its conservation importance. A valuable ecological indicator of riverine habitat integrity. Has potential for tourism in the NNNR	Hippos Terrapins Nile monitor Lizard	I. Habitat quality II. Population size III. Threats
SPECIES	MacKay's thread snake (*Myriopholis mackayi*)	A recently described fossorial species and endemic to the Tsavo ecosystem. It is Data Deficient, but its presence in the NNNR extends its known range. As it inhabits loose, fertile soils, the species serves as an important ecological indicator of soil quality.	Lineolate Blind snakes Other fossorial species	I. Number of sightings II. Distribution III. Population structure IV. Habitat quality

Category	Conservation target	Rationale for selection	Subsidiary targets	Key ecological attributes
SPECIES	Ancieta's rocket frogs (*Ptychadena sp*)	Amphibians are reliant on moist environments hence are good indicators of habitat health. Their presence in riverine areas reflects habitat quality, and protecting them also helps conserve broader aquatic biodiversity.	Marsabit clawed frog (*Xenopus borealis*) Garman's toad (*Sclerophrys garmani*)	I. Habitat Quality II. River water levels III. Pollution levels IV. Population size and distribution
SPECIES	Vultures	Vultures are critically endangered in the IUCN Red List. They provide crucial services including preventing disease spread by consuming carcasses that would otherwise harbor bacteria and viruses	White backed vulture Ruppells-Griffon	I. Habitat quality II. Population sizes and distribution III. Species Diversity IV. Threats
SPECIES	Martial Eagle (*Polemaetus bellicosus)*	They are listed as Endangered in the IUCN Red List. A powerful apex predator It maintains ecosystem balance by controlling prey populations Serves as an indicator of habitat health. Its presence signifies a healthy environment. Good for tourism they are the largest raptors Africa.	Tawny eagles Bateleur	I. Habitat quality II. Population sizes, sex and age structure

Category	Conservation target	Rationale for selection	Subsidiary targets	Key ecological attributes
SPECIES	Honey bees (*Apis mellifera)*	Pollinators. Vital for the reproduction of a vast number of wild plants and agricultural crops. Essential for food security and maintaining plant biodiversity. Production of honey, beeswax, propolis and important by-products, thereby sustaining the livelihoods and health of local communities	Carpenter bees (*Xylocopa sp*) Ants (Formicidea)	I. Population size and distribution II. Habitat quality III. Weather patterns IV. Genetic diversity V. Threats
SYSTEM	Wildlife Corridors-dispersal Areas	NNNR connects elephants to the Tsavo East NP Northern sector, Tsavo West NP and Chyulu Hills through Athi River and Tsavo East NP southern sector. Watering and foraging are some of the species activities. Disturbance on the core conservation zone could adversely impact the processes	Athi river, elephants	I. Connectivity in the conservancies and Athi river, II. Athi river water quality and quantity, III. Woodland-shrub vegetation area (sq. Km)

Threats to Conservation Targets

The comprehensive definition of conservation targets and their KEAs enables the identification of the "threats" to these targets and attributes, and the subsequent prioritization of these threats according to their significance. A threat is defined as any factor, resulting either directly or indirectly from human activities, which has the potential to destroy, degrade or impair a conservation target during the 10-year lifespan of the management plan. The table below shows the priority threats impacting or likely to impact on the NNNR conservation targets and their KEAs.

Table 4: Threats to NNNR Conservation Targets

THREATS/ TARGETS	*Acacia - Commiphora* Woodland	Riverine	Wildlife Corridors-Dispersal Areas	Tana River Poplar	Baobab	Elephant	African Wild dog	Nile Crocodile	MacKay's thread snake	Ancieta's rocket frogs	Vultures	Martial Eagle	Honey bees
Loss of biodiversity	Medium	High	Very High	None	Low	Medium	High	High	High	High	Very High	Very High	Very High
Charcoal production	High	High	Very High	None	None	High	Low	None	High	High	Very High	Very High	Very High
Deforestation	High	High	Very High	Low	Low	High	Low	None	Very High	Very High	Very High	Very High	Very High
Invasive species	Medium		Low	None	None	High	High	None	Low	Low	Low	Low	High
Encroachment	Very High	High	Very high	None	Medium	Very High	High	High	Very High	Very High	High	Very High	Very High
Effects of climate change (floods and drought)	High	Very High	None	Medium	Medium	Very High	Very High	Very High	High	Very High	High	High	Very High
Pollution of Athi river (upstream)	None	Very High		High	None	High	Low	Very High	None	Very High	High	Low	Very High
Overgrazing	Low	Medium	High	Medium	None	High	High	Low	High	High	Low	Medium	High
Land degradation	High	Very High	High	Medium	High	High	High	Low	Very High	High	Low	Medium	Very High

THREATS/ TARGETS	*Acacia - Commiphora* Woodland	Riverine	Wildlife Corridors-Dispersal Areas	Tana River Poplar	Baobab	Elephant	African Wild dog	Nile Crocodile	MacKay's thread snake	Ancieta's rocket frogs	Vultures	Martial Eagle	Honey bees
Bushmeat poaching (Dik dik, warthog, buffalo)	None			None	Very high	None	High	High	None	None	High	Very High	None
Diseases	None			None	Low	High	High	Low	Low	High	Low	High	Low
Over abstraction of River water	Medium	High		Medium	Medium	Very High	Low	Very High	None	High	Low	Low	Very High

Management Objectives and Actions

Objective 1: Conservation status of NNNR's threatened species and habitat restored

In order to ensure targeted intervention that actively improves the long-term status of key biodiversity species and habitat, there will be a need to understand species and habitat status and trends in space and time. This will be made possible through science backed approaches to ensure functional and balanced ecosystems; to achieve this, a number of actions and activities shall be implemented.

Action 1.1: Conduct land use/land cover survey for NNNR

An understanding of land use/ land cover change shall be necessary using GIS and remote sensing tools. To achieve this there will be a need to procure necessary GIS and remote sensing software and equipment, build analytical capacity among users, conduct ground truthing surveys to validate landcover characteristics and changes, provide budgetary allocation for periodic land land use/ cover surveys.

Action 1.2: Assessment of the abundance, distribution and trends of conservation target species

The assessment will be conducted to provide information on their site-level species and habitat status and trend. A number of taxa specific approaches shall be employed. This shall be accomplished through a comprehensive baseline biodiversity survey of all taxa within and around NNNR;

Carry out Baseline survey to define clear conservation targets through the selection of species of special significance (keystone, flagship, indicator, and threatened species) whose population trends and impact on the habitat serve as vital indicators of ecosystem health. Use standardized methods to determine population size, density, and trends, leveraging modern tools like drone surveys for remote areas, acoustic sensors for birds and frogs, and eDNA sampling for aquatic species. Establish monitoring and rehabilitation areas within and around the NNNR using satellite imagery, to create a baseline assessment of soil, vegetation, and hydrology; selecting appropriate rehabilitation sites using climate and land use models; and implement proven restoration techniques.

Action 1.3: Assess river hydrology, riverine conditions, human activities

To ensure the health of local waterways, regular water level and quality assessments shall be conducted on the Athi, Kambu, and Mtito Rivers. This scientific data will be instrumental in supporting the development of early warning systems for detecting critical water quality and quantity changes and the resultant effect on the ecosystem function. Furthermore, local WRUA (Water Resource User Association) forums shall be strengthened to integrate research findings into community-led water resource management, planning and use.

Action 1.4: Rehabilitate and restore degraded habitats (riparian areas)

A comprehensive ecological assessment of a degraded riparian zone requires analysing bank stability, erosion patterns, and channel morphology to determine the extent of degradation and its physical impacts, while simultaneously evaluating vegetation, soil macrofauna, and aquatic

invertebrates as sensitive bioindicators of ecosystem health. This is to identify key degradation drivers, such as excessive animal grazing, direct human impacts like infrastructure or land clearing, and the proliferation of invasive species, to inform targeted restoration efforts and ensure the long-term health of the riparian ecosystem.

Assess River hydrology by analysing flow, flood, and drought patterns using data like the Indicators of Hydrologic Alteration (IHA) model. Assess riverine conditions by examining water quality (chemical, physical, biological), riparian vegetation, and physical structures like channel morphology and connectivity. Identify and evaluate human activities through pollution sources, land use changes, and resource extraction to understand their combined impact on the river's health. Design targeted, effective restoration efforts and create public awareness.

Action 1.5: Maintain and enhance the distribution of watering points for wildlife

Develop water sources by constructing water points (boreholes, water pans, troughs, and seasonal ponds) in key locations. To protect these vital resources, design and actively manage buffer zones around waterways and watering points to limit human activity and prevent contamination.

Develop a Geographic Information System (GIS) to integrate data on water availability with wildlife surveys to make evidence-based decisions. Monitor usage of water points through direct observations and remote technology to assess water quality and quantity, and engage communities with interpretive signs to build advocacy and partnerships for long-term conservation.

Action 1.6: Propose interventions on the management of invasive species

To effectively safeguard the NNNR from biological invasions, an Early Detection and Rapid Response System (EDRRS) must be developed to eliminate new incursions before they become established. Utilize comprehensive training programmes that equip personnel to identify high-risk invasive species and conduct structured surveillance in priority areas. The use of Geographic Information Systems (GIS) will enable the precise mapping of species' locations, distribution patterns, and treatment histories to guide management actions. Using bio-controls, particularly for invasive invertebrates, it is essential that all restoration programs utilize indigenous species and maintain a detailed inventory to monitor ecosystem recovery and prevent re-invasion.

Objective 2: Payment for ecosystem services developed

Payments for ecosystem services and or carbon sequestration incomes plus underlying sustainable practices are benefits schemes that can be developed to compensate NNNR local communities through the GMC for their roles in conserving the environment or damages / losses they incur due to climate risks e.g. allowing fauna mammals to range in the lands, avoiding deforestation or growing woody indigenous vegetation which stores carbon and hosts crop pollinators. NNNR is in AEZ 6 arid and ranching zone experiencing mean annual rainfall and temperatures ranging 650mm – 750mm and 20˚C- 36°C. It is suitable for rangeland management and irrigation agriculture but prone to climate risks mainly drought, food insecurity, human – wildlife conflicts, environmental degradation due to encroachment, deforestation and flash floods, etc (Makueni County CCU, 2023) while climate resilient responses are based on mixed farming. The capital inputs from National Reserve would be approx. 39 Km^2 intact *Vachellia-Commiphora* woodland, 131 Km^2 moderate wood-shrub land cover is and 32 Km^2 isolated woodland, grassland

in the heavily settled zone. Renewable energy, efficient energy technologies, climate smart agriculture. Etc are other ventures that can be assessed for viability.

Action 2.1: Develop and implement site level climate change mitigation and adaptation strategy

Reforestation efforts can be initiated and measured to contribute to national and international carbon emissions reduction goals.

Careful identification of strategic sites, planning and commitment should be core in order to achieve significant carbon emissions reduction and ecological recovery. To achieve this in NNNR the county government in partnership with stakeholders shall acquire, install, and maintain weather monitoring equipment at strategic points in NNNR. A weather monitoring program shall be initiated along with a database and information sharing arrangement to provide early warning system for climate related disasters.

There shall be a program to plant indigenous trees within the reserve to restore habitats and increase carbon storage and biomass while reducing the level of carbon emissions.

Action 2.2: Develop payment for ecosystem services including carbon finance projects for Ngai Ndethya NR

NNNR potential for carbon sequestration projects and PES will be explored through feasibility studies, viable options prioritization. NNNR managers will prepare Terms of Reference and procure proposal development. Considering resource endorement of the National Reserve envisaged projects will be solar energy and efficient energy utilization, climate smart agriculture, avoided tree cutting, tree propagation and planting. The GMC will conduct pre-feasibility study entailing stakeholders' mobilization, sensitize government workers and NNNR local communities, creation of a relevant Climate Action projects Committee, analyse existing policies and institutional capacities to identify baseline data and information as well as gaps. If positive, the next step will be a full feasibility study to identify and assess project(s) viability. The feasibility does detailed assessment of input resources using applicable methodologies to inform biodiversity, carbon sequestration, conservation targets and their benefits, emissions/leakages, with the aim of understanding the viability of the project ideas. Possible project components are packaged and ranked by priority. Selected projects should demonstrate potential for additionality/positive environmental impact e.g. increase in biodiversity, carbon sinks, improvement in human development. Project(s) design document (PDD) outlining relevant baseline resources requirements, project activities (carbon & PES), standard methods including greenhouse gas reductions, concentration pathway scenarios, monitoring plans and financial flows. The PDD is used to identify and register with a suitable carbon standards registry, then validation of the project follows. After validation implementation with periodic monitoring and verification is done.

Research opportunities will emerge in the course of projects development such as investigation of status plant - animal interactions. focusing seed dispersal, germination and seedling recruitment.

Objective 3: Targeted ecological monitoring and management-oriented ecological research carried out

Given the long history of settlement and human activities within NNNR, systematic ecological monitoring of species and habitat has been minimal, resulting in significant knowledge gaps that hinder effective management. While the establishment of Kamungi Conservancy has provided valuable insights through monthly wildlife counts, these efforts remain localized and do not capture the broader ecological dynamics of the reserve. As a result, management decisions often lack the scientific evidence needed to respond to ecological changes and human pressures across the reserve.

There is a need to establish a comprehensive ecological monitoring and research framework that is both systematic and management-oriented. This framework should align with national research and conservation priorities, strengthen collaboration with research institutions, and promote active engagement of community stakeholders. By standardizing monitoring protocols, expanding the spatial scope of data collection, and ensuring research outputs directly inform management decisions, the reserve will be better positioned to address ecological change, mitigate threats, and sustain biodiversity conservation. The following actions outline the steps needed to achieve this objective within the framework of this management plan:

Action 3.1: Identify and develop research priorities for NNNR

The development of research priorities will provide an opportunity for aligning research priorities with community interests and will serve as a model to balance conservation with human livelihoods while creating a long-term participatory framework for ecological monitoring and research. This also contributes to reducing the pressure on conservation values. Despite the high degree of settlement in the reserve, the community living on the eastern part of the reserve still practices conservation-friendly livelihood activities, and this presents an opportunity for collaborative research and monitoring. Establishing priorities will ensure a better understanding of the interface between humans and biodiversity, particularly how settlement patterns, land-use practices, and community presence affect habitats and species within the reserve. To achieve this, flagship species will be identified and habitats that serve as indicators of ecosystem health, while incorporating the socio-ecological studies to capture community perspectives, challenges, and conservation practices.

Action 3.2: Strengthen collaboration between NNNR management and the Wildlife Research and Training Institute to design and implement the NNNR ecological monitoring plan

NNNR is a unique protected area due to its setting within a human-dominated landscape, where settlement and uncontrolled human activities exert significant pressure on biodiversity. Despite these challenges, conservation-friendly practices are evident, particularly on the privately owned land in the eastern zone of the reserve. However, these efforts are fragmented and uncoordinated. For example, Kamungi Conservancy undertakes monthly wildlife monitoring, but this is confined to the conservancy boundaries and does not extend to other areas of the conservancy. This creates a gap in data collection, limiting comprehensive ecological insights into the reserve. To address this, this action proposes a collaboration between WRTI and NNNR management to develop and implement a structured ecological monitoring program. A memorandum of understanding will outline the roles and responsibilities of each party, with WRTI providing technical guidance, research oversight, and capacity building. At the same time, NNNR management coordinates implementation at the site level. Joint responsibilities will include

development of monitoring protocols, standardization of data collection methods, and regular reporting mechanisms to guide adaptive management.

Following the establishment of this partnership, the reserve's main operation base will be equipped with essential research and monitoring tools to enable systematic species monitoring across all taxa. Standardized protocols will ensure comparability of data, strengthen decision-making, and integrate monitoring efforts from Kamungi Conservancy and other conservation-friendly initiatives into a unified landscape-wide framework. This collaborative approach will improve ecological monitoring and provide a replicable model for protected areas embedded within a human-dominated landscape.

Action 3.3: Support programs that enhance domestic-wild animal disease transmission, such as anti-rabies campaigns

Heavy presence of wildlife and domestic animals in the reserve poses a risk of zoonotic disease outbreaks. Evidence of disease outbreak impact elsewhere in Laikipia and Tsavo has shown fatal epidemics in the past. African wild dog (AWD) and other carnivores are highly sensitive to diseases such as Canine Distemper Virus (CDV) and Rabies, and such disease outbreaks would quickly eliminate the species from the Reserve and cascade the effects to other species in the adjacent Tsavo East and Tsavo West National Parks. Domestic dogs are identified as a major source of disease spread, and Kamungi Conservancy, through support from Tsavo Trust has conducted a vaccination initiative for domestic dogs to minimize the risk of zoonotic disease spread. Whenever possible, the management of NNNR will support such initiatives to ensure species survival and a contained zoonotic disease spread scenario. They will also monitor disease spread and provide early warning for disease outbreaks.

Action 3.4: Initiate studies to determine the distribution of the MacKay's thread snake, which is endemic to the region

During the recent development of the resource-based inventory in September 2025, three individuals of the thread snake were identified. The species was first collected by Duff MacKay in Chyulu Railway Station in the Tsavo East National Park in 1986 and deposited at the National Museums of Kenya. From a similar specimen more recently collected in the Tsavo West NP, the snake was described as a new species (Malonza, 2023). The species is fossorial and lives in loose soils rich in organic matter. Its presence in the NNNR is significant as it expands its known range. However, the actual distribution range of the species, and population status are not known. Under the framework of this management plan, targeted studies to determine these unknown aspects will be initiated. Conserving it in the NNNR will be a milestone toward saving other species that occupy similar ecological niches and possibly be an area of interest to the visiting herpetologists.

Action 3.5:Targeted Ecological Monitoring (TEM)

The NNNR represents the strategic evolution from broad-scale surveillance to a precision tool for conservation action. Unlike general monitoring that casts a wide net, TEM is a hypothesis-driven process designed to answer specific, management-critical questions through a suite of focused activities. It focuses intensely on measuring the vital signs of a particular stressor, species, or intervention. For instance, in the water provisioning initiative, field teams conduct specific activities such as manual egg mass counts and weekly tadpole population surveys in the rock pools, and download and analyze data from a network of strategically placed soil moisture sensors and

piezometers to model groundwater flow. This approach involves deploying specific tools—like these sensors, camera traps on designated trails leading to both new and old water sources, and systematic transects for recording mammal spoor (tracks)—in a focused geographic area to collect high-value data. These activities are designed to precisely measure the hydrological connectivity between new water points and the rock outcrop pools, and the subsequent breeding success of the endangered amphibians. This precision makes TEM exceptionally efficient and cost-effective, providing managers with unambiguous, actionable evidence to assess whether their strategies are working and empowering them to adapt quickly based on clear, targeted feedback.

Action 3.6

Ngai Ndethya National Reserve will execute a focused pilot study to evaluate the performance and cost-effectiveness of multiple elephant deterrent fence designs at northern boundary breach hotspots. This management-oriented research initiative is designed to directly mitigate human-wildlife conflict by generating empirical evidence on elephant behavior and barrier efficacy. Reserve staff will establish five test plots at high-incidence locations, each trialing a unique design: a standard electric fence (control), a beehive fence, a chili-oil rope barrier, a pulsating electric wire system, and a steel cable fence. Through targeted ecological monitoring, rangers will utilize camera traps and daily inspections to rigorously document elephant activity—recording approaches, attempted breaches, and successful crossings—for each design. Concurrently, all material, installation, and maintenance costs will be tracked to identify the most durable and economically sustainable solution for full-scale implementation

Action 3.7: Building local capacity and creating conservation careers

NNNR, effective wildlife monitoring and research require a participatory, community-driven approach that goes beyond conventional methods. By training local community members as citizen scientists, the conservancy can foster a transformative model that builds local capacity, embeds a culture of evidence-based stewardship, and encourages a two-way exchange of knowledge between researchers and the people who live alongside wildlife. This approach helps create a self-sustaining, long-term data collection system that is trusted, locally owned, and grounded in the lived experiences of the community. Key activities include establishing a certified training program with both theoretical and practical modules on species identification, GPS use, camera trapping, data recording, and ecological ethics, with participants receiving formal certificates upon completion. Citizen scientists are also provided with their own field kits—boots, binoculars, GPS devices, notebooks, and rain gear—to support their work and foster professionalism and pride. Furthermore, the program includes clearly defined career pathways, allowing top-performing participants to advance into roles such as senior field technicians, trainers, or full-time rangers within NNNR, offering a tangible incentive for excellence and long-term commitment to conservation.

Ecological Monitoring Plan

The Ecological Monitoring Plan is based on the conservation targets and their key ecological attributes and it provides a basis for both monitoring overall ecosystem health and assessing the effectiveness of, and recommending adaptations to, the management actions under this Programme. The framework for the development of the Ecological Monitoring Plan is set out by conservation targets as shown in the table below. The indicators of change provide easily measurable attributes for assessing the status and trends of the KEAs or threats to each conservation target.

The indicators selected also provide an early warning of any serious threats that may develop during the lifespan of this plan, which may potentially require the development of new management actions. The framework also outlines the data collection methodology, which sets out how, when, where and who will collect the data for the indicators.

Table 5: NNNR Ecological Monitoring Plan

KEA/ Threat	Indicator of change	Method of measurement	Collection frequency	Data source	Responsibility	Data currently collected
Conservation Target 1: Acacia -Commiphora Woodland						
KEA: Area Coverage, carbon sequestration **Threat:** Encroachment	Decrease/ increase in woodlands cover	Mapping of woodland by ecological experts, scientists, and conservation NGOs.	Triannual	Ecological monitoring reports	GMC,KWS, conservation NGOs , Local communities	No baseline data available
KEA: Plant species composition **Threats:** Charcoal production	Decrease/ increase densities, taxonomic richness, population structure	Botanical survey	Triannual	Plant checklist reports	GMC,KWS, conservation NGOs , Local communities	No baseline data available
KEA: Vegetation structure **Threat:** Deforestation	Change in overall vegetation structure	Monitoring using a combination of remote sensing technologies like LiDAR (laser scanning) and RADAR.	Triannual	Ecological monitoring reports	GMC,KWS, conservation NGOs , Local communities	No baseline data available
Conservation target 2: Riverine						
KEA: water volume and quality, ecosystem services	Water level, water color, biological oxygen demand	River gauge, water meter	Daily, biannual	Water Resource Authority (WRA) reports	Government of Makueni County (GMC) , WRA	Confirm …….

KEA/ Threat	Indicator of change	Method of measurement	Collection frequency	Data source	Responsibility	Data currently collected
Threat: climate change impacts, pollution & over-abstraction	Rainfall patterns, inspection	Kenya Meteorological Dept. (KMD) weather station, WRA mobile water equipment	Daily, biannual	KMD, WRA	Govt. of Makueni Count, WRUA	…….
KEA: riverine vegetation cover, relative abudance of Tana River poplar	Tree density, species composition, Enhanced vegetation index	Ground vegetation sampling, Satellite imagery	Annual	Regional Center for Mapping & Resource Development	GMC	……
Threat: encroachment	Tree cutting incidences, farm area	Rapid surveys, satellite imagery analysis	daily	Warden-NNNR	GMC	……
Conservation Target 3: Baobab (Adansonia digitata)						
KEA: Habitat availability **Threat**: Land degradation	Extent of degradation of woodland habitat	Ecological field surveys	Every 3 years: once	Ecological survey reports	GMC,KWS, conservation NGOs , Local communities	No baseline data available
KEA: Habitat quality **Threat**: Habitat degradation	Presence/ abundance indicator species	Ecological field surveys	Every 3 years: once	Habitat quality reports	GMC,KWS, conservation NGOs , Local communities	No Data Available
KEA: Tree cover **Threat**: Habitat degradation	Increase / decrease woody vegetation	Ecological field surveys	Every 3 years: once	Vegetation reports	GMC,KWS, conservation NGOs , Local communities	No data is available
KEA: Number of trees **Threat**: Habitat degradation	Decrease/ increase population	Sampling	Every 3 years: once	Sampling reports	GMC,KWS, conservation NGOs Local communities	No baseline data available
Conservation Target 4: elephant ***(Loxodonta africana)***						
KEA: sub-population density, distribution	Number of sightings, density map	Rapid field surveys, 3 years interval aerial census	Daily, 3 years interval	WRTI Tsavo Research Center	GMC	…….
Threat: woodland encroachment, climate change impacts	Illegal incidences, farm/settlement patterns, weather patterns	Security patrols, automatic weather station, CHRPS (climate hazards groups infrared	Daily, 3 years interval	CHRPS website, KWS Tsavo East NP database	GMC	…….

KEA/ Threat	Indicator of change	Method of measurement	Collection frequency	Data source	Responsibility	Data currently collected
		ppt. with stn data) web, NDVI				
Conservation Target 5: African Wild dog (*Lycaon pictus*)						
KEA: pack size, habitat connectivity	Site visit frequency, land use & cover conversion	Field patrol and daily occurrence reporting	daily	Warden - NNNR	GMC	……..
Threat: climate change impact, encroachment, disease outbreaks, human-wildlife conflicts (HWC)	HWC trend, land use change on corridors/dispersal area	Daily occurrence reporting, satellite imagery analysis	Daily, wet-dry season	Warden - NNNR	GMC	……
Conservation Target 6: White backed vultures	Decline in numbers	Periodic raptor surveys (Tagging , census, nest count)	Annually	Citizen science, Kenya birds lazer .NMK, WRTI, KWS	Makueni county NMK,KWS,WRTI	Nmk Citizen science.
KEA: Anchieta rockect frog (mascarene ridged frog, garman's toad, Marsabit clawed frog) **Threat:** Habitat encroachment, Habitat loss, pollution, effects of climate change.	Decline in numbers	Time-limited searches, acoustic surveys, pitfall traps and drift fences	Biannual	Field surveys, citizen science, NMK, WRTI, KWS	Makueni county NMK,KWS,WRTI	NMK surveys, Tsavo Trust, published literature
Conservation target 7: Nile crocodile **(*Crocodylus niloticus*)**						
KEA: population size **Threat:** Habitat encroachment & loss, declining river volumes, Pollution of Athi river, Collection of eggs, effects of climate change.	Count, abundance , River water level, color, HWC	Crocodile surveys / Point counts, Hydrological surveys / water quality assessments	Biannual	Field surveys, citizen science, NMK, WRTI, KWS	GMC; NMK,KWS,WRTI	NMK surveys, published literature

KEA/ Threat	Indicator of change	Method of measurement	Collection frequency	Data source	Responsibility	Data currently collected
Conservation target 8: :MacKays thread snake (*Myriopholis mackayi*)						
KEA: number of sightings & distribution, habitat quality **Threat:** deforestation, encroachment, effects of climate change.	Decline in numbers, Declining extend of occurrence	Time-limited searches, pitfall traps and drift fences	Biannual	Field surveys, citizen science, NMK, WRTI, KWS	Makueni county NMK,KWS,WRTI	NMK surveys, Tsavo Trust, published literature

TOURISM DEVELOPMENT AND MANAGEMENT PROGRAMME

Programme Purpose and Strategy

The purpose of the Tourism Development and Management Programme is:

> ***To position NNNR as a sustainable tourism destination by enhancing visitor experiences and promoting product diversification, investments, and preserving cultural heritage in collaboration with stakeholders.***

Guiding Principles

Enhance connectivity/linkages with attraction sites in the southern tourism circuit

Promoting seamless movement of tourist and wildlife across the Tsavo conservation area for enhanced tourism experiences.

Sustainable product development and diversification

Promote development and diversification of eco-friendly tourism activities and experiences. This will increase earnings from the diversified tourism offerings while conserving the environment.

Promote stakeholder participation in tourism and benefit sharing mechanisms.

To provide opportunities for local communities and partners to engage in tourism related activities, investments and establish benefit sharing agreements.

Management Objectives and Actions

Objective 1: Tourism-Support Infrastructure Developed and Upgraded

Action 1.1: Carry out a feasibility assessment of the tourism-support infrastructure needs

A baseline assessment of the tourism-support infrastructure will evaluate the potential viability of essential infrastructure needs such as accommodation facilities, utilities, transportation and services required to develop and sustain tourism in NNNR. Terms of Reference will be developed in collaboration with stakeholders to determine if the proposed developments are practical, profitable, and sustainable. The feasibility assessment will also take into consideration market demand, infrastructure readiness, economic benefits, environmental impact, and social considerations to guide decision-making and enhance the overall tourist experience.

Action 1.2 Develop visitor access gates and ticketing office

Access gates and ticketing office serve as critical control points for visitor management, ensuring only authorized individuals are permitted to enter the protected or conserved area. The development of visitor access gates and ticketing office in NNNR will involve identifying suitable sites, designs and costs for the establishment of visitor access gates and ticketing office.

Action 1.3: Develop directional signage's and nature trails

Directional signage's provide structured access and critical information about routes and rules thus enhancing visitor safety and experience. Nature trails are crucial for guiding visitors to natural environments, improve visitor connection with nature and minimize visitor impacts on the environment. The development of directional signage's and nature trails in NNNR will involve

identifying suitable locations, designs and costs of the signage's and nature trails. Periodic maintenance of the signage's and nature trails will also be undertaken to ease of navigation and enhance visitor experiences.

Action 1.4: Improve existing and develop new tourist circuit roads

Circuit roads provide access for tourists to various points of interest and allows them to view diverse wildlife and scenery. An assessment of the status of the existing visitor circuit roads will be undertaken to determine the requirements for maintenance or the need for opening new circuits in NNNR. The existing and new circuit roads will be mapped and surveyed for ease of access.

Action 1.5: Lobby for the rehabilitation and operationalization of the existing airstrips

Airstrips provide essential air transport services for visitors. Currently, there are five privately owned airstrips for business operations in NNNR namely: Tsavo Trust airstrip, Kaluku airfield, Kilalinda airstrip, Gaetano airstrip and Marcos Dunn airstrip. Gaetano and Marcos Dunn airstrips require rehabilitation to ensure safety.

Action 1.6: Develop new accommodation facilities and increase bed capacities of the existing facilities

Action 1.7: Improve mobile network and connectivity

Mobile networks and connectivity provide visitors with access to real-time safety alerts, enhance interpretation experiences and convenient ways to share their experiences. Connectivity can also help managers understand visitor patterns and manage visitor flow more effectively and provides real-time monitoring of incidents and emergencies which can be life-saving for visitors.

Action 1.8: Develop visitor-use facilities

Visitor-use facilities such as information centers, gift shops, parking, restaurant and clean washrooms improve the comfort and overall visitor experience, making the visit more enjoyable and accessible to more people. A suitable location will be identified and mapped, designs will be prepared and the visitor use facilities will be constructed, equipped and maintained to enhance the overall visitor experience in NNNR

Objective 2: Tourism Products and Experiences Developed, Diversified and Marketed

Action 2.1: Enhance existing products and experiences

Wildlife is the most significant product in NNNR. Wildlife viewing through game drives provide a great opportunity to showcase the diverse wildlife NNNR. The experience involves a vehicle-based excursion guided by a local expert who help visitors to navigate the landscape to sight and identify wild animals. The tourist facilities in NNNR such as Kamungi Bandas and Kilalinda eco-lodge often organize game drives for guests.

Tourists can expect to see wild animals such as elephants, zebras in NNNR especially in the early morning and late evenings, with the dry season being the optimal time for sightings. Currently,

there are only two (2) tourist service vans managed by Kilalinda eco-lodge. To improve the quality and value for money of wildlife products in NNNR, there is need to increase the number of tourist service vans for game viewing; train community tour guides and drivers on visitor handling and nature interpretation; prepare and circulate a code of practice; and implement existing global standards of tour guiding.

Action 2.2: Develop and promote authentic products and experiences

The development of new tourism products and experiences mostly focuses on diversifying attractions, leveraging untapped natural resources, and aligning existing tourism offerings with global trends. NNNR borders river Athi, Kambu and Mtito Andei that provide picturesque environments and immersive experiences for water-based activities and nature lovers.

In addition, the Reserve serves as a magnet for diverse birds and borders the Yatta plateau which is renowned for its largest lava flow worldwide. The Iviani/Nthunguni rock offers panoramic views of the reserve and can provide a stunning spot for visitors to enjoy picnics and sundowners against a vibrant and colorful sky as the sun dips below the horizon. The rock deck also has the potential of drawing in photographers to capture mesmerizing images enhanced by the sunset's light that highlights the uniqueness of the landscape.

The Kinyeki hill is which is located at the border of Ngai Ndethya Reserve next to Kathekani chief's office holds significant historical value as it features three caves that were used as hideouts by the German and British soldiers during the world war II. The hill also contains approximately 17 types of precious stones and minerals including blue sapphire, blue diamond, yellow tourmaline, spinel, ruby and red granite that can be explored to enhance visitor experiences.

The management of NNNR will leverage on these untapped products and experiences to create authentic products and experiences that go beyond the traditional game drive. The following proposed products for NNNR will be explored, piloted, packaged and monitored to evaluate trends in their utilization.

The proposed products and experiences in NNNR include:

- Birdwatching experiences
- Water-based activities- Kayaking, sport fishing, canoeing
- Picnics
- Camping
- Sundowners
- Bush dinners and breakfast
- Cultural and heritage tourism
- Camel rides
- Sports tourism (biking, marathon
- Guided nature walks
- Horseback safaris
- Helicopter rides
- Hiking/rock climbing expeditions
- Videography and Filming
- Research tourism (Lukenya University)
- Wildlife observation deck
- Kaluku animal orphanage

- Bus tours

Action 2.3: Develop and promote domestic and cultural tourism

Culture and heritage give a community its unique identity. Kenya's cultural landscape offers vibrant experiences such as traditional village tours, local cuisine, art and crafts such as beadwork, basketry and wood carving, music, dance, or literature. The communities living within and around NNNR are mainly the Kamba with rich cultural heritage depicted in the traditional Kamba drink (Kaluvu), attire, house (kisukuu), Music and dance (Kilumi) etc.

Domestic and cultural tourism are emerging approaches that NNNR can leverage on to spur tourism growth. Periodic market research will be undertaken to identify domestic and cultural preferences, market segments and seasonalities. The existing cultural groups in NNNR such as Kamungi drama group, Kamusyi women group, Vinya Wa Mtitu Andei Ngoma will also be supported or equipped by the Government of Makueni County and partners to access markets and promote their cultural products and services.

The establishment of a the Iviani cultural center in NNNR was initiated by the Government of Makueni County but the project stalled due to land ownership issues. The site currently has a gazebo/outdoor shed, a walkway towards the Iviani/Nthunguni rock, a snack shop, a toilet and a water pan and is fenced off and guarded by security personnel (SAPA Security Services). The centre if well established to completion would be a significant site for education, preservation and promotion of cultural products.

The Government of Makueni County will also document cultural heritage assets, support market access for cultural products and experiences, value addition of cultural products and experiences, launch continuous and targeted marketing campaigns, package cultural festivals, create awareness on tangible and intangible cultural heritage, support continuous cultural research and development; create a comprehensive central repository of cultural products and experiences, digitize Kamba cultural products for preservation; integrate social media and internet marketing of cultural products to reach a wider audience; coordinate, organize and promote cultural events; monitor and evaluate cultural and domestic tourism product performance and trends.

Action 2.4: Develop and implement marketing strategies in collaboration with stakeholders

Marketing strategies are used to attract and engage customers, increase sales, and gain a competitive edge by understanding the target audience and effectively communicating their value proposition. To develop an effective marketing strategy for NNNR, the existing marketing strategies for Government of Makueni County will be implemented, marketing collaterals will be identified, a brand design and identity of NNNR will be established; a logo and slogan will be designed for NNNR. Innovative materials, sales tools, branded merchandise and promotional items will also be produced and distributed to stakeholders.

The Government of Makueni County will also lobby for an information desk at Mtito Andei SGR station; and organize or participate in local, regional and international marketing events. The marketing strategies will be reviewed and updated continuously to effectively communicate to the target audience.

Action 2.5: Establish a digital marketing strategy

A digital marketing strategy clearly defines the objectives, target audience, appropriate channels, and consistently analyzes data to adapt and improve. To enhance marketing and visibility of NNNR, the management will formulate a social media marketing strategy; develop a well-structured website that links to partner sites, create and effectively manage social media platforms, create a digital content calendar, analyze social media engagements, integrate digital solutions such as mobile apps, online booking processes and virtual reality tours. Furthermore, the digital marketing strategy will be evaluated to inform management.

Objective 3: Tourism Administration and Management Strategies Developed

Action 3.1: Enhance Visitor Safety and Security Management Strategy

Visitor safety and security is paramount in the tourism sector. Currently, the Reserve is dominantly occupied by communities. Some security features are also in place in various locations within and adjacent to the Reserve. For instance, the Mtito Andei SGR station is equipped with security features such as 24-hour CCTV surveillance, trained security guards, metal detectors, baggage scans, emergency alarms and firefighting equipment etc.

On the other hand, the Kamungi bandas are surrounded by an electric fence, a fire assembly point as well as fire-fighting equipment have been installed. Kamungi Conservancy rangers and security vehicles are also on standby. However, there are no CCTV surveillance cameras nor emergency contacts in place at the facility. In addition, there is no tourist police unit in the general area.

To enhance visitor safety and security in NNNR, there will be need to identify security agencies, hospitals, ambulances and fire assembly points; collaborate with security agencies to identify potential risks to visitors; lobby for establishment of a tourist police unit at Mtito Andei; formulate visitor safety, security and emergency response guidelines; provide emergency contacts, alarm systems and appropriate safety and security equipment; strategically integrate CCTV and other security systems around visitor-use facilities to provide a comprehensive surveillance and access control; conduct mandatory security checks and briefs; monitor adherence to the safety and security guidelines etc.

Action 3.2: Enhance Capacity Development Strategy

Capacity building in tourism equips individuals, empowers communities, and organizations with the skills, knowledge, resources, and systems needed to manage and participate in tourism sustainably and effectively. Currently, there are a total of seven (7) trained staff in Kamungi Bandas including a watchman, a chef, an accountant, two grounds men and two housekeepers. The staff have undergone hospitality training from Coast Institute of Technology. To enhance capacity building in NNNR, a training needs assessment will be carried out and the recommendations of the assessment will be implemented by the Government of Makueni County to enhance service excellence in NNNR. In addition, capacity building of tourism enterprises, entrepreneurs as well as tourism research and development will be supported. Monitoring and evaluation of personnel will be undertaken on performance of tourism personnel.

Action 3.3: Establish a Revenue Generation and Management Strategy

Kamungi Conservancy generates revenue from Kamungi Bandas. Local residents are charged Kshs 15,000 per day for 4 Pax, whereas non-residents are charged Kshs 20,000 per day for 4 pax. The Government of Makueni County has issued operational license/permit to Kamungi Bandas. However, no visitor entry fee is currently charged to the reserve by the Government of Makueni County. To establish a revenue generation and management strategy in NNNR, there's need to explore potential revenue generation streams; continuously collect tourism fees and charges; initiate leases for tourism investments and facilities and determine a pricing strategy for products and payment mode(s).

Action 3.4: Regulate Tourism Activities

Tourism activities in Kenya are mainly regulated by the Tourism Regulatory Authority. The tourist facilities in NNNR including Kilalinda eco-lodge and Kamungi bandas will need to comply with the set standards and best practices that fosters sustainable and responsible tourism, minimizes negative social and environmental impacts, and promotes positive and ethical interactions among tourists, host communities, and the environment. A code of practice will be prepared and circulated to the tourist facilities, the carrying capacities of visitors will be determined and compliance checks will be conducted in collaboration with stakeholders to ensure adherence to the set standards/guidelines.

Action 3.5: Strengthen Public Private Partnerships

The aim of public-private partnerships is to leverage the strengths of both sectors, sharing risks, responsibilities, and resources by combining public sector policy and planning expertise with private sector capital, innovation, and efficiency to effectively provide services. To promote tourism initiatives on NNNR, the Government of Makueni County will establish collaboration and partnership frameworks; conduct regular joint meetings to mobilize resources and undertake joint tourism ventures with stakeholders.

Action 3.6: Develop a tourism investment strategy

A successful tourism investment requires a sound framework and a structured approach that goes beyond profit to empower local communities, preserve cultural and natural heritage, and advance conservation. The development of a tourism investment strategy for NNNR will ensure a favorable and conducive investment environment through collaboration with Kenya Investment Authority and stakeholders. The Government of Makueni County will create a stakeholders' investment forum, explore investment opportunities in NNNR, create a one-stop investment shop, provide incentives for sustainable investments as well as coordinate and promote sustainable tourism investment in NNNR.

Action 3.7: Establish Benefit Sharing Mechanisms

BSMs help ensure both social and environmental justice by providing equitable distribution of the benefits derived from tourism activities. The Government of Makueni County will identify relevant beneficiaries through locally-led and transparent consultative meetings. Benefit sharing mechanisms such as monetary payments and non-monetary benefits will be formalized through Memorandum of Understanding with the intended beneficiaries.

Action 3.8: Enhance connectivity with tourist attraction sites in the southern circuit

Connectivity of different attraction sites allows for the creation of diverse tourism products, showcases unique aspects of a destination and attracts a wider range of visitors. NNNR is located in the southern tourist circuit that also comprises key tourism destinations in Kenya such as Masai Mara, Amboseli National Park, Chyullu Hills National Park, Tsavo East and West National Parks. The Government of Makueni County and stakeholders will enhance connectivity of the attraction sites in the southern circuit by organizing and participating in joint meetings and familiarization trips with relevant stakeholders; jointly identify and map key tourist attraction sites in the circuit; design, print and circulate a catalogue of the key attractions sites. The effectiveness of the connectivity will be evaluated based on product performance and visitor numbers in NNNR.

COMMUNITY DEVELOPMENT AND CONSERVATION EDUCATION PROGRAMME

Programme Purpose and Strategy

The purpose of the Community Development and Conservation Education Programme is:

To integrate community and wildlife coexistence within NNNR

This programme seeks to build community understanding and support for conservation efforts through conservation education and awareness initiatives. By promoting human-wildlife coexistence, the programme plays a critical role in safeguarding biodiversity, ensuring that wildlife populations thrive and their natural habitats are preserved. Additionally, the programme seeks to promote sustainable livelihoods for local communities by aligning their economic and social needs with conservation objectives. This is often achieved through initiatives such as eco-tourism and community-based natural resource management, creating a balanced approach that benefits both people and the environment.

Guiding Principles

Balance between community settlement and conservation education enhanced

Balancing community settlements with conservation education is key to aligning sustainable livelihoods with biodiversity protection. By engaging local communities in conservation initiatives and promoting awareness through conservation education programs, the local community is empowered to become active participants in preserving their natural resources. Developing frameworks that harmonize community settlements with wildlife conservation ensures sustainable land use that supports both human needs and ecological integrity.

Embracing sustainable livelihoods in tandem with wildlife conservation

Embracing sustainable livelihoods ensures that communities benefit directly from protecting natural resources, creating a balance between human needs and ecological integrity. By promoting income-generating activities such as eco-tourism, sustainable agriculture, carbon credits, and nature-based enterprises, the local community gains economic incentives to conserve habitats and species. This approach not only reduces pressure on natural resources but also fosters community ownership, promoting sustainable conservation.

Developing open and constructive relationship with community and stakeholders

Building strong relationships between Government of Makueni County, KWS, communities and conservation partners is key to aligning conservation with sustainable livelihoods. Proactive engagement with the local communities helps to address conservation concerns, reduce Human-wildlife conflicts and strengthen partnerships. Strengthening community participation in resource use builds trust and long-term commitment to the sustainable co-existence of people and wildlife within the reserve.

Participation

In decision making with regards conservation and development issues inn NNNR and seeking viable home-made solutions to the problems thereof

Social norms and values

Deeply held beliefs about what is good, desirable, and acceptable in a society, which shape social behavior and cohesion to guide conservation of wildlife and cultural heritage around NNNR

Conflict mitigation

With regards to resource use and human- wildlife interaction with Ngai Ndethya interface.

Management Objectives and Actions

Objective 1: Human-wildlife coexistence enhanced

Human-Wildlife Conflict (HWC) negatively influences human attitude towards wildlife conservation, undermining conservation objectives. In NNNR, elephants have been identified as the primary conflict species. Other problem animals include; hyenas, snakes, leopards, buffalo, lion, cheetah, crocodile and monkeys. The main forms of conflict reported in the area include crop destruction, livestock predation, property damage, and, in severe cases, human injury or loss of life.

To address these challenges and promote coexistence between communities and wildlife in NNNR, the following management actions have been developed:

Action 1.1: Establish a consolation endowment fund through the Government of Makueni County

Currently, there is no endowment fund in place to support the those affected by human-wildlife conflict within NNNR. To address this gap, the Government of Makueni County will conduct a comprehensive needs assessment to explore viable approaches for establishing a consolation fund.

The fund will aim to provide financial support for those affected, offering compensation for losses resulting from wildlife-related incidents. NNNR management will actively seek potential funding sources to support the establishment and sustainability of this endowment.

In addition, the County Government will develop and formalize a detailed framework for the fund, outlining clear guidelines for its implementation, administration, and disbursement processes. As part of this effort, NNNR management will benchmark with successful models from other protected areas and compensation schemes to adopt best practices and ensure the fund's effectiveness and transparency.

Action 1.2: Strengthen Human Wildlife Conflict Resolution Committees

Human Wildlife Conflict Resolution Committees (HWCRC) play a crucial role in mitigating conflicts between communities and wildlife. These committees are responsible for collecting and analyzing data on human-wildlife conflict incidents, and presenting their finding to KWS authorities. They serve as a vital link between local communities and KWS, reporting HWC incidents and facilitating communication and response.

To enhance their effectiveness, HWCRC will hold quarterly meetings to address conflicts. Additionally, the Government of Makueni County will support capacity-building initiatives to equip committee members with the necessary knowledge and skills in wildlife conservation and conflict management.

Action 1.3: Identify, document and integrate indigenous knowledge and practices in HWC mitigation

Indigenous knowledge is a key aspect in mitigating HWC, as local communities possess a deep understanding of wildlife behaviour and historical patterns within their environments. Traditional practices such as burning manure to repel elephants, using scarecrows, creating noise, night guarding, constructing traditional fences around farms, and digging of game moats, have been employed to deter wildlife from encroaching on human settlements.

To exploit this valuable knowledge, the Government of Makueni County will initiate a socio-economic survey to identify, document and evaluate indigenous HWC mitigation practices. Viable and effective methods will be integrated into broader HWC management strategies, and information will be disseminated to communities to promote the adoption of these practices.

Action 1.4: Identify periodic wildlife movement patterns in and around NNNR

Understanding the movement patterns of wildlife in NNNR and its surrounding areas is essential for effective mitigation of HWC. The Government of Makueni County will train and fully equip a monitoring team, including rangers and community scouts. Tracking the distribution and movement of wildlife, particularly problem animals, will provide insight into their behavior.

This will therefore require the establishment of a HWC database to document movement patterns. This will also help in identifying HWC hotspots. Additionally, the NNNR management will conduct periodic wildlife census within the reserve. The GMC will procure and install relevant monitoring tools on data collection and equipment management e.g., camera traps, computers, GPS, and other software.

Action 1.5: Establish a common platform for reporting HWC incidents

Effective communication is essential in mitigating HWC within NNNR and its surrounding areas. Timely reporting of incidents enables swift responses potentially preventing injuries and fatal cases. Exploring convenient platforms for reporting HWC incidents is key in ensuring effective communication and response.

Training and capacity building community members, rangers and scouts on the importance of prompt reporting of HWC incidents is a key mitigation aspect to reduce the response time.

Action 1.6: Improve timely implementation of the wildlife compensation process

The Government of Makueni County will liaise with KWS to improve community awareness on the compensation process. This will include holding quarterly sensitization meetings and strengthening the capacity of Human Wildlife Conflict Resolution Committees to effectively disseminate information on wildlife compensation.

Objective 2: Benefit sharing from conservation initiatives enhanced

This objective aims to ensure that local communities living within and adjacent to NNNR benefit from the natural resources and conservation initiatives in the area. For conservation to be sustainable, communities must experience tangible social and economic returns from their stewardship of biodiversity. Strengthening benefit-sharing mechanisms promotes community support for conservation, reduces conflicts and contributes to long-term sustainability. Benefit-sharing mechanisms ensure transparency, inclusivity and fairness in how resources are allocated.

The following actions will be implemented to ensure that the community both within and adjacent to the reserve benefit from conservation.

Action 2.1: Identify community development projects

To enhance benefit sharing from NNNR, it is essential to conduct an in-depth needs assessment that identifies both the gaps and opportunities in community development. The process should be participatory, ensuring communities within and around NNNR articulate their priorities and align them with ongoing or potential conservation programs.

A needs assessment will be conducted to establish the link between conservation and community benefits, ensuring that conservation is not perceived as a burden (e.g., due to HWC and restricted access to resources) but rather as a shared opportunity for growth.

Examples of community development projects aligned with conservation include; installing water harvesting systems to improve water distribution, supporting eco-tourism ventures, providing scholarship opportunities for school children, and improving access to health services.

Action 2.2: Implement and evenly spread identified community projects

The Government of Makueni County will secure resources through partnerships with conservation partners and external donors to ensure implementation of community development projects.

In addition, the GMC will ensure equitable distribution of development projects across NNNR, ensuring vulnerable groups i.e., women, youth and persons with disabilities also benefit. The NNNR management will develop a monitoring and evaluation framework, involving the community, local leaders, and partners to track implementation and impacts of the community projects.

Action 2.3: Secure land tenure

Securing land tenure for communities within NNNR is a critical step in ensuring equitable benefit sharing from conservation initiatives. Currently, many community members live with uncertain or unclear land ownership rights, which creates insecurity and limits their ability to plan long-term livelihood activities. Without secure tenure, communities may feel excluded from conservation decision-making or be less motivated to invest in sustainable land use practices.

By formalizing land tenure, the County Government can create a win–win situation for both people and wildlife. Communities gain recognition and security over their land, which empowers them to access credit and plan for sustainable livelihoods. At the same time, conservation authorities are better able to negotiate clear agreements on land use, ensuring that wildlife corridors, buffer zones, and conservation-friendly practices are integrated into community land management.

Ultimately, securing land tenure fosters trust, inclusivity, and long-term sustainability, ensuring that both communities and conservation initiatives thrive together within the Tsavo Conservation Area.

To achieve this, the county government will develop a community land use plan, conduct a land survey and carry out land demarcation.

Action 2.4: Develop economic empowerment programs

For conservation to be successful and sustainable, communities within NNNR need to see clear economic benefits linked to protecting biodiversity. By creating opportunities for income

generation tied to conservation initiatives, NNNR can reduce pressure on natural resources and promote goodwill.

The Government of Makueni County will partner with stakeholders to establish targeted programs that empower local communities with business skills, microfinance access and conservation-linked enterprises such as women-led groups managing tree nurseries.

Action 2.5: Expand existing conservancies and explore new ones

Expanding conservancies and establishing new ones offers communities the opportunity to access structured frameworks for benefit-sharing, sustainable resource use, and financial mobilization through conservation initiatives. Encouraging the communities to venture into the conservancy model will directly link local livelihoods with biodiversity protection in the Tsavo Conservation Area. Strengthening the existing conservancies (e.g., Kamungi Conservancy) will ensure the community members benefit from conservation. The conservancy model will ensure that conservation revenue and projects are channeled equitably.

Action 2.6: Establish a carbon credit project

Carbon credit projects present a transformative opportunity for communities within NNNR. By conserving forests, restoring degraded lands, or adopting climate-smart practices, communities can generate verified carbon offsets that are then sold in local and international markets. The resulting revenue provides a sustainable funding stream that directly supports both conservation and community development.

Carbon credit revenue provides the county with an additional stream of financing, reducing dependency on external donors and ensuring long-term sustainability of conservation financing. Income from carbon credits can be invested in community priorities such as scholarships, health facilities, water access, and income-generating projects.

The GMC will engage the local communities in activities like tree planting, forest patrols, ecological monitoring, and carbon auditing. The County Government will source for funds to establish carbon credit projects in NNNR. In addition, the County will liaise with relevant stakeholders to provide training and capacity build the local community in carbon trading.

Action 2.7: Create employment opportunities for the local community

Employment creation is one of the most direct and impactful ways of ensuring communities benefit from conservation initiatives. Employment reduces poverty and provides financial stability for households. By linking conservation to sustainable job opportunities, communities gain income and a sense of ownership, while conservation goals such as biodiversity protection, wildlife security, and habitat restoration are simultaneously strengthened.

The Government of Makueni County will collaborate with stakeholders to offer scholarships, internships and training opportunities as part of conservation benefit sharing to help empower the youth to be employable. Additionally, the GMC will establish conservation initiatives that provide employment opportunities, such as recruiting community scouts, rangers or community guides.

Developing eco-tourism ventures within NNNR (e.g., cultural tourism, guided nature walks, bird watching, or eco-lodges) will create job opportunities for local residents including guides, cooks, drivers, artisans and hospitality staff.

Objective 3: Community participation in conservation strengthened

Community participation in conservation empowers people to protect the environment by integrating conservation with their needs, leading to sustainable resource management and improved livelihoods. This approach will be used to encourage the communities to manage natural resources. The county government in partnership with relevant stakeholders will initiate and implement programs to enhance community involvement in conservation efforts. The following management actions are key to realizing this objective.

Action 3.1: Strengthen conservation education and awareness

Recognizing the importance of conservation without compromising the integrity of the environment surrounding NNNR, the county government, KWS and other key stakeholders will collaborate to strengthen conservation education and awareness programs aimed at enhancing capacity while changing community attitudes and perceptions. To achieve this:

The county government in collaboration with KWS will develop and document an education and awareness program. This will specify, program contents for consideration in conducting the activity in spatial and temporal context, while specifying its budgetary requirements as well collaborating partners.

Community participation in addressing illegal activities will be enhanced through empowering members to provide relevant information necessary in addressing illegal activities in and around NNNR as well as understanding on alternative livelihoods to reduce dependence on natural resources.

A number of media houses will be approached to provide platforms for information dissemination. A number of media briefings shall be targeted within specified time within the planning period. Use of social media platforms will be explored for quick dissemination of information to strengthen conservation awareness.

Action 3.2: Conduct an assessment to establish the impacts of NNNR to the socio-economic wellbeing of the communities within and adjacent the reserve

Assessment of impacts of conservation and development activities of protected areas on socio-economic wellbeing of community encompasses a multiplicity of approaches. This aims at providing understanding of effects to communities' socio-economic wellbeing as well as cultural aspects. Key areas to assess include health, livelihoods, food security, social cohesion, access to natural resources and the emergence of human-wildlife conflicts. For effective assessment, a comprehensive approach that involves collaboration with local communities and the adoption of integrated strategies such as providing access to sustainable alternative livelihoods and implementing a robust HWC mitigation strategy is crucial.

To achieve this there will be need to:

Identify the needs for the assessment in the context of financial provision/allocation the need to conduct the assessment. Most appropriate assessment tool shall be identified. A number of tools exists including Social Assessment of Protected Areas (SAPA), (Site level Assessment of Governance and Equity (SAGE), Management Effectiveness Tracking Tool (METT) etc.

Target groups, scope and thematic areas for assessment will be identified and documented in a feasibility check.

Stakeholders will be identified and mapped, taking cognizance their interest, influence and impact on conservation and development of NNNR. The end result of this will be a stakeholder's matrix encompassing various institutions and contacts.

Establish stakeholder forums with a communication platform. This will be strengthened by periodic stakeholder meetings to address emerging issues ranging from HWC, illegal activities, viable wildlife utilization options.

Action 3.3: Explore and implement alternative livelihood activities that are compatible with conservation

Illegal activities and over-exploitation of natural resources is a function of limited livelihood options among other factors. Alternative livelihoods are sustainable income generating activities that replace environmentally damaging practices. In NNNR, these activities include bush meat hunting, logging, illegal charcoal production etc. There will be need to:

Identify potential viable options with regards to wildlife-based enterprises. These could include eco-tourism activities such as eco-lodges, nature interpretation activities, cultural displays, wildlife utilization activities, bee keeping and sale of artifacts.

The county government will conduct livelihood needs assessment for community living in and around NNNR to identify viable options. This will be done consultatively with the local community. This will focus on economic securities pinpointing vulnerabilities, while prioritizing interventions through gathering qualitative and quantitative data to understand the gap between actual and desired livelihood situation among community living in and around NNNR.

The county government in collaboration with stakeholders will train and capacity build community members on identification and implementation of viable livelihood projects and provide markets for local products and support small-scale enterprises (e.g., bee-keeping, eco-tourism, crafts).

The County Government will employ community members in projects such as beekeeping, charcoal briquette production and craft-making, all of which can be tied to conservation messaging and sold to tourists or external markets.

NNNR OPERATIONS AND SECURITY PROGRAMME

Programme Purpose and Strategy

The purpose of the NNNR Operations and Security Programme is:

> ***To ensure the protection of Ngai Ndethya National Reserve's resources, visitors, and assets through effective operational systems that support the delivery of management programmes.***

Guiding Principles

Infrastructure Development

Infrastructure development within the reserve will prioritize sustainable, resilient, and eco-friendly approaches that enhance accessibility and functionality. Investments will focus on strengthening infrastructure to support effective operations and ensure rapid response capacity. All developments will be designed to remain low-impact, climate-resilient, and consistent with long-term conservation goals.

Strengthening Natural Resource Protection

Natural resource protection will be anchored on proactive and responsive security operations to counter activities such as poaching, logging, and charcoal production. Security personnel will be adequately equipped and trained to safeguard wildlife and habitats.

Promoting Collaborative Engagement for Security

Collaborative engagement is central to strengthening security across the reserve. Partnerships with conservation organizations, government agencies, and other security actors will be promoted to encourage information-sharing and coordinated action. Communities will also be engaged as trusted allies in surveillance, intelligence gathering, joint patrols and support for law enforcement.

Management Objectives and Actions

Objective 1: Infrastructure and Communication Systems Enhanced

Infrastructure and communication systems form the backbone of effective conservation and development. Currently, the reserve faces challenges such as poor and inadequate road networks, inadequate fire management structures, limited fencing to address human–wildlife conflict, insufficient water supply, and partial energy coverage. Addressing these challenges is essential to improve accessibility, security operations, tourism development, safeguard communities, and support ecological integrity. Strengthened infrastructure will not only facilitate day-to-day reserve management but also provide a foundation for sustainable development and community participation. The actions that will be implemented to achieve this objective are discussed below:

Action 1.1: Construct and Upgrade the Road Network

The road network within the NNNR remains largely unimproved. The main earth road serves as a basic artery for access across the reserve, with few feeder roads usable only during dry weather.

The Government of Makueni County (GMC) and Kenya Rural Roads Authority will assess, design, upgrade, and maintain the road infrastructure. The road network will adequately serve the communities, security outposts, entry gates, and tourism facilities. Regular maintenance will be undertaken to ensure usability throughout the year. GMC will also install directional signage. Community participation in road improvement will be encouraged whenever needed to promote ownership and sustainability.

Action 1.2: Construct and Maintain Firebreaks

Firebreaks play a critical role in controlling and minimizing the spread of bushfires. Most firebreaks are located near the boundaries shared with Tsavo East and West National Parks, where they not only safeguard wildlife and habitats but also protect community investments. In addition, they serve as access routes for firefighting teams, enhancing rapid response.

The Government of Makueni County, in collaboration with key partners, will maintain the existing firebreaks and construct new ones where needed. Modern equipment and machinery will be procured to enhance rapid response and firefighting capacity.

Action 1.3: Develop a Fully-Fledged Camp in the Kamungi Area

The Government of Makueni County will establish an operational camp at a suitable location within the Kamungi area to serve as the heart of Ngai Ndethya National Reserve's management and development. This camp will be a multi-purpose hub integrating administration, security, conservation, tourism, fire management, and community outreach under one roof.

Key features will include:

- Administrative and operational headquarters for staff accommodation, planning, and daily management.
- Main entry gate and visitor reception centre, serving as the formal point of access to the Reserve, with security screening and ticketing functions.
- Information and education centre to promote conservation awareness, research, and community-based learning.
- Tourism facilities, including eco-lodges, camping grounds, cultural activity spaces, and interpretation services to diversify tourism products and revenue streams.
- Security and law enforcement base, with ranger housing, communication systems, and surveillance infrastructure to enable rapid response and patrols.
- Fire management unit, equipped with storage, workshops, and staging areas for firefighting operations.

The Kamungi Camp will serve as a management hub and as a place for innovative conservation, sustainable tourism, and community engagement.

Action 1.4: Maintain and Expand Game-Proof Fences

The Reserve forms a critical migratory corridor between Tsavo East and Tsavo West National Parks. To balance conservation and community needs, fencing has been applied strategically along settlement borders while leaving key wildlife routes open.

Existing fences, such as the 33 km two-strand elephant fence protecting Kamungi landowners, have significantly reduced conflict. Household-level porcupine fences have also proven effective. GMC is currently extending fencing along the Athi River. Once completed, the total length will be 60 km, with community structures engaged in maintaining the fence line to ensure sustainability.

Action 1.5: Establish Water Supply and Sewerage Systems

Three rivers border the Reserve: Athi River, Kambu, and Mtito Andei. Nearby rivers include Kamanyuni, Kambu and Nthongoni. Water from these rivers supports domestic and agricultural activities, while distant areas depend on boreholes and rainwater. Partners such as Kamungi Conservancy and Tsavo Trust support the community with water tanks. Kamungi Conservancy has drilled a borehole at Ngiluni that supplies water to the community, Ngiluni Dispensary, and Ngiluni Primary School. Despite this, some areas still experience acute water shortages. GMC, in collaboration with partners, will assess water needs and develop water projects guided by a hydrological survey. GMC will also develop a modern sewerage plant to serve its infrastructure.

Action 1.6: Engage KPLC for Power Infrastructure Extension

Electricity is a catalyst for development. The Reserve is connected to the main grid, but GMC will engage KPLC to extend power supply to new establishments. GMC will adopt green energy options, such as solar installations, which will complement grid electricity and support eco-friendly operations.

Action 1.7: Develop and Implement a Fire Management Plan

GMC will spearhead a collaborative, multi-stakeholder approach to fire management guided by a comprehensive fire management plan. This plan will outline prevention, suppression, and post-fire rehabilitation strategies, ensuring firebreaks are integrated into a wider system of resilience. KWS, Sheldrick Wildlife Trust (SWT), and Tsavo Trust, working alongside the local communities, will provide technical and logistical support, including the mobilization of trained firefighting units, supply of specialized equipment, and strengthening of community-based fire response capacity. Collectively, these interventions will safeguard ecological integrity while reducing socio-economic losses from uncontrolled bushfires.

Objective 2: Human Capital Established and Strengthened

The success of Ngai Ndethya National Reserve (NNNR) depends on a skilled, motivated, and well-supported workforce. Effective conservation, security, tourism development, and community engagement require structured policies and adequate staffing aligned with the reserve's long-term management goals.

This objective, therefore, focuses on establishing policy instruments and staffing systems to create a professional and accountable workforce.

Action 2.1: Develop Human Capital Policy Instruments

Strong human capital policy instruments are essential for building a professional, motivated, and accountable workforce that can effectively safeguard and manage NNNR's resources. The Government of Makueni County will therefore develop frameworks that guide recruitment processes, ensuring staffing is transparent, merit-based, and aligned with conservation priorities. Training and capacity development programmes will be institutionalized to enhance technical

competence, professionalism, and leadership skills among staff. A performance management system will be established to set clear targets, evaluate outputs, and strengthen accountability across all levels of the workforce. Furthermore, provisions for staff welfare, such as health, safety, and motivation schemes, will be integrated to promote commitment, morale, and long-term retention. Collectively, these instruments will create a resilient and well-managed workforce capable of delivering on NNNR's conservation and security mandates.

Action 2.2: Recruit and Deploy Staff

Once the human capital policy instruments are in place, the Government of Makueni County will implement them through the recruitment and deployment of staff across NNNR. Personnel will be strategically placed to strengthen essential operations in areas such as entry gates, cultural centres, resource centres, security patrols, and the reserve's administrative unit. This process will ensure that staffing is not only aligned with conservation priorities but also responsive to operational needs on the ground. By filling critical positions and balancing deployment across functional areas, the Reserve will establish a workforce that is visible, accessible, and effective in-service delivery.

Action 2.3: Establish a Capacity Development and Training Programme

Building the capacity of staff is essential to ensure that NNNR has a highly skilled and adaptable workforce capable of responding to evolving conservation and security challenges. The Government of Makueni County will establish a structured capacity development and training programme that addresses both technical and managerial competencies. This will be based on staff training needs assessment and will include regular in-service training on wildlife management, ecological monitoring, law enforcement, and community engagement, as well as specialized courses in fire management, intelligence gathering, and the use of modern conservation technologies. Leadership and governance training will be incorporated to strengthen decision-making and accountability across different levels of management. Partnerships with institutions such as Kenya Wildlife Service Training Institute, universities, and conservation NGOs will be leveraged to provide technical expertise, certification opportunities, and exchange programmes for staff. By institutionalizing continuous learning and skills development, this programme will not only enhance staff professionalism and morale but also ensure long-term sustainability and effectiveness in the management of NNNR.

Objective 3: Land Tenure Secured to Promote Conservation–Community Coexistence

The Ngai Ndethya National Reserve is largely settled, with communities leading normal rural lives while sharing space with wildlife. For years, these communities have grappled with human–wildlife conflict and uncertainties around land issues, which undermine both conservation and local development. Addressing land tenure is therefore central to achieving coexistence. By introducing a clear zonation scheme, developing and implementing a comprehensive land-use plan, formalizing community participation in decision-making, and facilitating tenure regularization, the Government of Makueni County will create a system that balances human needs with conservation priorities.

Action 3.1: Implement the Zonation Scheme

This zonation scheme will provide specific regulations for land uses to ensure coexistence between people and wildlife. The conservation zone will be preserved exclusively for wildlife conservation, with developments within this zone considered as support infrastructure. In community-wildlife coexistence and the settlement zones, residents will be encouraged to practice land-use activities that are compatible with conservation and allow them to benefit directly from it.

Action 3.2: Develop and Implement a Land Use Development Plan

The preparation and implementation of a land use development plan will guide and control development, ensuring a balance among competing land uses such as conservation, settlements, agriculture, commercial facilities, and public utilities. The GMC will develop a comprehensive plan that promotes compatibility, safeguards ecological integrity, and improves the quality of life for local communities by enhancing access to amenities, utilities, and infrastructure services. This will be achieved in collaboration with relevant stakeholders.

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Action 3.3: Promote Community Engagement and Participation in Decision-making

The active involvement of local communities in land-use decision-making will ensure that their needs and concerns are adequately addressed. The Socio-Economic Survey conducted between 19th–22nd August 2025 in Ngai Ndethya, Mbeetwani, and Ngiluni settlements revealed limited community participation in County Government processes. Given that these communities are directly affected by conservation policies and land-use decisions, their exclusion creates gaps in accountability, reduces ownership of conservation initiatives, and fosters mistrust. To address this, GMC will establish structured frameworks for community participation in planning and decision-making related to land use and conservation.

Action 3.4: Facilitate Land Tenure Regularization and Co-Management Agreements

GMC, in partnership with the Ministry of Lands and Settlements and the National Land Commission, will initiate processes to regularize land tenure for communities within NNNR through the issuance of titles, leases, or community land registration where applicable. Alongside tenure security, co-management agreements will be developed to balance rights with responsibilities, ensuring that landholders commit to conservation-friendly practices. This dual approach will provide legal certainty for communities while safeguarding the ecological integrity of the Reserve.

Objective 4: Collaborative Engagements with Conservation Partners promoted for effective security in the Reserve

Safeguarding Ngai Ndethya National Reserve requires a collective approach that leverages the strengths, expertise, and resources of multiple stakeholders. The Government of Makueni County recognizes that no single actor can address the complex threats facing the Reserve in isolation. Strong partnerships with conservation organizations, security agencies, and local communities

are therefore essential. Collaborative engagement will provide structured coordination, joint operations, capacity building, and efficient information flow. By building trust, inclusivity, and accountability, these partnerships will enhance surveillance, improve rapid response to threats, and promote sustainable resource protection.

Action 4.1: Establish a Security Collaboration Framework

The Government of Makueni County will establish a comprehensive framework that defines the roles, responsibilities, and standards for all partners engaged in Reserve security. This framework will promote inclusivity and provide protocols for information sharing, joint planning, resource mobilization, and accountability. Regular consultative forums will be held to review progress, address emerging threats, and ensure that community voices are represented in security decisions.

Action 4.2: Conduct Joint Security Operations

Effective security in the Reserve depends not only on individual patrols but on well-coordinated operations that pool resources, expertise, and intelligence from multiple actors. The County Government will work with partners such as KWS, Tsavo Trust, and Sheldrick Wildlife Trust to implement coordinated security operations, including joint patrols, intelligence sharing, and de-snaring exercises. These operations will improve surveillance coverage, strengthen law enforcement, and secure critical habitats. Community involvement will be encouraged, recognizing local residents as a vital link in detecting and reporting illegal activities.

Action 4.3: Implement Joint Training Programmes

Building the capacity of security personnel is essential for ensuring that conservation initiatives remain adaptive and effective in the face of evolving threats. To enhance effectiveness, security teams will undergo joint trainings that address shared challenges and skills gaps. Training areas will include the use of emerging security technologies (e.g., EarthRanger and digital databases), crime scene and evidence management, and human–wildlife conflict response. Joint exercises will also build seamless coordination and teamwork among partner teams.

Action 4.4: Establish a Joint Command Centre

A joint command centre is the backbone of effective security operations, ensuring unity of command, efficient communication, quick decision-making and a well-coordinated response to threats and emergencies. The Government of Makueni County will establish a command Centre at Kamungi area that will link all the security agencies operating within the Reserve.

Action 4.5: Strengthen Community-Based Security Mechanisms

The County Government will establish community-based intelligence and reporting systems to complement formal security structures. Local residents will be supported through awareness programmes, training of community scouts, and creation of safe reporting channels for wildlife crime and security incidents. This approach will strengthen trust between communities and security agencies while providing an early-warning system for threats.

Objective 5: Security of Visitors, Wildlife, and Assets ensured

While conservancies such as Kamungi and Kilalinda maintain strong internal security systems, these measures primarily protect their own areas, leaving other parts of the Reserve vulnerable.

To safeguard the entire Ngai Ndethya National Reserve, the Government of Makueni County will adopt comprehensive strategies that enhance enforcement, modernize technologies, and strengthen infrastructure.

The following actions will help achieve this objective.

Action 5.1: Strengthen Enforcement Capacity

Effective security begins with well-equipped, motivated, and strategically deployed personnel. The County Government will therefore:

- Invest in skills development and welfare support for rangers and conservancy scouts to boost morale and field performance.
- Provide modern equipment, vehicles, and tools to improve patrol efficiency and rapid response.
- Strategically deploy security teams in high-risk areas to deter illegal activities and strengthen surveillance of key wildlife zones.
- Upgrade security infrastructure, including outposts and communication systems, to establish a solid foundation for sustainable protection of wildlife, visitors, and assets across the Reserve.

Actions 5.2: Adopt Modern Technologies to Combat Illegal Activities

Leveraging technology is essential for combating threats such as poaching, illegal logging, and charcoal production. The County Government, in collaboration with conservation partners, will adopt advanced systems including:

- HF and VHF radios for reliable communication,
- Surveillance cameras for real-time monitoring,
- EarthRanger and wildlife collars for tracking wildlife movements,
- Unmanned Aerial Vehicles (UAVs) for aerial surveillance, and
- Long Range Wide Area Network (LoRa-WAN) for seamless data transmission.

The integration of these technologies will strengthen surveillance, improve coordination, and provide a powerful deterrent to illegal activities across the Reserve.

Action 5.3: Enhance Visitor Safety and Emergency Preparedness

Securing visitors is critical for sustaining tourism and building confidence in the Reserve. The County Government will:

- Establish visitor safety protocols and codes of conduct for guided tours, camping, and cultural activities.
- Develop and publicize emergency response plans, including evacuation routes, first-aid points, and rapid communication systems.

- Train rangers, guides, and local community partners in first aid, disaster response, and visitor care.
- Install safety infrastructure, such as signage, emergency shelters, and communication points in high-use areas.

These measures will protect visitors from both human and wildlife-related risks, while ensuring that the Reserve remains a safe and attractive destination for ecotourism.

PLAN MONITORING

Plan Monitoring Framework

The plan monitoring framework set out in the following tables has been designed to provide guidance for the assessment of the potential impacts resulting from the implementation of each of the five management programmes. The framework sets out the positive or negative impacts of each programme's objectives, easily measurable and quantifiable indicators for assessing these impacts, and potential sources of the information needed.

Tourism Development and Management Programme Monitoring Plan

Objective	Potential Impacts (Positive and Negative)	Verifiable Indicator	Source and means of verification
Objective 1: Tourism-support infrastructure developed and upgraded	**Enhanced accessibility and visitor mobility** **Improved visitor comfort, safety and satisfaction** **Strengthened linkages within Tsavo Conservation Area** **Growth in local enterprises supporting tourism (transport, accommodation, retail)** **Habitat loss and fragmentation from road and infrastructure works** **Risk of increased poaching and human–wildlife conflict** **Increased waste generation at facilities**	• **Number of recommendations given and implemented** • **Kilometers of new/rehabilitated visitor circuit roads, trails and signage installed** • **Number of operational and rehabilitated airstrips** • **Number of access gates installed and functional** • **% increase in bed capacity in eco-friendly facilities** • **% coverage of mobile network within reserve** • **Visitor satisfaction ratings on infrastructure and facilities**	**Feasibility study reports and implementation** **Reviews** **Site inspection reports (roads, signage's, gates, trails, airstrips)** **County Works & Infrastructure Department records** **Bed capacity of accommodation facilities and occupancy reports** **Visitor exit surveys and online review platforms (Trip Advisor, Google reviews Booking.com)** **GIS mapping and aerial imagery** **Stakeholder engagement reports**

Objective	Potential Impacts (Positive and Negative)	Verifiable Indicator	Source and means of verification
	Possible exclusion of local communities		
Objective 2: Tourism products and experiences developed, diversified and marketed	Diversified product range attracts wider tourist segments Increased length of stay and expenditure per visitor. Growth of domestic tourism and cultural pride. Expanded job opportunities for local guides, artisans and youth. Enhanced resilience of the tourism sector through product diversification	• Number of new tourism products piloted and adopted (bird watching, camel rides, bush dinners, cultural shows, water sports, etc.). • % increase in tourist arrivals consuming new products. • Number of community tour guides/drivers trained and certified. • Existence of guiding code of practice and adherence levels. • Number of cultural events, festivals and exhibitions held annually. • Value of cultural goods/services sold locally and nationally. • Number and type of marketing campaigns conducted (digital, print, events). • Website traffic, social media reach and engagement rates. • % increase in domestic tourist arrivals	Tourism product inventory and evaluation reports. Training manuals, attendance lists, certification records. Code of practice documents and monitoring checklists. Event reports, cultural centre records and media coverage. Sales receipts and market access reports for cultural products. Kenya Tourism Board and County visitor statistics. Marketing collateral, distribution logs, branding reports. Analytics from website, social media dashboards and digital platforms. Visitor satisfaction surveys segmented by domestic vs international
	Over-commercialization undermines authenticity of cultural products Over utilization of natural resources (e.g., water, forests) Risk of conflicts over benefit sharing Seasonal crowding and		

Objective	Potential Impacts (Positive and Negative)	Verifiable Indicator	Source and means of verification
	pressure on fragile ecosystems Risk of environment pollution		
Objective 3: Tourism administration and management strategies developed	Safer environment for visitors and reduced risks Stronger institutional capacity and professionalism Enhanced financial sustainability through improved revenue collection Stronger PPPs mobilizing additional investments Transparent benefit sharing increases community buy-in Potential pushback from operators against stricter regulations. Risk of inequitable distribution of tourism revenues.	• Existence of visitor safety and security management strategy. • Presence of tourist police. • Frequency of safety drills and security checks conducted. • Number of staff trained annually in hospitality and tourism management. • Number of capacity development programmes executed. Amount of revenue collected from tourism (fees, leases, concessions). • % of compliance with regulatory standards (visitor carrying capacity, licensing, eco-certifications). • Number of PPP frameworks signed and implemented. • Number of formalized benefit-sharing agreements with stakeholders.	Security agency reports, incident logs and risk assessment documents. Visitor safety guidelines, drills, compliance reports. Training records, certificates, and staff performance appraisals. Annual audited revenue statements and County Treasury reports. Tourism Regulatory Authority compliance reports. PPP agreements, MoUs, contracts. Stakeholder consultative meeting minutes and MoU registers. Benefit-sharing agreements, implementation reports, stakeholder feedback surveys. Catalogues and brochures of joint Southern Circuit products. Monitoring & evaluation (M&E) reports on product performance

Objective	Potential Impacts (Positive and Negative)	Verifiable Indicator	Source and means of verification
	Possible dependence on donor/PPP funding if not well managed	• % of stakeholders satisfied with benefit-sharing arrangements. • Number of joint initiatives in the Southern Circuit developed and marketed	

Community Development and Conservation Education *Programme Monitoring Plan*

Objective	Potential Impacts (Positive and Negative)	Verifiable Indicator	Source and means of verification
Objective 1: Human-wildlife coexistence enhanced	Reduction in HWC	• Number of reported HWC incidents • Percentage reduction in wildlife related crop and livestock losses compared to baseline data	Incidents reports Human wildlife conflict database
	Improved Community Attitudes towards wildlife	• Percentage of community members expressing positive attitudes towards wildlife • Number of community members participating in coexistence sensitization meetings/trainings	Community perception surveys Meeting attendance list Completed survey forms
	Enhanced Biodiversity	• Population trends of key wildlife species • Area of habitat conserved	Wildlife census data
	Conservation Economic Costs of Coexistence Measures	• Annual expenditure on HWC mitigation measures • Number of households reporting financial strains due to maintenance costs	Financial records

Objective	Potential Impacts (Positive and Negative)	Verifiable Indicator	Source and means of verification
	Dependence on compensation schemes	• Number of compensation claims submitted annually • Percentage of households relying on compensation as their primary HWC coping mechanisms	Compensation claim records
	Displacement of Conflict	• Spatial mapping of new HWC hotspots outside current intervention zones • Percentage change in HWC incidents	HWC incident reports
Objective 2: Benefit sharing from conservation initiatives enhanced	Improved livelihoods and household incomes	Number of community members employed directly or indirectly through conservation initiatives	Household surveys
	Strengthened community support for conservation	Increased in positive perception of conservation measured through community surveys	Community feedback forums
	Enhanced social services	Number of community infrastructure projects	Project implementation documents
	Increased community conflicts	Number of recorded disputes related to benefit sharing Number of grievance cases	Community records
	Overdependence on conservation revenues	Percentage of household income derived solely from conservation related benefits	Households economic assessments
Objective 3: Community participation in conservation strengthened	Enhanced understanding of the importance of conservation	Number of participants in conservation initiatives	Conservation education reports
	Improved conservation outcomes	Percentage reduction in illegal activities	Conservation education reports

Objective	Potential Impacts (Positive and Negative)	Verifiable Indicator	Source and means of verification
		Number of wildlife sightings	
	Enhanced ownership and stewardship	% of community members participating in conservation activities (e.g., patrols, tree planting, wildlife monitoring).	Conservation reports
	Over-involvement of community members	% decline in attendance at community conservation meetings or activities over time	Conservation reports
	Sidelining of vulnerable groups by elites	% of project benefits (e.g., employment, scholarships, compensation) reaching vulnerable groups compared to influential households.	Household verification surveys
	Potential conflicts due to unequal participation or representation; slowed decision-making	Number of community consultative barazas and sensitization meetings held annually	Baraza attendance registers and meeting proceedings. Stakeholder participation reports from County Government, NGOs, and conservancies.

NNNR Operations and Security Programme Monitoring Plan

Objective	Potential Impacts (Positive and Negative)	Verifiable Indicator	Source and means of verification
Objective 1: Infrastructure and Communication Systems Enhanced	Improved accessibility within and around the Reserve; enhanced firefighting capacity; better communication and coordination; improved visitor experience. Possible habitat disturbance during road construction; risk of soil erosion and habitat fragmentation.	➢ Km of roads constructed/maintained ➢ Km of firebreaks established ➢ % of camp facilities completed and operational ➢ Number of signage, water points, power connections installed	➢ Progress reports ➢ Field inspection reports ➢ Construction completion certificates ➢ Photographic records ➢ GIS/Survey maps

Objective	Potential Impacts (Positive and Negative)	Verifiable Indicator	Source and means of verification
Objective 2: Human Capital Established and Strengthened	**Skilled staff recruited, trained, and retained; improved staff performance and morale; enhanced reserve management capacity.** **Risk of staff attrition if welfare and career development not well managed.**	➢ **Number of staff recruited and deployed** ➢ **Number of staff trained per year** ➢ **Number of training programs developed and implemented** ➢ **Staff satisfaction/retention rate**	➢ **HR reports** ➢ **Training attendance registers** ➢ **Capacity development programme reports** ➢ **Staff performance appraisals**
Objective 3: Land Tenure Secured to Promote Conservation-Community Coexistence	**Reduced land use conflicts; increased community participation; clear zonation and land use planning strengthened co-management.** **Resistance from some community members; potential delays in regularization processes.**	➢ **Zonation scheme implemented** ➢ **Number of community sensitization meetings held** ➢ **Land use development plan completed and approved** ➢ **Number of co-management agreements signed**	➢ **Zonation maps** ➢ **Community meeting minutes** ➢ **Approved land use development plan** **Signed agreements/MoUs**
Objective 4: Collaborative Engagements with Conservation Partners promoted	**Strengthened security partnerships; improved intelligence sharing; enhanced resource mobilization; coordinated training and operations.** **Possible duplication of roles; coordination challenges among partners.**	➢ **Security framework developed** ➢ **Number of joint security operations conducted annually** ➢ **Number of joint trainings held** ➢ **Joint Command Centre established and operational**	➢ **Security operation reports** ➢ **Training attendance registers** ➢ **Signed partnership agreements** **Command centre inspection reports**
Objective 5: Security of Visitors, Wildlife, and Assets ensured	**Improved safety for visitors; reduced poaching and illegal activities; enhanced protection of wildlife and assets.** **Increased operational costs; possible human rights concerns if enforcement is not community-sensitive.**	➢ **Number of rangers trained and deployed** ➢ **Number/type of modern technologies adopted (UAVs, surveillance systems, EarthRanger, collars, etc.)** ➢ **Number of illegal incidents detected and responded to**	➢ **Enforcement and patrol reports** ➢ **Technology deployment records** ➢ **Wildlife monitoring data** ➢ **Visitor incident reports**

Objective	Potential Impacts (Positive and Negative)	Verifiable Indicator	Source and means of verification
		➢ Visitor safety incidents reported per year	

PLAN ANNEXES

Annex 1. Three-Year Activity Plans

The following pages set out the 3-Year Activity Plans for each Management Programme. The activity plans detail the actions, activities, responsibilities, timeframe and milestones for each management objective.

Ecological Management Programme Three Year Activity Plan

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000'
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Objective 1: Conservation status of NNNR's threatened species and habitat restored																
Action 1.1: Conduct land use/land cover survey for NNNR																
Activity 1.1.1: Procure necessary GIS and remote sensing software and equipment	GMC	KWS, WRTI, NMK, NGO's													NNNR database developed and personnel trained	
Activity 1.1.2: Build analytical capacity among users	GMC	Local communities, Private conservancies NGO's														
Activity 1.1.3: Conduct ground truthing surveys to validate land cover characteristics and changes	GMC	Ministry of lands, National Govt														
Activity 1.1.4: Provide budgetary allocation for periodic land use/ cover surveys	GMC	Ministry of lands, National Govt														
Action 1.2: Assessment of the abundance, distribution and trends of conservation target species																
Activity 1.2.1: Conduct a comprehensive baseline biodiversity survey of all taxa within and around NNNR	GMC	KWS, WRTI, NMK														
Activity 1.2.2: Initiate and conduct regular ecological monitoring using standardized tools e.g. drones, acoustic	GMC	KWS, WRTI, NMK														

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
sensors, and eDNA for precise population data																
Activity 1.2.3: Collect necessary remote sensing data for analysis of soil, vegetation, and hydrology	GMC	NMK, WRA														
Activity 1.2.4: Select appropriate rehabilitation sites using climate and land use models	GMC	Local communities, Conservancies														
Action 1.3: Assess river hydrology, riverine conditions, human activities																
Activity 1.3.1: Conduct water quality/quantity assessments on the Athi, Kambu, and Mtito Rivers	GMC	WRA														
Activity 1.3.2: Establish a collaborative arrangement with the local WRUA and other CBOs for river monitoring	GMC	WRA														
Action 1.4: Rehabilitate and restore degraded habitats in riparian areas																
Activity 1.4.1: Conduct riparian ecosystem assessment	GMC	NMK, KWS, WRTI														
Activity 1.4.2: Conduct periodic river hydrology monitoring	GMC	WRA														
Activity 1.4.3: Create awareness of riparian habitat conservation	GMC	NMK, KWS, WRTI														
Activity 1.4.4: Initiate and implement a riparian rehabilitation programme	GMC	NMK, KWS, WRTI														
Action 1.5: Maintain and enhance the distribution of watering points for wildlife																
Activity 1.5.1: Construct artificial water points at specific zones	GMC	WRA														

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Activity 1.5.2: Develop a GIS to integrate water and wildlife data for evidence-based decisions	GMC	KWS, NMK, WRTI														
Activity 1.5.3: Monitor water points via direct and remote methods; engage communities through education to build lasting conservation partnerships	GMC	Local conservancies, WRA, WRUA														
Activity 1.5.4: Conduct wildlife resource need/ use assessment	GMC	KWS														
Action 1.6: Propose interventions on the management of invasive species																
Activity 1.6.1: Conduct an invasive species assessment	GMC	KWS, NMK, WRTI														
Activity 1.6.2: Training and capacity building of personnel on the use of GIS tools to identify and monitor invasive species	GMC	KWS, NMK, WRTI														
Activity 1.6.3: Undertake a social-economic survey to understand indigenous knowledge and approaches to invasive sp management	GMC															
Objective 2: Climate change actions and ecosystem services programmes developed																
Action 2.1: Develop and implement a site-level climate change mitigation and adaptation strategy																
Activity 2.1.1: Acquire, install, and maintain weather monitoring equipment at strategic points in NNNR	GMC	KMD														
Activity 2.1.2: Initiate a weather monitoring program and information sharing	GMC															

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
arrangement to provide an early warning system for climate related disasters																
Activity 2.1.3: Plant indigenous trees within the reserve to restore habitats and increase carbon storage and biomass while reducing the level of carbon emissions	GMC	Community, Conservation NGOs														
Action 2.2: Develop carbon market and payment for ecosystem services projects for NNNR																
Activity 2.2.1: Conduct pre-feasibility study and prepare project idea note Procure proposal development services	GMC	KWS, WRTI, Conservation NGOs													Project Idea Note prepared	
Activity 2.2.2: Conduct full feasibility study for Carbon credit and PES projects and select viable activities	GMC	WRTI, Conservation NGOs, KWS, Community														
Activity 2.2.3: Prepare project design document	GMC	WRTI, Conservation NGOs, KWS, Community														
Activity 2.2.4: Undertake plant - animal interaction study e.g. seed dispersal, germination and recruitment study	GMC	WRTI														
Objective 3: Targeted ecological monitoring and management-oriented ecological research carried out																
Action 3.1: Identify and develop research priorities for NNNR																
Activity 3.1.1: Establish research priorities to ensure a better understanding of the interface between humans and biodiversity	GMC	KWS, WRTI, NGOs														

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Activity 3.1.2: Conduct studies to document the flagship species and habitat	GMC	NMK, KWS, WRTI, NGOs														
Activity 3.1.3: Promote the use of citizen science in data collection and monitoring of ecological health in NNNR	GMC	KWS, WRTI, NGOs														
Action 3.2: Strengthen collaboration between NNNR management and WRTI to design and implement the NNNR ecological monitoring plan																
Activity 3.2.1: Establish an MOU between WRTI and NNNR management	GMC	WRTI														
Activity 3.2.2: Equip the Reserve’s operation base with essential research and monitoring tools to enable systematic species monitoring across all taxa	GMC															
Action 3.3: Support programs that enhance domestic-wild animal disease transmission, such as anti-rabies campaigns																
Activity 3.3.1: Monitor disease spread and provide early warning for disease outbreaks	GMC	Local Community NMK NGOs														
Activity 3.3.2: Support vaccination initiatives for domestic dogs to minimize the risk of zoonotic disease spread	GMC	Community, NGOs														
Action 3.4: Initiate studies to determine the distribution of the MacKay’s thread snake which is endemic to the region																
Activity 3.4.1: Conduct targeted studies to determine the unknown aspects of the species	GMC															

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000'
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Objective 1: Tourism-Support Infrastructure Developed and Upgraded																
Action 1.1: Carry out feasibility assessment of tourism-support infrastructure needs																
Activity 1.1.1: Identify partners for feasibility assessment	GMC	KWS, NEMA, TRA, Private Sector, Local Communities Consultants, Stakeholders Contractors				■									Partners confirmed	
Activity 1.1.2: Develop ToR for feasibility assessment	GMC					■									ToRs approved	
Activity 1.1.3: Undertake the feasibility assessment of tourism infrastructure needs	GMC						■								Feasibility report completed	
Activity 1.1.4: Implement the feasibility assessment recommendations	GMC						■	■	■	■	■	■	■	■		
Action 1.2: Develop visitor access gates and ticketing office																
Activity 1.2.1: Identify suitable locations	GMC	KWS, Local Communities Contractors					■								Two sites identified	
Activity 1.2.2: Establish designs and cost for gates and ticketing office	GMC						■								Designs approved	
Activity 1.2.3: Install and maintain the visitor access gates and ticketing office								■	■						Two gates operational	
Action 1.3: Develop directional signage & nature trails																
Activity 1.3.1: Identify the suitable locations for directional signage and nature trails	GMC	KWS, NEMA, Local Communities and SWT, Tsavo Trust, Kamungi, Lukenya university					■								Locations identified	
Activity 1.3.2: Establish the appropriate materials and designs of the directional signage and nature trails	GMC						■								Designs and materials approved	

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Activity 1.3.3: Install & maintain signage and nature trails	GMC						■	■	■	■	■	■	■	■	Signage and trails installed and functional	
Action 1.4: Improve existing and develop new tourist circuit roads																
Activity 1.4.1: Assess the status of the existing circuit roads	GMC	KWS, NEMA, Local Communities and SWT, Tsavo Trust, Kamungi, Lukenya University, KRA				■									Assessment report completed	
Activity 1.4.2: Maintain the existing circuit roads to motorable standards	GMC					■	■	■	■	■	■	■	■	■	Circuits maintained annually	
Activity 1.4.3: Identify suitable routes for the new circuits	GMC						■								new routes identified	
Activity 1.4.4: Map and survey the existing and new circuit roads	GMC							■							Mapping and survey completed	
Activity 1.4.5: Open the new circuit roads	GMC								■						50 km new roads opened	
Action 1.5: Lobby for the rehabilitation and operationalization of the existing airstrips																
Activity 1.5.1: Organize stakeholder consultations with the existing airstrip owners	GMC	NMK Space for Giants KTB KWS Private Sector Neighboring Conservancies Local Community			■	■									Consultations held; agreements initiated	
Activity 1.5.2: Prepare, execute and implement a formal engagement agreement on maintenance and operations							■	■	■	■	■	■	■	■	Agreements signed; 2 airstrips rehabilitated	
Activity 1.5.3: Minimize environmental foot prints of the airstrips to protect sensitive habitat during rehabilitation and construction					■	■	■	■	■	■	■	■	■	■		

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Action 1.6: Develop new accommodation facilities and increased bed capacities of the existing facilities																
Action 1.7: Improve mobile network and connectivity																
Activity 1.7.1: Consult with the service providers to redistribute the signal coverage	GMC	Telcos, CAK													Providers engaged	
Activity 1.7.2: Provide reliable WiFi and cellular connection	GMC														Coverage >80%	
Activity 1.7.3: Inquire on localized emerging network technologies for adoption	GMC														report	
Action 1.8: Develop visitor-use facilities																
Activity 1.8.1: Identify and map suitable sites for the establishment of a gift shop, information center, restaurant, washrooms and parking area	GMC	Private Sector, Communities Conservancies Hoteliers Local community													3 sites identified	
Activity 1.8.2: Establish the cost and the designs of the gift shop, information center, restaurant, washrooms and parking area	GMC														Designs and costs approved	
Activity 1.8.3: Construct and maintain the gift shop, information center, washrooms and parking area	GMC														Facilities constructed and functional	
Activity 1.8.4: Equip the visitor use facilities	GMC															
Objective 2: Tourism Products and Experiences Developed, Diversified and Marketed																
Action 2.1: Enhance existing products and experiences																

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Activity 2.1.1: Increase the number of tourist service vans for game viewing	GMC	Stakeholders, partners KWS, KATO,													5 vans acquired	
Activity 2.1.2: Train community guides & drivers on visitor handling and nature interpretation	GMC														20 guides trained	
Activity 2.1.3: Prepare and circulate a code of practice for visitors, drivers and tour guides	GMC														Code adopted	
Activity 2.1.4: Implement existing globally accepted standards of tour guiding	GMC															
Action 2.2: Develop and promote authentic products and experiences																
Activity 2.2.1: Explore the potential of the proposed products and experiences	GMC	Local Communities, Private Investors, GMC, KTB, Marketing Agencies													5 products piloted Products marketed	
Activity 2.2.2: Pilot the priority products and experiences	GMC															
Activity 2.2.3: Monitor the uptake of the piloted products and experiences	GMC															
Activity 2.2.4: Package and promote the viable products and experiences	GMC															
Activity 2.2.5: Continuously monitor and evaluate trends in utilization of the new products and experiences	GMC															
Action 2.3: Develop and promote domestic and cultural tourism																
Activity 2.3.1: Document cultural heritage assets	GMC														Assets documented	

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Activity 2.3.2: Support market access for cultural goods and services	GMC														Market access established	
Activity 2.3.3: Support value addition of cultural products	GMC														Value addition implemented	
Activity 2.3.4: Enhance creativity and innovation of cultural expressions, products or services	GMC														Innovation programs launched	
Activity 2.3.5: Create awareness on the tangible and intangible cultural heritage	GMC														Awareness campaigns conducted	
Activity 2.3.6: Support continuous cultural research and development	GMC														Research supported	
Activity 2.3.7: Digital marketing of cultural products	GMC														Digital campaigns live	
Activity 2.3.8: Strengthen or equip organized groups and associations	GMC														Groups equipped	
Activity 2.3.9: Establish and equip a cultural center	GMC														Center operational	
Activity 2.3.10: Create a central repository of cultural products and experiences	GMC														Repository established	
Activity 2.3.11: Digitize Kamba cultural products for preservation	GMC														Digitization completed	
Activity 2.3.12: Coordinate, organize and promote cultural events	GMC														4 events annually	

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Activity 2.3.13: Identify the domestic market segment and seasonality	GMC														Segments identified	
Activity 2.3.14: Monitor and evaluate cultural and domestic tourism performance	GMC														Annual performance report	
Action 2.4: Develop and implement marketing strategies in collaboration with stakeholders																
Activity 2.4.1: Implement the existing marketing strategies for Government of Makueni County	GMC	KTB, Marketing Agencies, Private Sector													Strategies implemented	
Activity 2.4.2: Identify the type of marketing collaterals	GMC														Collaterals identified	
Activity 2.4.3: Establish a brand design and identity for NNNR	GMC														Brand established	
Activity 2.4.4: Design a logo and slogan for Ngai Ndethya N. Reserve	GMC														Logo and slogan approved	
Activity 2.4.5: Produce innovative print/digital materials, sales tools, branded merchandise and promotional items	GMC														Materials produced	
Activity 2.4.6: Distribute marketing collaterals to stakeholders	GMC														Distribution completed	
Activity 2.4.7: Track the distribution of the marketing collaterals	GMC														Tracking report	
Activity 2.4.8: Identify a suitable space for an information desk at Mtito Andei SGR station	GMC														Space identified	

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Activity 2.4.9: Organize and participate in local, regional and international marketing events	GMC														6 events participated	
Activity 2.4.10: Regularly review and update the marketing strategies	GMC														Strategies updated annually	
Action 2.5: Establish a digital marketing strategy																
Activity 2.5.1: Establish a social media marketing strategy	GMC														Strategy established	
Activity 2.5.2: Develop a website for NNNR that links to partner sites	GMC														Website live	
Activity 2.5.3: Create and effectively manage social media marketing platforms	GMC														Platforms managed; 50k followers	
Activity 2.5.4: Analyze social media engagements	GMC														Engagement analysis quarterly	
Activity 2.5.5: Evaluate the effectiveness of the digital marketing strategy	GMC														Effectiveness report	
Objective 3: Tourism Administration and Management Strategies Developed																
Action 3.1: Establish a Visitor Safety and Security Management Strategy																
Activity 3.1.1: Collaborate with security agencies to identify potential risks to visitors	GMC														Risks identified Unit established	
Activity 3.1.2: Lobby for establishment of a tourist police unit at Mtito Andei	GMC															
Activity 3.1.3: Prepare visitor safety and security guidelines	GMC														Guidelines approved	

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Activity 3.1.4: Conduct mandatory security checks and briefs	GMC														Checks implemented	
Activity 3.1.5: Monitor adherence to the safety and security guidelines	GMC														Adherence >95%	
Action 3.2: Establish Capacity Development Strategy																
Activity 3.2.1: Carry out a training needs assessment for personnel	GMC														Assessment completed	
Activity 3.2.2: Implement the recommendations of the training needs assessment	GMC														Recommendations implemented	
Activity 3.2.3: Support capacity building initiatives for tourism enterprises and entrepreneurs	GMC														Initiatives supported	
Activity 3.2.4: Support periodic research and development in tourism	GMC														Research supported	
Activity 3.2.5: Monitor and evaluate performance of personnel	GMC														Performance evaluations annual	
Activity 3.2.6: Enhance service excellence in the hospitality and tourism sector	GMC														Excellence programs rolled out	
Action 3.3: Revenue Generation and Management Strategy																
Activity 3.3.1: Explore potential revenue generation streams	GMC														Streams identified	
Activity 3.3.2: Continuously collect tourism fees and charges	GMC														Fees collected >90% efficiency	

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Activity 3.3.3: Initiate leases for tourism investments and facilities	GMC														5 leases initiated	
Activity 3.3.4: Determine a pricing strategy for products and payment mode(s)	GMC														Strategy approved	
Activity 3.3.5 Determine a revenue management system	GMC														System implemented	
Action 3.4: Regulate Tourism Activities																
Activity 3.4.1: Prepare and circulate a tourism code of practice	GMC														Code circulated Capacities set	
Activity 3.4.2: Determine visitor carrying capacities for NNNR	GMC														Compliance >95%	
Activity 3.4.3: Collaborate with Tourism Regulatory Authority to ensure compliance with set standards/guidelines	GMC															
Action 3.5: Strengthen Public Private Partnerships																
Activity 3.5.1: Establish collaboration and partnership frameworks with stakeholders	GMC														Frameworks established	
Activity 3.5.2: Conduct regular joint meetings to mobilize resources	GMC														12 meetings held	
Activity 3.5.3: Undertake joint tourism ventures	GMC														3 ventures launched	
Action 3.6: Promote sustainable tourism investments																
Activity 3.6.1: Explore investment opportunities in	GMC														Opportunities explored	

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
collaboration with Kenya Investment Authority																
Activity 3.6.2: Coordinate sustainable tourism investments in NNNR	GMC														Investments coordinated	
Activity 3.6.3: Provide incentives for sustainable investments	GMC														Incentives provided	
Action 3.7: Establish Benefit Sharing Mechanisms																
Activity 3.7.1: Identify relevant stakeholders	GMC														Stakeholders identified	
Activity 3.7.2: Organize consultative meetings with the relevant stakeholders	GMC														Meetings held	
Activity 3.7.3: Formalize MoUs on benefit sharing mechanisms	GMC														MoUs signed	
Action 3.8: Enhance connectivity with tourist attraction sites in the southern circuit																
Activity 3.8.1: Organize and participate in joint meetings with the relevant stakeholders	GMC														Meetings organized	
Activity 3.8.2: Jointly identify tourist attraction sites in the southern circuit	GMC														Sites identified	
Activity 3.8.3: Map the key attraction sites in the southern circuit	GMC														Mapping completed	
Activity 3.8.4: Design, print and circulate a catalogue of the key attractions sites in the southern circuit	GMC														Catalogue circulated	
Activity 3.8.5: Evaluate product performance in the southern circuit	GMC														Performance evaluation report	

Community Development and Conservation Education *Programme Three Year Activity Plan*

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Objective 1: Human-wildlife coexistence enhanced																
Action 1.1: Establish a consolation endowment fund through the Government of Makueni County																
Activity 1.1.1: Conduct a comprehensive needs assessment to explore viable approaches for establishing a consolation fund	GMC	Community														
Activity 1.1.2: Source for funding to support the establishment of the consolation fund	GMC															
Activity 1.1.3: Develop and implement a detailed framework for the fund	GMC	Community														
Activity 1.1.4: Develop clear guidelines for the implementation, administration, and disbursement processes	GMC															
Activity 1.1.5: Benchmark with successful models from other protected areas and compensation schemes to adopt best practices	GMC	KWS, Community														
Action 1.2: Strengthen Human Wildlife Conflict Resolution Committees																
Activity 1.2.1: Conduct quarterly meetings	GMC, KWS	Community, Conservation partners														
Activity 1.2.2: Capacity build the committee to understand wildlife conservation in the County	GMC, KWS	Community, Conservation partners														

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Action 1.3: Identify, document and integrate indigenous knowledge and practices in HWC mitigation																
Activity 1.3.1: Undertake a socio-economic survey to identify indigenous knowledge and practices	GMC	KWS, Community, Conservation partners														
Activity 1.3.2: Dissemination information on viable indigenous knowledge and practices	GMC	KWS, Community, Conservation partners														
Activity 1.3.3: Integrate indigenous HWC mitigation practices into broader HWC management strategies	GMC															
Action 1.4: Identify periodic wildlife movement patterns in and around NNNR																
Activity 1.4.1: Establish a HWC database	GMC	KWS, WRTI														
Activity 1.4.2: Identify HWC hotspot areas	GMC	KWS, WRTI, Community														
Activity 1.4.3: Conduct periodic wildlife census within the reserve	GMC	KWS, WRTI														
Activity 1.4.4: Procure relevant monitoring tools on data collection and equipment management	GMC	WRTI														
Activity 1.4.5: Install relevant monitoring tools on data collection and equipment management	GMC	WRTI														
Action 1.5: Establish a common platform for reporting HWC incidents																
Activity 1.5.1: Train and capacity build community members, rangers and community scouts on prompt reporting of HWC incident	GMC	KWS Partners														

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Action 1.6: Improve timely implementation of the wildlife compensation process																
Activity 1.6.1: Sensitize the community on the compensation process	KWS GMC	Community NGAO														
Activity 1.6.2: Conduct quarterly sensitization meetings	KWS GMC	Community NGAO														
Activity 1.6.3: Train community committees (HWCRC) on dissemination of information regarding compensation	KWS GMC	Community NGAO														
Objective 2: Benefit sharing from conservation initiatives enhanced																
Action 2.1: Identify community development projects																
Activity 2.1.1: Conduct an in-depth needs assessment that identifies the gaps and opportunities in community development	GMC	Community														
Action 2.2: Implement and evenly spread identified community projects																
Activity 2.2.1: Secure resources through partnerships to ensure implementation of community development projects	GMC	Community and Development Partners														
Activity 2.2.2: Develop a monitoring and evaluation framework to track implementation and impacts of the community projects	GMC	Community														
Activity 2.2.3: Ensure equitable distribution of development projects across NNNR	GMC	Community														
Action 2.3: Secure land tenure																
Activity 2.3.1: Develop a community land use plan	GMC	Community and NGAO														

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Activity 2.3.2: Conduct a land survey	GMC	Community and NGAO														
Activity 2.3.3: Carry out land demarcation	GMC	Community and NGAO														
Action 2.4: Develop economic empowerment programs																
Activity 2.4.1: Partner with stakeholders to establish targeted programs that empower local communities with business skills, microfinance access and conservation-linked enterprises	GMC,	Community, and Development Partners														
Action 2.5: Expand existing conservancies and explore new ones																
Activity 2.5.1: Encourage and support the community to venture into the conservancy model	GMC, KWS	Community, KWCA and Development Partners														
Activity 2.5.2: Strengthen the existing conservancies	GMC, KWS	Community, KWCA and Development Partners														
Action 2.6: Establish a carbon credit project																
Activity 2.6.1: Engage the local communities in activities like tree planting, forest patrols, ecological monitoring, and carbon auditing	GMC, KWS	Community														
Activity 2.6.2: Source for funds to establish carbon credit projects in NNNR	GMC															

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Activity 2.6.3: Train and capacity build the local community in carbon trading	GMC															
Action 2.7: Create employment opportunities for the local community																
Activity 2.7.1: Collaborate with stakeholders to offer scholarships, internships and training opportunities to empower youths for employment	GMC	Community and Development Partners														
Activity 2.7.2: Establish conservation initiatives that provide employment opportunities e.g., hiring community scouts, rangers and community guides	GMC	Community and Development Partners														
Activity 2.7.3: Develop eco-tourism ventures within NNNR e.g., cultural tourism, guided nature walks, bird watching, or eco-lodges to create job opportunities	GMC	Community and Development Partners														
Objective 3: Community participation in conservation strengthened																
Action 3.1: Strengthen conservation education and awareness																
Activity 3.1.1: Develop and document a conservation education and awareness program	GMC	KWS, WRTI														
Activity 3.1.2: Encourage community members to provide relevant information necessary in addressing illegal activities in and around NNNR	GMC	Community, KWS														
Activity 3.1.3: Sensitize the community on the importance	GMC	Community, KWS														

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
of adopting alternative livelihoods to reduce dependence on natural resources																
Activity 3.1.4: Engage media houses to disseminate conservation information	GMC	Local Media Stations														
Activity 3.1.5: Create social media platforms specific to NNNR to disseminate conservation information	GMC															
Action 3.2: Conduct an assessment to establish the impacts of NNNR to the socio-economic wellbeing of the communities within and adjacent the reserve																
Activity 3.2.1: Identify the most appropriate tool, to conduct the assessment	GMC															
Activity 3.2.2: Identify the target groups, scope and thematic areas for assessment	GMC															
Activity 3.2.3: Identify and map stakeholders	GMC															
Activity 3.2.4: Establish stakeholder forums and conduct periodic stakeholder meetings to address emerging issues	GMC															
Action 3.3: Explore and implement alternative livelihood activities that are compatible with conservation																
Activity 3.3.1: Conduct livelihood needs assessment for community living in and around NNNR to identify viable options	GMC	Community														
Activity 3.3.2: Train and capacity build community members on identification and	GMC	Community														

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
implementation of viable livelihood projects																
Activity 3.3.3: Provide markets for local products and support small-scale enterprises	GMC	Community														
Activity 3.3.4: Employ community members in projects such as beekeeping, charcoal briquette production and craft-making	GMC	Community														

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000'
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Objective 1: Infrastructure and Communication Systems Enhanced																
Action 1.1: Construct and Upgrade the Road Network																
Activity 1.1.1: Assess the current road network with a view to enhancing access to and within the Reserve	GMC					■									NNNR road network established and maintained	
Activity 1.1.2: Design the road network within and around NNNR	GMC						■	■								
Activity 1.1.3: Mobilize equipment for road construction and upgrading	GMC								■	■						
Activity 1.1.4: Construct the road network within and around NNNR	GMC										■	■	■	■		
Activity 1.1.5: Install directional signage along major roads leading to NNNR	GMC												■	■		
Action 1.2: Construct and Maintain Firebreaks																
Activity 1.2.1: Maintain existing firebreaks through regular grading and bush clearing	GMC						■	■								
Activity 1.2.2: Construct new firebreaks in strategic locations where they are needed	GMC						■	■								
Activity 1.2.3: Procure equipment and machinery for firefighting											■	■				
Action 1.3: Develop a Fully-Fledged Camp in the Kamungi Area																

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Activity 1.3.1: Identify a suitable camp location	GMC															
Activity 1.3.2:Establish an operational Headquarters	GMC															
Activity 1.3.3: Construct an entry gate and associated infrastructure	GMC															
Activity 1.3.4:Construct an education centre	GMC															
Activity 1.3.5: Construct an information centre	GMC															
Activity 1.3.6: Construct tourism facilities such as eco-lodges and cultural activity spaces	GMC															
Activity 1.3.7: Construct staff housing and allied infrastructure	GMC															
Activity 1.3.8: Establish a fire management unit	GMC	KWS, Kamungi & Tsavo Trust														
Action 1.4: Maintain and Expand Game-Proof Fences																
Activity 1.4.1: Complete the construction of the 60 km HWC fence in the Reserve	GMC														60 km HWC fence line completed	
Activity 1.4.2: Maintain the 93 km fence line	GMC															
Action 1.5: Establish Water Supply and Sewerage System																
Activity 1.5.1:Conduct a community and wildlife water needs assessment	GMC															
Activity 1.5.2: Conduct a hydrological survey	GMC															

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Activity 1.5.3: Develop water projects (Boreholes, Water pans)	NEMA															
Activity 1.5.4: Identify a suitable site for a sewage processing plant	GMC															
Activity 1.5.5: Construct a sewerage plant	GMC															
Action 1.6: Engage KPLC for Power Infrastructure Extension																
Activity 1.6.1: Liaise with KPLC for power supply to be extended to new establishments	GMC														New establishments with power	
Activity 1.6.2: Adopt green energy options such as solar installations to complement grid energy	GMC														Green energy options adopted	
Action 1.7: Develop and Implement a Fire Management Plan																
Activity 1.7.1: Develop a multi-stakeholder approach to fire management																
Activity 1.7.2: Develop a comprehensive Fire Management Plan																
Activity 1.7.3: Jointly with stakeholders, implement the Fire Management Plan																
Objective 2: Human Capital Established and Strengthened																
Action 2.1: Develop Human Capital Policy Instruments																
Activity 2.1.1: Identify human capital instruments																
Activity 2.1.2: Develop a framework on recruitment, training, capacity building,	GMC															

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
performance management and staff welfare																
Activity 2.1.3: Implement the human capital instruments	GMC															
Action 2.2: Recruit and Deploy Staff																
Activity 2.2.1: Conduct recruitment based on staff establishment of the reserve	GMC															
Activity 2.2.2: Deploy the recruited staff	GMC															
Action 2.3: Establish a Capacity Development and Training Programme																
Activity 2.3.1: Undertake a staff needs training assessment	GMC															
Activity 2.3.2: Develop an in-service training programme	GMC															
Activity 2.3.3: Develop a programme on specialized courses in areas such as fire management and intelligence gathering.	GMC															
Objective 3: Land Tenure Secured to Promote Conservation-Community Coexistence																
Action 3.1: Implement the Zonation Scheme																
Activity 3.1.1: Sensitize the community of the zonation scheme	GMC															
Activity 3.1.2: Implement the zonation scheme as prescribed by the Zonation Programme	GMC															
Action 3.2: Develop and Implement a Land Development Use Plan																

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Activity 3.2.1: Sensitize the community and other stakeholders on the process and reason for land use development plan	GMC															
Activity 3.2.2: Prepare Terms of Reference	GMC															
Activity 3.2.3: Collect relevant data for plan preparation.	GMC															
Activity 3.2.4: Data analysis and synthesis (Base map preparation)	GMC															
Activity 3.2.5: Preparation of sectoral plan proposals (Draft plan)	GMC															
Activity 3.2.6: Presentation of plan proposal to relevant stakeholders	GMC															
Activity 3.2.7: Implement the final approved development plan	GMC															
Action 3.3: Promote Community Engagement and Participation in Decision-making																
Activity 3.3.1: Develop a framework for community engagement within the reserve	GMC															
Activity 3.3.2: Regular consultative meetings / barazas with community	GMC															
Action 3.4: Facilitate Land Tenure Regularization and Co-Management Agreements																
Activity 3.4.1: Initiate process to regularize land tenure for communities within NNNR																

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Activity 3.4.2: Develop co-management agreements																
Activity 3.4.3: Practice conservation-friendly practices																
Objective 4: Collaborative Engagements with Conservation Partners promoted for effective security in the Reserve																
Action 4.1: Establish a Framework for Collaboration with Partners																
Activity 4.1.1: Assess the security treats and challenges	GMC															
Activity 4.1.2: Map the stakeholders	GMC															
Activity 4.1.3: Develop the engagement structure	GMC															
Activity 4.1.4: Develop and implement the consultative security framework	GMC															
Action 4.2: Conduct Joint Security Operations																
Activity 4.2.1: Engage the security agencies in meetings for joint security provision	GMC															
Activity 4.2.2: Develop a framework for joint security operations	GMC															
Activity 4.2.3: Implement the joint security operations framework	GMC															
Action 4.3: Implement Joint Training Programmes																
Activity 4.3.1: Conduct a Training Needs Assessment	GMC															
Activity 4.3.2: Train staff in line with the gaps identified	GMC															

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
by the training needs assessment																
Action 4.4: Establish a Joint Command Centre																
Activity 4.4.1: Identify the location of the command centre	GMC															
Activity 4.4.2:Operationalize the Command Centre	GMC															
Action 4.5: Strengthen Community-Based Security Mechanisms																
Activity 4.5.1 Establish community-based intelligence and reporting systems																
Activity 4.5.2: Train community scouts																
Activity 4.5.3: Utilize the system developed in Activity 4.5.1 to report on security matters																
Objective 5: Security of Visitors, Wildlife, and Assets ensured																
Action 5.1: Strengthen Enforcement Capacity																
Activity 5.1.1: Train rangers on relevant skills	GMC															
Activity 5.1.2 Provide staff with modern equipment and tools	GMC															
Activity 5.1.3 Deploy staff strategically within NNNR																
Action 5.2: Adopt Modern Technologies to Combat Illegal Activities																
Activity 5.2.1: Identify the required comprehensive list of modern security meetings	GMC	Community task force														

Management Objectives and Actions	Persons Responsible		Timeframe												Milestones	Budget 000’
	Key Responsibility	Partners	FY 2025-2026				FY 2026-2027				FY 2027-2028					
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Activity 5.2.2: Adopt the state-of-the-art technologies to combat illegal activities (HF and VHF radios, surveillance cameras, Earthranger, wildlife collars, Unmanned Aerial Vehicles (UAVs), and Long-Range Wide Area Network (LoRA-WAN)	GMC															