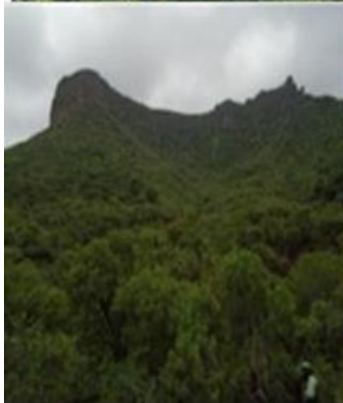


KAFTA-SHERARO NATIONAL PARK GENERAL MANAGE- MENT PLAN (2019-2029)



Ethiopian Wildlife Conservation Authority
Kafta-Sheraro National Park General Management Plan

Compiled and edited by Ethiopian Wildlife Conservation Authority. Financial support provided by GEF6 (Enhanced Management Protected Area System Estate) and Sustainable Development Protected Area System Estate (SDPASE)

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FOREWORD

The Kafta-Shiraro is one of the protected areas legally gazetted as National Park in 2009. The KSNP supports globally threatened and flagship species including African Elephant, Roan Antelope, Red-fronted Gazelle and other conservation important species. It is one of the IBA where threatened resident and migratory avian species harbored. It is therefore very appropriate that this new GMP for the KSNP is fundamental to put in place the required standardized management.

There are significant management challenges facing KSNP and its associated wildlife that contribute to the Park's uniqueness and global importance. These pressures have been arising internally and externally from the expanding settlement, grazing and development intervention in the wider natural ecosystem impacting on wildlife dispersal areas as well as on the Tekeze River which is the life basis of the KSNP. The management actions we take in the next ten years to address these threats are critical to conserve those unique aspects of the park.

Accordingly, there is a strong need for an effective collaboration between all relevant Stakeholders involved in the management and use of KSNP so as to thrive this planned Endeavour. This collaboration has been deliberated in the production of this GMP, through the adoption of a multidisciplinary and consultative approach involving the diverse stakeholders. This GMP has provide well-adjusted scope for the five identified programs namely Ecological Monitoring , Sustainable Natural Resources Uses and Threats, Tourism Provision, Outreach and Park Operation managements which cumulatively ensure that the KSNP's exceptional resource values are safeguarded.

We are confident that this GMP provides the best possible foundation for achieving the management objectives that are clearly and concisely laid out throughout the document. It will be the main guiding tool for the park warden and his staff and it should also be more accessible to local leaders, and all relevant stakeholders so as to ensure its successful implementation. The 3-years rolling action plan has been developed for each management program which would help to practically ground the 10- year GMP strategic framework and there will be more planning sections during the life span of this plan indicating the dynamic nature of management planning process.

We are certain that the implementation of this GMP will improve the conservation and management of the KSNP within the context of the broader ecosystem, at the same time maintaining the support of all stakeholders.

It is therefore with great pleasure to call all partners to work together in the implementation of this GMP in order to secure the values of the Park and maintain its sustainable social, economic and ecological benefits for the present and future generations.


Kumara Wakjira
Director General

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APPROVAL PAGE

The Ethiopian Wildlife Conservation Authority has approved this General Management Plan for implementation in the Kafata-Shiraro National Park

Name:- Kumara Wakjira
Director General

Position:- _____

Signature:- 

Date:- _____

Approval page v

EXECUTIVE SUMMARY

The Kafta-Sheraro National Park (KSNP) was established in 2007 mainly to conserve one of the relict populations of the African Elephant found in the area. This General Management Plan (GMP) for the KSNP lays out a vision for the development and management of the park over the next 10 years, and outlines specific actions required to fulfil this vision over the next 3 years. This GMP was developed using a participatory process, building on previously summarised background information and newly gathered data by the planning team. This was followed by analysis of problems and issues carried out through stakeholder workshops and consultations community and regional government authorities. Going through such process has helped to ensure that the park's stakeholders were given an appropriate opportunity to contribute to the issues and problems addressed in the GMP and to suggest solutions to these issues. In general, the planning process adopted involved a variety of approaches to participation. The Core Planning Team (CPT), composed of EWCA management staff, directed the planning process and made key decisions. Consultations took place through key informant interviews and direct discussions with individuals in the local community around KSNP, private companies, NGOs, Government at all levels and researchers. Series of meetings were held with community representatives in each park surround kebeles and woredas. Technical working groups directly formulated the main components and details of each management programme.

The GMP is organised into five management programmes, using a logical framework approach, which group together common topics that align with park management responsibilities. Each programme consists of a long term strategy with guiding principles and objectives that provide the vision for the programme as well as specific objectives and general actions that outline the route and milestones by which the programme purpose will be achieved.

A practical, management-orientated 3-year action plan accompanies each management programme and provides the detailed actions and activities by which the strategy will be achieved over the next 3 years. This action plan is designed to be regularly rolled forward every 3 years throughout the implementation of the GMP, so that actions and activities are assessed and refreshed in the light of achievements and developments during the GMP implementation. The GMP is designed to be dynamic, flexible and adaptive to changing management needs and priorities, as well as the local socio-political context. KSNP annual operations plans should be developed through close consultation with the GMP and these 3-year action plans.

Park Purpose, Significance and Values

The KSNP, in the Tigray National Regional State of Ethiopia, is one of the most important conservation areas in the country. The park harbours unique populations of several nationally and/or glob-

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ally conservation concern species such as the endangered African Elephant and the vulnerable Red-fronted Gazelle. It also contains one of the only two populations (the other population being found in Gameblla National Park) of Roan antelope—a species legally protected by Ethiopian Wildlife Law—and several biome-restricted bird species. Being situated in the Tekeze river watershed, coupled to the several rivers/streams sourcing from there around, the hydrological system of KSNP is of critical importance to some 2-3 million local and downstream users.

The Purpose of KSNP is:

To conserve the ecological systems of the Kafta-Sheraro National Park, including the different habitat types and the rare and diverse floral and faunal species, while contributing to the sustainable development of the present and future generations of people locally and nationally in Ethiopia and the globe as a whole

Exceptional Resource Values (ERVs)—the biophysical features particularly important in maintaining the unique ecological character, integrity and functions of park and in giving its national and global significances—are Conservation concern and flagship mammal species, migratory and biome-restricted birds, representative unique ecosystems/ vegetation types, hydrological System and scenic Values. These ERVs provide outstanding benefits (social, economic, aesthetic) to local, national and international stakeholders. Thus, the identification of KSNP's ERVs provides a foundation for the park's purpose, identifying the park's conservation targets, management issues and opportunities and generating management objectives.

Principles underlying this GMP

The following principles guide the implementation of this GMP and are fundamental to management of KSNP.

1. Conservation of the ERVs takes primacy in all actions, so as to ensure the sustainable development of ecosystem and the services they provide to humans and human well-being.
2. Partnerships with stakeholders, particularly park-associated communities and administrators, are a key component of GMP implementation
3. Environmental and socio-cultural impacts of developments and park users will be minimised
4. Management systems will be responsive and adaptive to changing circumstances and knowledge

Park Zonation

A proposed management zoning scheme is developed for the KSNP GMP that provides a framework for securing the protection of the park by achieving and reconciling the need to both protect the natural resources of KSNP while allowing the use of the these resources by communities and tourists. Two zones with associated prescriptions have been designated: (i) a Conservation Zone and (ii) a Conservation and Sustainable Natural Resource Management Zone. Proposed zone boundaries are depicted in this GMP, but these will be finalised as part of implementation.

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GMP Structure

This GMP is structured into long-term strategic objectives and short-term action plans, following the “Logical Framework Approach”. This approach ensures explicit and logical linkages are established between all components of the GMP, thereby providing an efficient, accountable and logical rationale for planning and facilitates GMP implementation, monitoring and evaluation. This GMP incorporates both 10-year strategic objectives and 3-year action planning to ensure that the GMP retains a long-term strategic vision while providing the required flexibility and responsiveness to changing needs and situations. The rationale behind such structuring is that that long-term actions e.g., 10-year actions) may become redundant as the ecological, political and socio-economic contexts change. The 3-year action plan also lays out roles and responsibilities, identifies external support required and potential partners, and prioritises actions for implementation. Each management action also includes specific activities to guide day-to-day implementation. Ultimately, there should be a strong link between the actions and activities prescribed by this GMP and the Annual Operations Plans (AOPs) and associated budgets developed by park management.

This structuring of the GMP is made by management programmes that break down overall park management into coherent and specific themes. Each management programme follows the Logical Framework Approach adopted throughout the GMP. Management departments within KSNP will mirror this management programme structure and thus primary responsibility for implementing each programme will fall to the Team Leader of a given department. This allocation of responsibility helps to build a sense of ownership and accountability for GMP implementation and success among all park staff.

Management Programmes

Five management programmes are formulated for KSNP:

1. Ecological Monitoring and Management
2. Sustainable Natural Resource Management
3. Tourism Provision and Management
4. Park Operations
5. Outreach

Ecological Management Programme

This programme is based on an adapted ecological management and monitoring approach. Seven Principal Ecosystem Components (PECs) have been identified by technical experts and which together capture the unique biodiversity of KSNP. If all these PECs are conserved, then the long-term health of the park’s ecosystem will remain intact.

PECs	Co-occurring ecosystem components
Acacia-Commiphora Wood-land	Conservation concern mammals, including

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	-Elephant
	-Roan antelope
	-Red-fronted Gazelle
	-Adonesia digitata
	Several biome-restricted bird species
Combretum-Terminalia Woodland	Economically important tress, <i>Boswellia papyrifera</i> , <i>Adonesia digitata</i>
	Greater kudu
	Birds (e.g. GB Bunting and Bruce's Green Pigeon)
	Mammals
	Grasses
Riverine Woodland	<i>Hyphenet thebica</i>
	Riverine vegetation
	Bird community
	Mammals such as Elephant, Defarsa Waterbuck, kudu, etc
	Aquatic animals
	Butterflies (unknown sp.)
Hydrological System	Rivers
	Fish (unknown species composition)
	Wetland birds, including Demsseil Crane
	Bird community
	Crocodile
Elephant	
Roan Antelope	
<i>Boswellia papyrefera</i>	

The Ecological Management programme has identified and prioritised the threats to these PECs and has devised strategies for their reduction or mitigation. The major cross-cutting threats arising from human population expansion in KSNP have been addressed specifically in the Sustainable Natural Resource Management (SNRM) Programme. A number of research and monitoring priorities have also been identified to assess the severity of threats that were identified as lower priority or for which there was insufficient information with which to assess the level of threat.

This programme also provides the framework for management orientated monitoring and research of the PECs, their key ecological attributes and threats - a crucial stage in adaptive management. Information on the status of the PECs and their threats will be fed back to enable the design and implementation of appropriate future management actions in this and other programmes. The ecosystem monitoring plan is included in Appendix 1 of the GMP. This monitoring plan also identifies

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ecological indicators for monitoring the achievement of the park purpose, which is a key component of the overall monitoring and evaluation of GMP implementation

Sustainable Natural Resource use and Threats Management Programme

The Sustainable Natural Resource Management (SNRM) Programme provides a framework for the development and implementation of sustainable natural resource management in KSNP. The programme aims to convert currently unsustainable natural resource use in KSNP to sustainable levels of resource use through a participatory process where communities enter into joint natural resource management agreements with park management. The core framework of this programme involves setting up Sustainable Natural Resource Management Agreements (SNRMA), with community management groups (CMG) in designated Conservation & SNRM Zones.

SNRMA facilitated and negotiated between park management and CMG, will specify the type and amount of resources that can be used, by whom, and will lay out the methods, roles and responsibilities for community monitoring, regulation and resource protection. These agreements and their management and oversight are designed to be flexible and responsive to changing situations and needs.

Human settlement and cultivation inside KSNP has been increasing since the park was established in the 2007 and has now reached unsustainable levels, with coincident rapid resource degradation. As part of this GMP, human settlement and cultivation will be reduced and restricted to the C&SNRM Zone, using voluntary resettlement, particularly of those with land rights elsewhere, and implementation of the Zonation scheme. Negative impacts on the ecosystem of remaining settlement and agriculture will be mitigated using restoration where necessary and pollution control in partnership with the EM Programme. Similarly, land use will be planned and coordinated both inside and outside the park to minimise the extent and environmental impact of different land use regimes on ecosystem health and function.

Tourism Provision and Management Programme

The Tourism Development and Management (TPM) Programme aims to develop and manage tourism in KSNP in a culturally and environmentally friendly manner so that revenue generated contributes both to conservation management and diversifying the livelihood opportunities of park-associated communities in the area. This GMP lays out a roadmap to ensure that such a plan is produced. Improved marketing is crucial to tourism development and will be planned and carried out in collaboration with other actors with similar interests. Efforts to create a tourist friendly environment will be made through training and discussions with park staff, tourism partners and local communities. In addition, visually stunning and high quality interpretative centres will be planned and built.

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Park Operations Programme

The Park Operations Programme lays out a vision for a secure and efficiently run National Park, using an adaptive management system. Resource protection is a key feature of this programme and this requires a number of initiatives. Park and zone boundaries will be agreed with local communities, demarcated on the ground and implemented. Infrastructure development and procurement sufficient equipment is required for effective management, particularly as staff numbers increase. An efficient patrolling and scout deployment system will be designed and implemented, which will be in line with infrastructure development and staff number increases, to expand the sphere of management influence beyond its current sphere in the northern corner of KSNP.

As a priority KSNP will put in place administration and human resource management systems that are efficient and effective and that will lead to a motivated, appropriately trained and professional staff team. Park administration and financial systems will be made effective and efficient, with actions designed to implement an adaptive planning system that will monitor GMP implementation and the changing context and thus will adapt accordingly. Finally, given that inadequate financing is a key barrier to effective conservation in the KSNP management, actions have been drawn up that will improve understanding of the economic and financial flows in the ecosystem and investigate innovative internal and external funding mechanisms so that feasibilities to develop business plan for KSNP can be investigated and acted upon accordingly.

Community Outreach Programme

The Outreach Programme is built on a strategy of effective partnerships that enhance dialogue and participatory management, strengthen the global image of KSNP and facilitate livelihood development. The programme is designed to increase dialogue and the mutual flow of information between the park and relevant stakeholders by creating structures for dialogue at differing levels. The Outreach Programme will use opportunities to engage local, national and international stakeholders, using diverse media to increase awareness as well as strengthening and coordinating current environmental education programmes.

The Outreach Programme aims to generate a positive flow of benefits from KSNP – including information, ideas, education opportunities, the facilitation of development initiatives and, where possible, revenue. A key feature of this programme is facilitating livelihood development through partnerships; this is believed to tackle one of the main issues raised during all stakeholder consultations.

GMP Monitoring and Evaluation

A GMP monitoring plan makes up the final section of the GMP and, in addition to assessing whether the GMP has been successfully implemented; it is a key component of adaptive management. A multi-tiered framework of indicators has been developed to enable monitoring and evaluation to be carried out at several different levels: from park purpose (ecological monitoring plan), through threats and programme purposes and objectives (impact monitoring), to actions and activities (im-

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plementation monitoring). Finally, Management Effectiveness Tracking Tool (METT) is introduced to monitor overall effectiveness of the park.

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ACRONYMS

AAU	Addis Ababa University
AOP	Annual Operations Plan
BoANR	Tigray Bureau of Agriculture and Natural Resources
CBD	Convention on Biological Diversity
CBM	Community-based Monitoring
CBNRM	Community-based Natural Resource Management
CBO	Community-based Organisation
CDF	Community Development Fund
CI	Conservation International
CITES	Convention on International Trade in Endangered Species of Wild Fauna & Flora
CR	Community Representatives
CPT	Core Planning Team
EFAP	Ethiopian Forestry Action Plan
EIA	Environmental Impact Assessment
EM	Ecological Management
ERV	Exceptional Resource Value
ETB	Ethiopian birr
ETO	Ethiopian Tourism Organisation
EU	European Union
EWCA	Ethiopian Wildlife Conservation Authority
EWCP	Ethiopian Wolf Conservation Programme
EWNHS	Ethiopian Wildlife and Natural History Society
FDRE	Federal Democratic Republic of Ethiopia
FPA	Forest Priority Area
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIS	Geographic Information System
GIZ	German Technical Cooperation
GMP	General Management Plan
GoE	Government of Ethiopia
HQ	Headquarters
HWC	Human-wildlife Conflict
IBA	Important Bird Areas
IUCN	World Conservation Union
KEA	Key Ecological Attribute
KSNP	Kafta Shiraro National Park
LEA	Law Enforcement Agency
LFA	Logical Framework Approach
LGA	Local Government Agency

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MIKE	Minimized in Illegal Killing of Elephants
METT	Management Effectiveness Tracking Tool
MoCT	Ministry of Culture and Tourism
MoFED	Ministry of Finance and Economic Development
NBSAP	National Biodiversity Strategy and Action Plan
NGO	Non-Governmental Organisation
NRM	Natural Resource Management
OFWE	Oromia Forest and Wildlife Enterprise
OR	Outreach
PA	Protected Area
PASP	Protected Area System Plan
PFM	Participatory Forest Management
PNRM	Participatory Natural Resources Management
PO	Park Operations
PW	Park Warden
PEC	Principal Ecosystem Component
RAC	Regional Advisory Committee
RBI	Resource Based Inventory
RBM	Ranger-based Monitoring
RMG	Resource Management Group
RG	Regional Government
RP	Resource Protection
SDG	Sustainable Development Goals
TDP	Tourism Development plan
TEK	Traditional Ecological Knowledge
TF	Task Force
TNC	The Nature Conservancy
TPC	Thresholds of Potential Concern
TPM	Tourism Provision and Management
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organisation

A. PLAN INTRODUCTION

Background Context

One interesting outcome of the 1992 Earth Summit was that the agreement of governments of the world on a new agenda for sustainable development. This agenda included a bold new Convention on Biological Diversity (CBD) which, inter alia, calls on governments to establish systems of protected areas and to manage these in support of conservation, sustainable use and equitable benefit sharing (CBD, 1992). Furthermore, establishing and maintaining networks of protected areas has currently become an essential part of the global response of governments to climate change, because they help address the cause of climate change by reducing greenhouse gas emissions and help the society cope with climate change impacts by maintaining essential ecosystem services upon which people depend (Dudley et al., 2010; Lakew Berhanu et al., 2011). As such, the governments have recognised protected areas as a tool which contribute to a country's resilience to impacts of climate change, and as economic institutions which have a key role to play in the alleviation of poverty and the maintenance of the global community's critical life-support systems.

Ethiopia is no exception and this understanding of the importance protected areas has led the current Ethiopian government to designate several new protected areas. The Kafta-Sheraro area was formerly known as "Shire Wildlife Reserve" since 1968. A proposal to upgrade the reserve to the present status of Kafta-Sheraro National Park (KSNP) was made in 2007 mainly to conserve one of the relict populations of the African Elephant found in the area and other co-occurring biodiversity and ecosystems (KSNP, 2016). The park was managed under the auspices of the Tigray Regional Bureau of Agriculture and Rural Development until 2009, after which the management responsibility was fell under the Ethiopian Wildlife Conservation Authority and ultimately offered a legal status in 2014 (FDRE, 2014). KSNP is one of the most important conservation areas in Ethiopia (EWNHS, 2001; Mekbeb Eshetu et al., 2002). In addition to the African Elephant, the park hosts several conservation concern and economically important faunal and floral species, including the only known population in Ethiopia of Red-fronted Gazelle (*Eudorcas rufifrons*) and one of the two populations of Roan Antelope occurring in the country. KSNP is also the only site in Ethiopia where several bird species have been known, such as the Demoissel Crane. In addition to serving as a small-scale traditional irrigation schemes for poor farmers, Tekeze and other several rivers crossing/sourcing within the park area are the only sources of perennial water for hundreds and thousands of local and far beyond people.

During the period of 1970s to 1990s, this area was occupied by the TPLF guerilla fighters, who used to fight against the then dergie regime. As a result, the area was less hospitable for people to permanently settle and undertake subsistence practice. Following the downfall of the dergie regime in 1993, however, the area has been rapidly populated as result of resettlement programmes

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launched in the Tigray region (Mekbebe Eshetu et al., 2002; KSNP, 2016). Currently, the number of settlements and human and livestock populations have been increasing very rapidly, leading to increasing pressure on the natural resources of the park and the ecosystem services it provides. Specifically, unregulated livestock grazing, expansion of settlement and cultivation land, unregulated fire burning and traditional gold mining activities have resulted to substantial alteration of natural habitats and ecosystems of the park. Furthermore, besides these indirect impacts, local people have directly impacted wildlife of the park through poaching, resulting to a considerable decline of wildlife populations. For example, Elephants have been indiscriminately poached within the park and at the Ethio-Eritrean boarder as the animals move seasonally between the two countries (Yirmed Demeke, 2007). Overall, lack of human and financial resources, political interest and technical knowledge have all contributed to the decline in management effectiveness and the consequent degradation of KSNP.

A Management Plan (Mekbebe Eshetu et al., 2002) for the area was first developed in 2002, while it was known as a wildlife reserve status. However, this plan was not implemented due to the aforementioned constraints. In response, EWCA management authorities and stakeholders deemed the formulation of a General Management Plan to be a priority to enable the long-term coordinated and planned management of KSNP.

Purpose and Function of the GMP

The primary purpose of this GMP document is to set out the management vision, approach and goals, together with a framework for decision making, to apply for development and management of the KSNP over the coming 10 years period. In addition to its primary purpose, this GMP has other functions (secondary purposes), including:

1. To outline strategies by which the vision can be achieved (i.e., sets a framework for all the activities within the park for the next 5-10 years, in the context of the vision).
2. To function as a public relations document by providing a written description of KSNP's management philosophy
3. To provide consistency and continuity for the managing organisation, and direction and focus for management effort, and the use of resources and staff.
4. To solicit donor funding by clearly laying out the management framework, priorities and input requirements
5. To provide a framework for the participation of and coordination among all stakeholders, including local communities, government, projects and donors
6. To lay out the roles and responsibilities for implementers, and to increase accountability and establishes a means of assessing management effectiveness

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GMP Strategy: Policies and Guiding Principles

The overall core work of the Kafta-Sheraro National Park (KSNP) management is managing, monitoring and researching of the exceptional resource values and mitigating of threats to them. Thus, Ecological Management and Monitoring Programme (EMMP) is a key aspect of this GMP. Monitoring of the state of these exceptional resources is also a key aspect of monitoring and evaluation of the effectiveness of implementation of this GMP in order to verify whether the park vision and purpose are being met.

This strategy provides a general statement of principles and policy that will guide the ecological management and sustainable use of the natural resources within KSNP over the 10-year period covered by the GMP. Achievement of all components of the programme will ensure that all components of the ecosystem are maintained in their desired state. Appropriate management actions to eliminate or reduce threats will be necessary. However, other threats may emerge as our understanding of KSNP ecosystem increases and external factors change. Adaptive management is, therefore, a critical component of the KSNP Management strategy and ensures that the actions under all programme are modified to deal with changes in nature and level of threats and management needs.

In short, this GMP strategy is aligned with the federal and regional relevant legislations and policies, including the National Biodiversity Conservation Strategy and Action Plan (NBCSAP, 2005), the Environmental Impact Assessment Proclamation No. 300/2002 (EIAP, 2002), Ethiopian Wildlife Development, Conservation and Utilization Policy (FDRE, 2005) and Regulation (FDRE, 2009), Proclamation on Gazettment of KSNP (FDRE, 2014) and Tigray Region Land Reallocation Proclamation (Proclamation No.239/2013) and its accompanying Regulation (No. 85/2014). Statements of principles that will guide each management programme are listed under respective programmes and are summarized as follow.

Principles underlying this GMP

The following principles guide the implementation of this GMP and are fundamental to management of KSNP.

5. Conservation of the ERVs takes primacy in all actions, so as to ensure the sustainable development of ecosystem and the services they provide to humans and human well-being.
6. Partnerships with stakeholders, particularly park-associated communities and administrators, are a key component of GMP implementation
7. Environmental and socio-cultural impacts of developments and park users will be minimised
8. Management systems will be responsive and adaptive to changing circumstances and knowledge

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GMP Structure

This GMP is structured into long-term strategic objectives and short-term action plans, following the “Logical Framework Approach”. This approach ensures explicit and logical linkages are established between all components of the GMP, thereby providing an efficient, accountable and logical rationale for planning and facilitates GMP implementation, monitoring and evaluation. This GMP incorporates both 10-year strategic objectives and 3-year action planning to ensure that the GMP retains a long-term strategic vision while providing the required flexibility and responsiveness to changing needs and situations. The rationale behind such structuring is that that long-term actions e.g., 10-year actions) may become redundant as the ecological, political and socio-economic contexts change. The 3-year action plan also lays out roles and responsibilities, identifies external support required and potential partners, and prioritises actions for implementation. Each management action also includes specific activities to guide day-to-day implementation. Ultimately, there should be a strong link between the actions and activities prescribed by this GMP and the Annual Operations Plans (AOPs) and associated budgets developed by park management.

This structuring of the GMP is made by management programmes that break down overall park management into coherent and specific themes. Each management programme follows the Logical Framework Approach adopted throughout the GMP. Management departments within KSNP will mirror this management programme structure and thus primary responsibility for implementing each programme will fall to the Team Leader of a given department. This allocation of responsibility helps to build a sense of ownership and accountability for GMP implementation and success among all park staff.

Accordingly, five management programmes are formulated for KSNP:

6. Ecological Monitoring and Management
7. Sustainable Natural Resource Management
8. Tourism Provision and Management
9. Park Operations
10. Outreach

The Planning Process

A Management Plan (Mekbeb Eshetu et al., 2002) was previously developed in 2002 while the present KSNP was known as a “Shire Wildlife Reserve”. Although this plan has provided a summary of the knowledge and problems and issues facing the reserve at that time, there was lack of updated information about the National park. A new initiative was thus driven by EWCA management authority to develop a GMP, which commenced in March 2016. Following this initiative, an external consultant was appointed to coordinate the overall process of the GMP preparation, a core planning team (CPT) appointed and a ToR developed. The CPT members, in turn, formed Technical Working Groups (TWGs) for each thematic management programme. The TWGs gathered and evaluated information needed for the planning, which enable them identify Exceptional Resource Values

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(ERVs), issues, challenges, and opportunities of KSNP management and development. Once basic data were collected, a workshop was conducted whereby each of TWGs presented their information. This was followed by identified the park's exceptional resource values. ERVs are defined as, “ the features of an area that are important to maintain its unique ecological character, its ecological functions, and that provide benefits (socio-economic, cultural and/or aesthetic) to local, national and international stakeholders”. They also identified, prioritized. Then, situation analysis (Figure 1) and stakeholder analysis (Figure 2) were undertaken, by grouping the main problems and issues facing management of RVs of KSNP. Following this, a second workshop was conducted during which the purpose and management objectives of the park were formulated. In the identification of relevant dynamics to which the management plan needs to respond, consideration of the natural, social and economic dynamics, both internally and externally, have guided the thinking of the planning team and the planning process to produce a relatively comprehensive picture from which to develop the GMP framework.

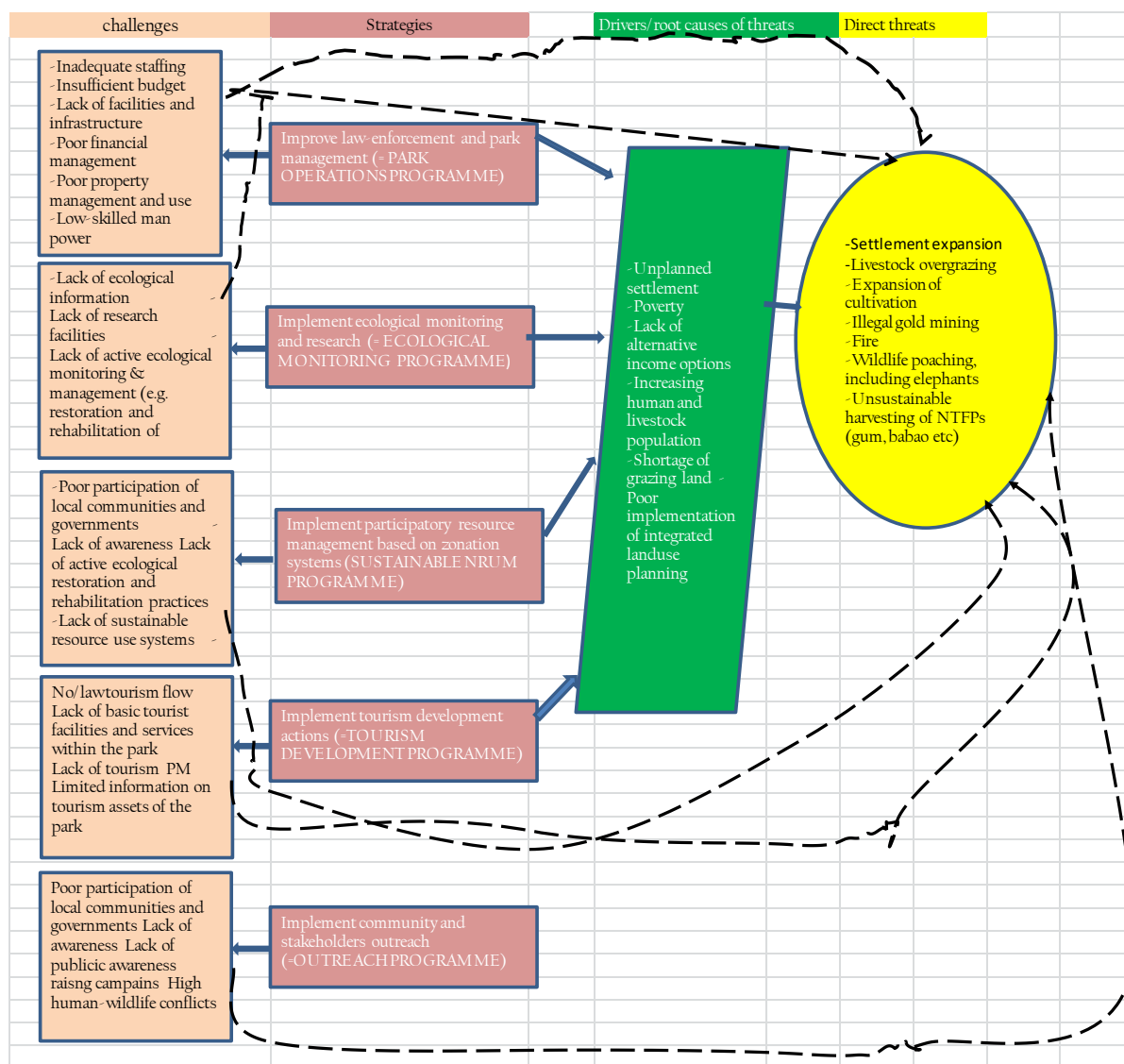


Figure 1 : A Conceptual Model of Situation Analysis Linking Direct Threats, Drivers and Challenges

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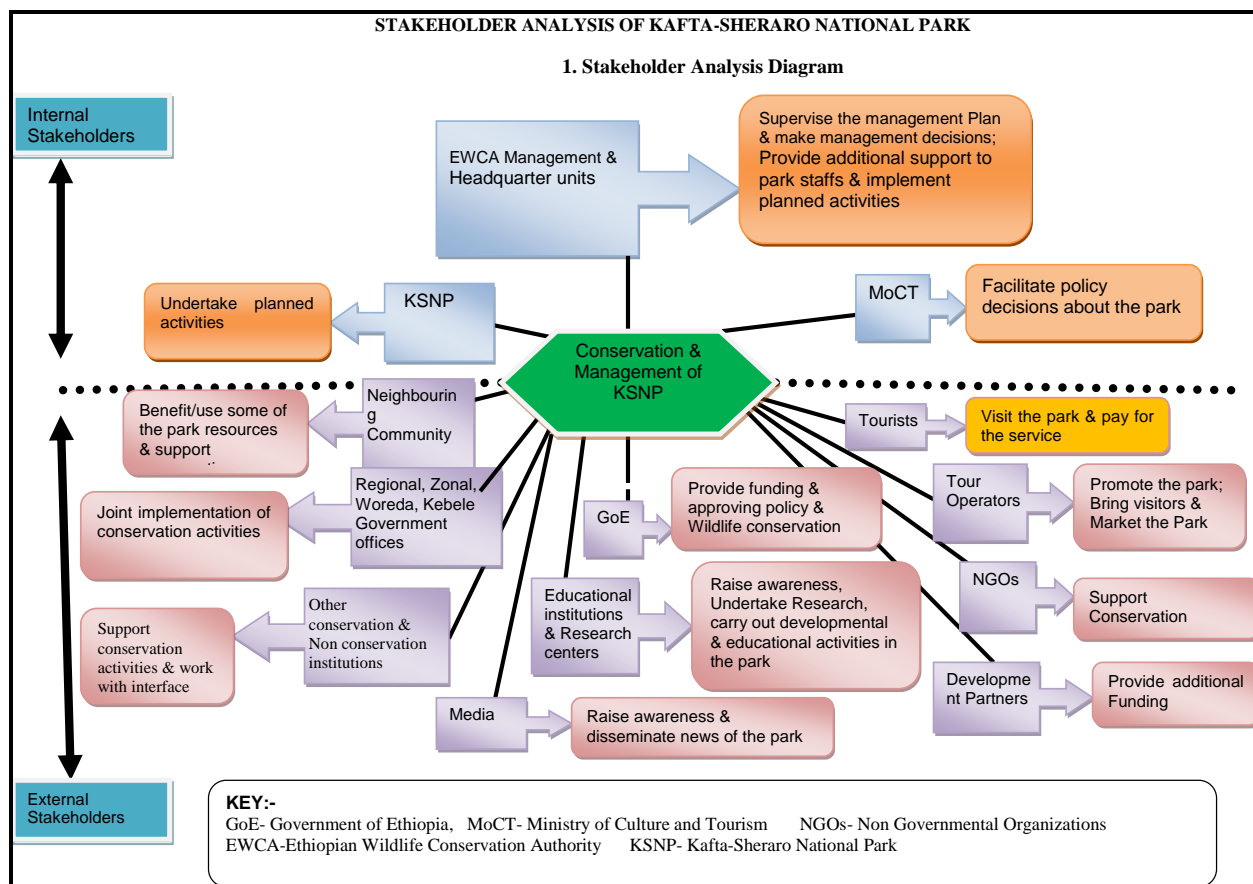


Figure 2 : Result of Stakeholder Analysis

Participation in Planning

The planning process involved a variety of participatory approaches to encourage a broad range of stakeholders to engage in the GMP planning process, feel ownership over the framework and strategies developed, and, ultimately, to commit to GMP implementation. A stakeholder analysis was carried out the planning team to give stakeholders the opportunity to discuss, debate, and eventually agree on the issues and problems faced by KSNP and solutions to these issues as outlined in the GMP. Accordingly consultations and discussions were with communities found in and around the park, government authorities and employees ranging from woreda to regional level and private business companies, including hotel owners and with universities found in the region. In addition, experts from regional and woreda offices were made participate in the planning task.

Information for planning

Information used for this GMP planning came from a wide variety of sources, as listed in the bibliography (Appendix 5). In particular, the GMP builds on previously summarised background information in the previous management plan (Mekbeb Eshetu et al., 2002), other published and unpublished literature and documents, and primary data collected by the planning Technical working group members. This information was then used to conduct problems and issues analysis. Overall

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information used for the planning is summarized into four major themes (Resources and their condition, Socio-economic information, and Policies and Legislation) and are described as follow.

Information on Resources and their condition

Previous ecological studies in the KSNP have been very scanty. Thus, in addition to literature review, primary data were collected by the planning team, following the Rapid Biodiversity Assessment method (Newton, 2006). These primary data have supplemented existing ones and helped the team to have better information on and map the distribution and status of key wildlife species and anthropogenic threats facing them.

Socio-economic information

Information on socio-economic condition of local communities in and around the KSNP was obtained from respective woredas, field observations and discussions with stakeholders.

Policies and Legislation

A range of policy and legislation at international, federal and regional levels are relevant to the management of KSNP as laid out in this GMP. Internationally, Ethiopia is a signatory to a number of articles and conventions such as the Convention on Biological Diversity, CITES, the Convention on Migratory Species and Ramsar which commits Ethiopia to put in place comprehensive and integrated guidelines for the selection, establishment and management of protected areas. As a country rich in natural resources, but poor in financial resources, considerable support is required for Ethiopia to fulfil these obligations.

Nationally, wildlife-related legislation dates from the 1901 Game Act and currently Ethiopia does have a comprehensive and up-to-date legal framework for the conservation and development of wildlife resources (Wildlife Policy 2005, Proclamation No. 541/2007, *Proclamation* No 575 2008 and Regulation 162/2008). The wildlife laws currently in force were enacted many years ago when the country was a unitary state and, currently, the mandates and responsibilities of the federal and regional institutions (including the internal division of powers among the different levels of hierarchy in each institution) that relate to wildlife protected areas are not clearly defined. The federal constitution gives the regions power to administer natural resources but the methods for administration of national parks on a regional basis are not specified. Furthermore, EWCA currently administers trans-regional national parks but the mandates and responsibilities of the federal institutions vis-à-vis regional institutions and the linkage between the two are not clearly defined. Thus, the selection, ranking, establishment and administration of wildlife conservation areas are not sufficiently defined or regulated by law. Furthermore, existing laws have not been harmonised with recent policy developments, such as the rights of communities to participate in the management and sharing of benefits from protected areas nor are mechanisms for implementation of such policies been identified or established by law.

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Planning Steps

March 2016

- Initiation of GMP plan development
- Appointment of core planning teams (CPT) at EWCA HQs level and site level core planning team
- Appointment of an external consultant
- Formation of Technical Working Groups (TWGs)
- ToR developed the TWGs on the GMP preparation process

June-July 2016/17

- The TWGs gathered and evaluated information needed for the planning (literature review, field surveys and meetings with stakeholders)
- A first meeting was conducted by the site level CPT and TWGs whereby they analyzed/evaluated information gathered whereby they
 - Identified Exceptional Resource Values (ERVs)
 - Conducted situation (conservation issues, challenges, and opportunities) and stakeholder analyses
- Hold a second meeting and formulated purpose and management objectives
- Developed actions for each specific objectives

Hawassa meeting December 2017

- Developed 3-year action plan
- Produced draft management plan document

Bishoftu Meeting February 24-26/2018

- All the Programs had been presented to EWCA Core Planning Team (Management)
- Comment and suggestion have been given on Vision, Strategic Objectives /Programs, operational Goals and detailed proposed activities
- Suggestions and comments have been incorporated in to the draft management plan document

Kafata Shiraro/Humera: Validation Workshop August 28-30/2018

- All relevant stakeholders participated
- The process of management planning and all the programs, Operational goals and actions plans presented
- Additional comment and suggestion have been given
- The management plan validated and endorsed

B. Park Purpose, Significance and Values

Park Purpose

The basis for the formulation of park purpose statement are the Exceptional Resource Values of the Park (see below) and federal and regional policies related to land use, conservation/environmental and development.

The Purpose of KSNP is:

To conserve the ecological systems of the Kafta-Sheraro National Park, including the different habitat types and the rare and diverse floral and faunal species, while contributing to the sustainable development of the present and future generations of people locally and nationally in Ethiopia and the globe as a whole

Significances of Kafta-Sheraro National Park

Park Description

The Kafta-Sheraro area was formerly set aside in 1968 as a wildlife Reserve known as “Shire Wildlife Reserve”. The reserve had an area of 750 km² until 1996, but was expanded to cover an area of 5000 km² in 1974. The present Kafta-Sheraro National Park (KSNP) was officially established in 2008 by the Tigray Regional Government mainly to conserve the remnant population of the African Elephant (*Laxodonta africana*) and other co-occurring biodiversity officially gazetted in 2014 by Regulation No. 335/2014 (FDRE, 2014). The park had been managed under the auspices of the Regional Bureau of Agriculture and Rural Development until 2009 after which the responsibility of managing the park was taken over by the Ethiopian Wildlife Conservation Authority—a federal level organization responsible to manage key protected areas of the country and whose HQs is situated in Addis Ababa. Headquarters office of the national park is based at Humera town.

KSNP is situated in the northwest of Ethiopia in the Tigray Region, between 14°03’17’’ and 14°27’52’’ north, and 36°41’43’’ and 37°40’31’’ east. The current extent of the park is 2176 km². Administratively the park lies between North-Western and Western Tigray Zones and between three woredas (=Districts): Kafta-Humera, Welkayit and Adibay-Tehtaya. To the north, the park boundary follows the Tekeze River which forms Ethio-Eritrea boarder. The park is surrounded by 12 kebeles with their 66,000 people.

The landscape of KSNP largely comprises of lowland areas that range in altitude between 550 m asl in the Valley of Tekeze River to about 850 m asl on the hilly grounds. The distinctive geomorphic structure incorporate deeply dissected valley along Tekeze riverbed, flat plains with slightly undu-

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lating to extreme west and becoming more and more undulating with scattered hills and chains of small mountains to Sheraro (Mekbebe Eshetu et al., 2002).

The geological formation of the KSNP area can be characterized by three major stratigraphic units: the basement complex, the Palaeozoic and Mesozoic sedimentary units (200 - 600 myr) and the tertiary volcanic units (~200 myr), from oldest to youngest (Mekbebe Eshetu et al., 2002). The basement complex consists of metamorphic rocks and igneous intrusions. The predominant rock types are green stones of basic volcanic origin, but slates and phyllites of sedimentary origin and granites are also common. The Palaeozoic and Mesozoic sedimentary rocks lie horizontally on the basement and contain mineral deposits of economic interest, such as gold, sandstone, limestone and shale. The tertiary-age volcanic rocks comprise layers of basalt that provides mineral basis for fertile soil formation (Ministry of Water Resource, 1998).

Soil type and characteristics of the Kafta-Sheraro region show local variations. The typical soil type in the area comprises vertisols and fluvisols. Based on their colours as main distinction, they are locally classified as being clay (black), sandy loam (white), sandy (red) and rocky (white). For instance, the dominant soil type in Adebay area is black alluvial soil. Soil depth also varies from shallow on the hilly areas to deep at cultivable flat-plain land areas (Mekbebe Eshetu et al., 2002; Person Observation during planning data collection).

Hydrologically the Kafta-Sheraro area is characterized by a mono-modal type of rainfall regime, occurring between May and early September. Nonetheless, small rains occasionally occur from late September through November. With an annual average precipitation of about 600 mm, the area receives low rainfall amounts compared to surrounding highlands but experiences a disproportionately higher (~ 2331 mm yr⁻¹ (Ministry of Water Resources 1998, cited in Mekbebe Eshetu et al., 2002).

Agro- climatologically the area is categorized under Kola (=arid zone area), which is prone to recurrent drought. Temperature in the area shows variability between dry and wet seasons, the warmest period being from April through May while the coldest from July through August. Overall, mean annual temperature in the region ranges from 20.20°C to 37.6°C (Mekbebe Eshetu et al., 2002).

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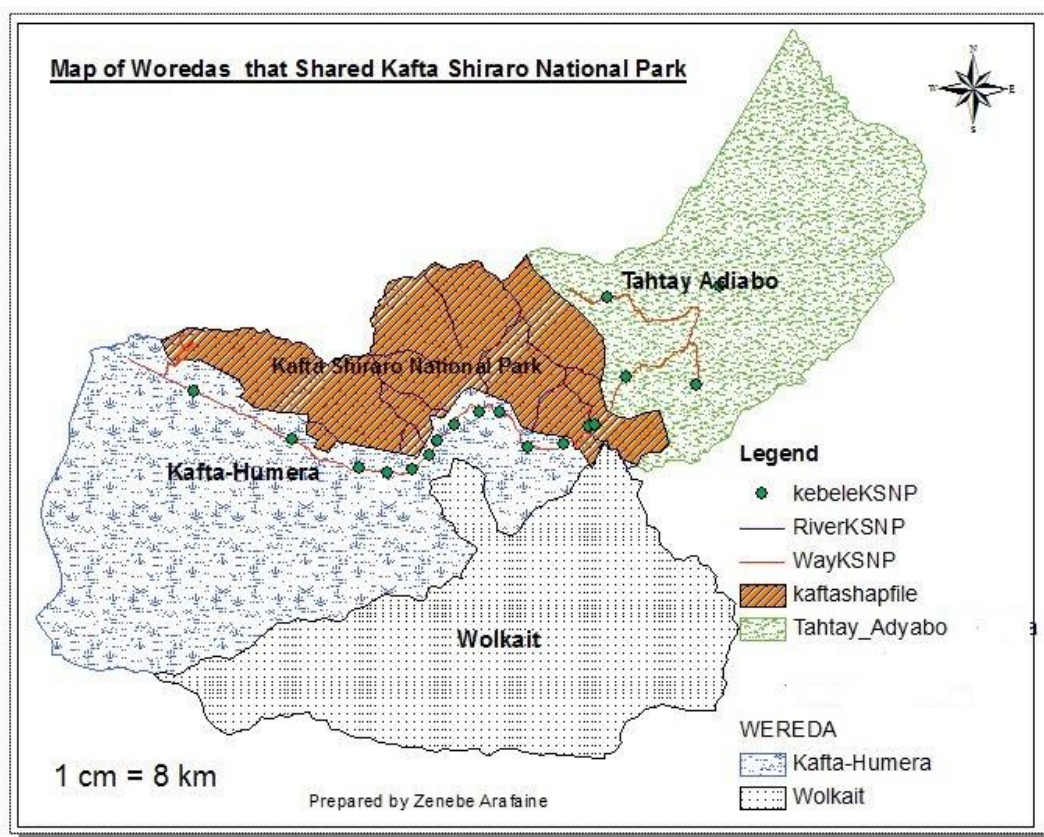


Figure 3: Administrative Boundaries of KSNP

The KSNP is one of the most important conservation areas in Ethiopia (EWNHS, 2001; Eshetu et al., 2002). The park harbours unique populations of several nationally and/or globally conservation concern species such as the endangered African Elephant and the vulnerable Red-fronted Gazelle (IUCN, 2016). It also contains one of the only two populations (the other population being found in Gameblla National Park) of Roan antelope—a species legally protected by Ethiopian Wildlife Law (FDRE, 2009)—and several biome-restricted bird species.

Information on lower vertebrate animal groups (herps and fish) is virtually unavailable. There are some fish species in the Tekeze River and its tributaries, but information on which species they are not available. However, the KSNP office report indicates the occurrence of nine species of reptiles (Yalden, 1983; Kingdon, 1997). No information is available on invertebrates although abundant number of butterflies, ants, spiders and dung beetles were observed during the planning team visit to the park.

Being situated in the Tekeze river watershed, coupled to the several rivers/streams sourcing from there around, the hydrological system of KSNP is of critical importance to some 2-3 million local and downstream users. Kafta-Sheraro area is also very important from other social and cultural as-

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pects, with local communities partially or totally dependent on many of its natural resources such as grass, non-timber forest products and fuel wood. With its scenery, biological and cultural attractions, the KSNP have great potential for tourism although this is currently poorly developed and largely untapped.

Until recently, the area perhaps contains the relatively intact natural vegetation in the Tigray region. However, recently legal (via resettlement programme) and illegal immigration of people to the surrounding area are posing unprecedented growing human-induced pressure on vegetation of the park. Consequently, most habitats in the park are heavily damaged and modified mainly due to over-grazing and gold mining, crop cultivation.

Exceptional Resource Values of KSNP

Exceptional Resource Values (ERVs) are the biophysical features of an area that are considered to be particularly important in maintaining the unique ecological character, integrity and functions of an area and that provide outstanding benefits (social, economic, aesthetic) to local, national and international stakeholders. Thus, the identification of KSNP's ERVs provides a foundation for the park's purpose, identifying the park's conservation targets, management issues and opportunities and generating management objectives.

The KSNP GMP Planning Team has identified and prioritised top 13 ERVs of the park, which are grouped into four main categories: biodiversity, scenic, socio-economic and cultural (see Table 1).

Table 1 Exceptional Resource Values of KSNP

Category	Exceptional Resource Values	Rank
Biodiversity	Conservation concern and/or flagship mammal species, including African Elephant, Roan Antelope, Red-fronted Gazelle and Striped and Brown Hyenas	=1
	Nationally/regionally threatened plant species with genetic stocks that are of economically important, such as <i>Hyphaena thebaica</i> , <i>Diospyros mespiliformis</i> , <i>Adonasia digitata</i> , <i>Boswellia papyrifera</i>	=5
	Acacia-Commiphora Woodland	=2
	Combretum-Terminalia Woodland	=3
	Dry Ever Green Montane Woodland forest	
	Grassland	=6
	Bird diversity, including several biome-restricted and migratory species	=4

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Scenic	Mountain Peaks (Mt. Hilegin, Mt. Tsirga girmay, Tahitay and Laelay Siye, Tebeko Inda zibie), Valleys, Manta-Dubui Island and plains, Tekeze river course	
Social-economic	River/Water catchment such as Tekeze and Dugagum used for irrigation, basic need, etc	=5
	Mineral deposits (e.g. Gold and Marble)	=9
	Other environmental goods and services such as climate regulation, soil erosion and flood control and NTFPs, including gum harvesting, grass cut and honey collection	=7
Historical/Cultural	Natural underground meeting Halls of TPLF during the early gorilla fitting time	=11
	Kunama tribe's spiritual/burial sites found at Manta Dubuei and Tekleamba localities	=10
	Kunama tribe Indigenous ecological Knowledge	=9

KSNP is one of important conservation areas in Ethiopia (EWNHS, 2001; Mekebeb Eshetu et al., 2002). The park harbours unique populations of several nationally and/or globally conservation concern animal species such as the vulnerable African Elephant (*Loxodonta africana*) and Red-fronted Gazelle (*Eudorcas rufifrons*) (IUCN, 2016). It also contains one of the only two populations (the other population being found in Gameblla National Park) of Roan antelope—a species legally protected by Ethiopian Wildlife Law (FDRE, 2009)—and several biome-restricted bird species.

Being situated in the Tekeze river watershed, coupled to the several rivers/streams sourcing from there in, the hydrological system of KSNP is of critical importance to some hundreds and thousands of local and downstream users in Sudan. Kafta-Sheraro area is also very important from other social and cultural aspects, with local communities partially or totally dependent on many of its natural resources such as grass, non-timber forest products and fuel wood. With its scenery, biological and cultural attractions, the KSNP have great potential for tourism although this is currently poorly developed and largely untapped.

The area is, therefore, of critical biodiversity, ecological, cultural and economic importance. The four main categories of the ERVs are presented on Table 1 and each of them are briefly described as follow.

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Biodiversity Values of KSNP

Conservation concern and flagship mammal species

Historically, the Tekeze Valley had been known to be rich in wildlife (Mekbeb Eshetu et al., 2002; Gebremedhin et al., 2009). However, many of the species have been either declining dramatically or locally extinct over the past years due to civil unrest, illegal hunting and habitat loss. For example, globally threatened species such as Lion (*Panthera leo*) and Gravel's Zebra (*Equus grevyi*), including Eland (*Tragelaphus oryx*), Giraffe, African buffalo, Ostrich, Wild dog that have been thriving in area in the past are thought to be absent in the area at present (Asefa, A, 2016, Personal communication with local community). Nonetheless, despite little data exist on biological resources of the park, KSNP still supports considerable populations of several globally threatened mammal species, such as the vulnerable African Elephant and the Red-fronted Gazelle, the near threatened Striped (*Hyaena hyaena*) and Brown Hyaena (*Parahyaena brunnea*), and considerable populations of other mammal species like the Roan Antelope, Greater Kudu, Leopard and Oribi.

The Elephant population in the KSNP represents the most northernmost population of the species on the continent and this population (with ~300 animals currently found in the park) represents about 15-20% of the total Ethiopian population. The national park is also the only protected area in the country hosting population of the Red-fronted Gazelle. Roan antelope is considered as ERV here, although its current global conservation status is Least Concern, because (i) it exists across its ranges in fragmented populations, (ii) the population in Kafta is one of the only two known populations in the country, and (iii) it has been legally protected by Ethiopian Wildlife Laws (FDRE, 2009; IUCN, 2016). Kafta may be the only place in Ethiopia where viable three species of hyenas (Striped, Brown and Spotted hyenas) and highest population of Greater kudu are found.

Migratory and biome-restricted birds

The present KSNP falls in the "Shire Lowland Important Bird Area" of Ethiopia (Ethiopian IBA code: ET001; EWNHS, 1996), but the national park can be considered as an IBA right its own based on the presence of globally threatened species (IBA criteria 1A), biome-restricted assemblage (Criteria A3 & A4) and Congregatory (Criteria A5) (for detail on these criteria see EWNHS, 2001). Although bird checklist for the park is incomplete by far, 195 species, including 35 new species recorded by this planning team, have been reported from the park (Asefa, unpublished data). Of these, 32 (16%) of them are migratory species. Conservation concern bird species recorded from KSNP include four critically endangered vulture species [Egyptian vulture (*Neophron percnopterus*), White-headed vulture (*Trigonoceps occipitalis*), Hooded vulture (*Necrosyrtes monachus*) White-backed vulture (*Gypus africanus*), 6 species (38% of 16 species known to occur in Ethiopia) of Sudan-Guinea biome assemblage and 4 species that belong to the Somali-Masai biome assemblage (Addisu, A., unpublished data). Further, some 21,500 individuals of Demoiselle crane (*Anthropoides virgo*) was recorded in KSNP in March 2009 (Gebremedhin et al., 2009), implying that,

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with a globally total population of ~240,000 individuals (BirdLife International, 2016), the species' population annually visiting KSNP represents nearly 7% of total global population.

Representative unique ecosystem/ vegetation types

Studies on vegetation of the park, like on the animals, have been very scanty and only a checklist of 53 common tree/shrub species is available (Endawek Wendim et al., 2014; Abreha, 2016). This includes many economically important species such as *Boswellia papyrifera* (source of frankincense gum resin), *Diospyros mespiliformis* (seeds used in industries), *Hyphanea thebaica* (multi-purpose tree used in all types of food stuffs) and *Adonesia digitata* (for making mattress and bags/containers).

In general, the vegetation of the KSNP can be classified into four broad vegetation types: *Acacia-Commiphora* woodland, *Combretum-Terminalia* Woodland, Dry-evergreen montane woodland and Riparian woodland (Figure 4). *Acacia-Commiphora* Woodland, that covers the vast are of the park and contains species with significant economic and ecological values, is mainly characterized by species such as *Boswellia papyrifera*, *Acacia millifera* and *Balanites aegyptiaca*. *Combretum-Terminalia* Woodland, on the other hand, mostly occurs in areas where the substratum is rocky sandy soils that have been exposed to recurrent fire burnings. This vegetation type is characterized by dominant species such as *Combretum molle*, *Terminalia brownii*, *Anogeissus leiocarpa*, *Boswellia papyrifera*, *Zizyphus spp.*, *Sterculia africana*, *Balanites aegyptica*, *Grewia bicolor* and *Lannea spp.* Covering a smaller portion of the park, the Dry-evergreen montane woodland restricted to the highland portion of the park. This habitat type, arguably is formerly characterized as a forest ecosystem, is presumed to be created as a result of severe human disturbances that converted forest to woodland/scrubland habitat. Characteristic species are *Acacia spp.*, *Syzygium guineense*, *Zizyphus spine-christi* and *Carissa edulis* (Eshetu et al., 2002). Riparian/Riverine woodland vegetation occurs along river and stream courses, containing characteristic species such as *Tamarindus indica*, *Borassus aethiopum*, *Ficus spp.*, *Diospyros mespiliformis*, *Combretum molle*, *Hyphaene thebica*, and *Mimuspos kummel* (Mekbeb Eshetu et al., 2002; Endawek Wendim et al., 2014).

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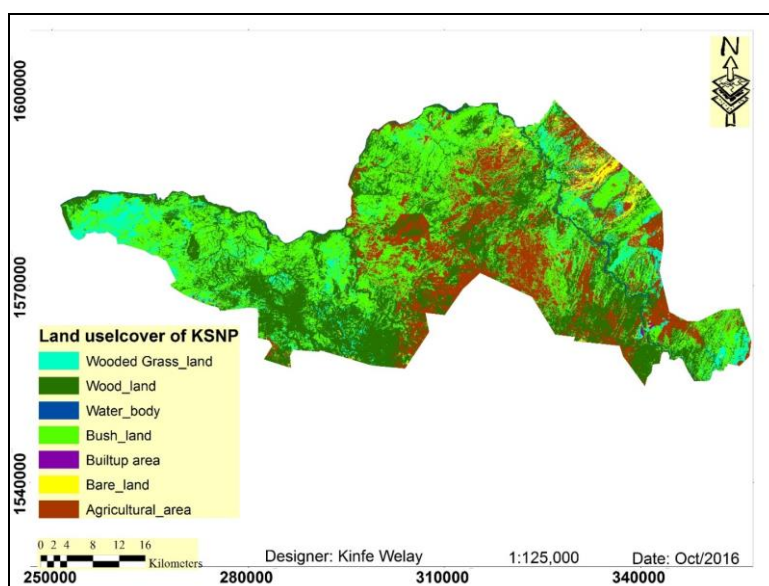


Figure 4:Vegetation types of KSNP

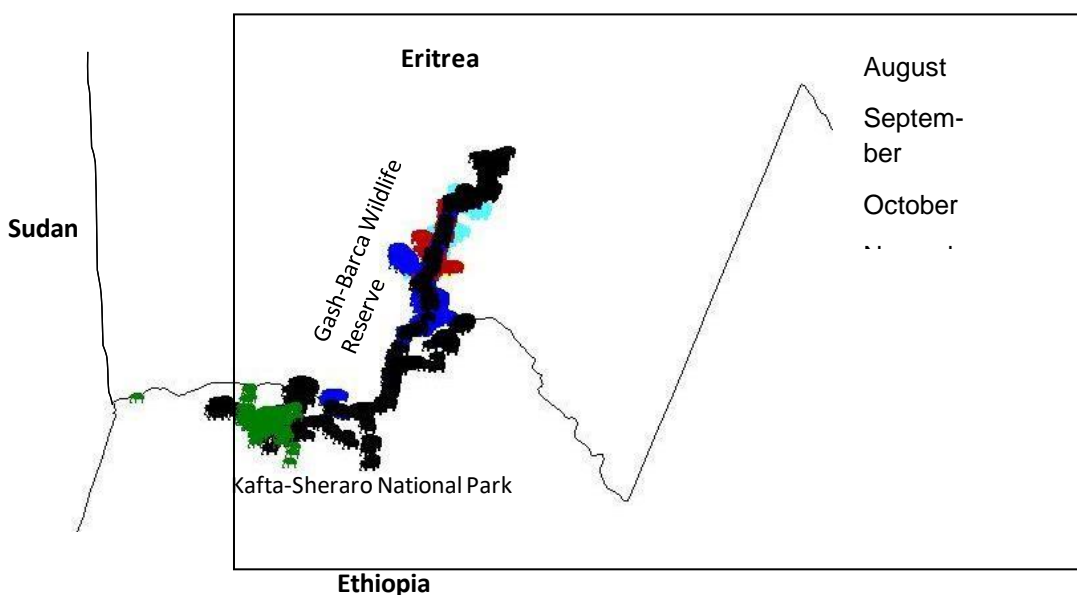


Figure 5 : Elephant Distribution in KSNP and Surrounding Countries

Hydrological System

The main hydrological system of the area comprises of the Tekeze River and its tributaries that emerge from inside the park. Tekeze River—which originates from a locality near Lalibela and travels ~608 km length to its ending point inside Ethiopia—flows inside the park in the eastern section and become park boarder in the north-western boundary of the park. At least five major tributaries of Tekeze river originates from in/around KSNP; namely: Zerbabit, Geytse, Agaf-Urgo, Deg-agum and Idris (Mekbebe Eshetu et al., 2002). Tekeze river and most of these tributaries are perennials although water quantity and flow rate are very low during the dry season, providing year-round

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water supply to the surrounding people and their livestock, and to wildlife of the park. Currently, there are several important wildlife watering points in the park, such as Gual-Tebeko, Tebeko, Karshelit, Enda-Hamham, Dugagum, Midmar and Shelela (Eshetu et al., 2002; Addisu, A. Personal observations, 2016).

Scenic Values

The distinctive geomorphic structure incorporate deeply dissected valley along Tekeze riverbed, flat plains with slightly undulating to extreme west and becoming more and more undulating with scattered hills and chains of small mountains to Sheraro. These land features altogether form breathtaking scenic views and view/vantage points. However, there are specific outstanding attractive and/or scenic viewpoint sites which are of important in attracting tourists. These include Mt. Hilegin (a site in Adigosu where Elephants use as a corridor to move between Ethiopia and Eritrea crossing Tekeze), Mt. Tsirga girmay, Mt. Emba-durkuta, Keyih Gobo, Kalema, ziban wediambi, Tahitay and Laelay Siye and Tebeko Inda zibie. Another interesting fact about KSNP landscape is the occurrence of islands formed by Tekeze River, named Manta-Dubui islands, which are situated at ~20 m apart. The one situated near the river shore on Ethiopian side belongs to Ethiopia while the other lying to the north belongs to Eritreans. Tekeze River alone has a number of attraction/scenic features. For example, in addition to the recreational beaches along the river banks, over 160 km length of the river, mainly along the section that bounds Ethiopia, Sudan and/or Eritrea, is currently navigable by boat.

Socio-economic Values

The exceptional resources of KSNP provide ecosystem services that are vital to the sustainable development of socio-economy and wellbeing of people at local, national and international levels. For example, as discussed above, Tekeze River and its tributaries are the only reliable perennial water sources for hundreds and thousands of people local and far beyond, as well for their livestock. These hydrological systems are serving as modern/traditional irrigation schemes. Thus, proper functioning of these rivers partly rely on appropriate ecosystem conservation and management in the park (Eshetu et al., 2002). Second, the presence of unique populations of wildlife species, beautiful landscape and tourism routes across the region mean that KSNP has high tourism potential. Third, there are economically important natural mineral deposits, including gold and marble. Finally, the area provides several other ecosystem goods and services.

The indigenous people who have been living in the area for many years belong to Kunama tribe. The livelihood of these people has been directly linked to environmental goods and services provided by wild plants and animals. For example, they use the Palm tree (*Hypheneae thebica*): for different types of foodstuff, such as for making local beverage (*Tella*), sauce (*wot*), porridge (*genfo*), handicraft, feeding plate and ornamental/jewellery materials. Even if these people are being denied the right of harvesting raw materials for such traditional use at present, they have been opted to buy

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from illegal harvesters. These people still use Bamboo tree (*Adonesia digitata*) for making carrying materials like baggage and for making mattress. Although unregulated and their impacts remained unknown yet, gum resin collection, grass cutting and honey gathering are among NTFPs that the local people access from the park. KSNP ecosystem also plays a crucial role such as in climate regulation and climate change mitigation, and prevention of soil erosion, flooding and drought.

Historical/Cultural Values

There are at least one historical site and three cultural sites in KSNP. The natural caves at Aditsetser that had been used by the TPLF during the early gorilla fitting time as a meeting/assembly halls is considered as a historical site. While the cultural sites had [have] been used by the indigenous Kunama ethnic group since their ancient ancestral time to the present time as tomb/grave sites and as spiritual sites. These sites are found around Menta- Dibue, Tekileemba and Ayifora/Doni. Members of the Kunama tribe explain about the sites as follows: "... a big hole is dug, leaving a small gate at the top, where dead bodies of people are placed; females are placed on the left side and that of males on the right side. Members of the community visit these sites every year for memorial service and to pray for their dead ancestors." Although these sites are not used as burial places at present, the people still visit them once annually to present their prayers.

KSNP in International Context

KSNP vs. IUCN Protected Area Category

IUCN defines a protected area as: "An area of land and/or sea especially dedicated to the protection of biological diversity and of natural and associated cultural resources and managed through legal or other effective means" (IUCN, 2013). Protected areas are categorised by IUCN into six categories, according to their management objectives, rather than the current state of the area (for detail see IUCN, 2013).

Currently, KSNP is assigned on the UNEP-WCMC database as Category II a "Protected area managed mainly for ecosystem protection and recreation (National Park): natural area of land and/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible".

IUCN Category II is indeed the best fit for KSNP and noting that in general: (i) the basis of categorization is by primary management objective, not effectiveness of management; (ii) Categories represent grading of human intervention, with I-III representing areas where there has been limited and little modification of the environment and IV-VI significantly greater intervention and environmental modification

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RAMSAR site

Inclusion of a site under a RAMSAR site list (i.e., wetlands of globally significance) to implement a number of regional and international conventions and multi-lateral agreements including Africa-Eurasian Wetland Birds agreement, Convention on Migratory Species. Of the total avian species recorded from KSNP, 32 species are wetland depend birds. Although their abundance has not been quantified yet, the recent report of ~21,500 individuals (~9% of its total global population) of *Demoiselle crane (Anthropoides virgo)* in the park (Berihun Gebremedhin et al., 2011) alone can make Tekeze river (=hence tha park) to qualify the criterion for designating the river as a Ramsar site. This is on the basis that, according to the Rasmar Convention, a wetland could be considered internationally significant if it regularly supports 20,000 or more water birds.

Transboundary National Park

KSNP is found adjoined with the Eritrean Gash-Barka Wildlife Reserve. Elephants are known to move to and fro these two protected areas; most probably other wildlife species too could do so. Therefore, KSNP can qualify for trans-boundary national park.

C. ECOLOGICAL MANAGEMENT PROGRAMME

Ecological Management Program (EMP) Purpose

EMP Programme Purpose: The ecological processes, communities and diversity of species across the different habitat types of the Kafta-Sheraro National Park better understood and managed using best practices of monitoring and research techniques that feed back into adaptive management.

Programme Strategy and Principles

The overall core work of the Kafta-Sheraro National Park (KSNP) management is managing, monitoring and researching of the exceptional resource values and mitigating of threats to them. Thus, Ecological Management and Monitoring Programme (EMMP) is a key aspect of this GMP. Monitoring of the state of these exceptional resources is also a key aspect of monitoring and evaluation of the effectiveness of implementation of this GMP in order to verify whether the park vision and purpose are being met.

This ecological management strategy provides a general statement of principles and policy that will guide the ecological management of the natural resources within KSNP over the 10-year period covered by the GMP. Achievement of all components of the programme will ensure that all components of the ecosystem are maintained in their desired state. Appropriate management actions to eliminate or reduce threats will be necessary. However, other threats may emerge as our understanding of KSNP ecosystem increases and external factors change. Adaptive management is, therefore, a critical component of the Ecological Management strategy and ensures that the actions under this programme are modified to deal with changes in nature and level of threats and management needs.

This EMMP strategy is aligned with the federal and regional relevant legislations and policies, including the National Biodiversity Conservation and Research Policy (NBCRP, 1998) and Strategy and Action Plan (NBCRP SAP, 2005), the Environmental Impact Assessment Proclamation No. 300/2002 (EIAP, 2002), Ethiopian Wildlife Development, Conservation and Utilization Policy (FDRE, 2005) and Regulation (FDRE, 2009), Proclamation on Gazettment of KSNP

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(FDRE, 2014) and Tigray Region Land Reallocation Proclamation (Proclamation No.239/2013) and its accompanying Regulation (No. 85/2014). Statements of principles that will guide the ecological management, monitoring and research of ERVs within KSNP over the 10-year period covered by the GMP are summarized as follow.

Guiding Principles for KSNP EMMRE

a) PRINCIPLE OF PARTNERSHIP

One key objective of EMM programme is to support the other programmes by providing scientific information and recommendations for effective decision making. Further, currently, KSNP lacks resources (expertise and finance) to carry out all prioritized ecological monitoring and research activities. Therefore, in order to ensure effective implementation of the programme and use information derived from monitoring, forging and maintaining strong partnerships with other programmes and external stakeholders is required in the planning and implementation of decisions relating to environmental/ecological resources of the park.

b) PRINCIPLE OF ACTIVE MANAGEMENT

Active management may be appropriate when past or present human activities have disrupted ecological components or processes so as to cause, for example, a reduction in flora and fauna species diversity, a threat to rare and threatened species, or disruption in ecosystem functioning. Active management such as restoration may particularly be appropriate in areas where habitat or species have been heavily disturbed by land use activities.

c) PRINCIPLE OF ADAPTIVE MANAGEMENT

Actions of protection and conservation within the park should be adaptable to changes, which occur over time in users and natural environments of the KSNP or preceding availability of new information, which prompts modifications of management. Adaptive Management also responds to unforeseen situations or information. It is based on a plan, which anticipates pursuit systems and which defines criteria and conditions to vary management following the results of ecological monitoring and research.

d) PRINCIPLE OF SUSTAINABILITY

All uses, activities and decisions about the foreseen resources of the KSNP should be oriented towards the maintenance of the biological diversity and the evolutionary process of species in such a way that it permits a regeneration of species and reasonable use. Thus, all decisions, activities and management systems in the park have to be long-term maintainable, as such KSNP

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management will work to maintain all components and processes of the naturally evolving and dynamic park ecosystem in which change can be a natural process.

e) PRINCIPLE OF SCIENTIFIC KNOWLEDGE

Research and monitoring that is directly relevant for KSNP planning, development and management will be prioritised so as to provide a basis for decision-making and adaptive management.

EMM Programme SWOT Analysis

A SWOT (Strengths, Weakness, Opportunities, and Threats) analysis for Ecological Management, Monitoring and Research Programme was carried out to provide input for this programme. These are summarized and depicted on Table 3.

Table 2: SWOT Analysis Ecological Management, Monitoring and Research Programme of KSNP

Strength	Weakness
<ul style="list-style-type: none"> • Unique biodiversity and natural resources with high socio-economic and environmental values • Good understanding at all levels on the importance of ecological monitoring and research for effective park management • Clear research regulation and directive 	<ul style="list-style-type: none"> • Lack of ecological research and monitoring • Low budget • Little competent research staff • Lack of research equipments and facilities (e.g. herbarium, library etc) • Ineffective park management • Lack of active ecological management (e.g. restoration and rehabilitation of damaged sites) • No synergy with universities, donors and research institutions • Management decisions made based on traditional system rather than based on scientific-evidences • No developed specific threats reduction strategies (e.g. for key species, fire, disease, etc) • ERVs degradation
Opportunities	Threats
<ul style="list-style-type: none"> • Presence of many research and academic institutions near the park and in the re- 	<ul style="list-style-type: none"> • Bad international press – border conflicts • Perceived remoteness of the area • Extreme weather conditions

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gion

- High interest of NGOs like MIKE
- High commitment of the regional government
- Highly committed park experts
- Committed experts at EWCA

Principal Ecosystem Components (PECs) of KSNP

Principal Ecosystem Components (PECs), sometimes termed as Conservation Targets (CTs), are ecosystem components that together represent the whole ecosystem and its functions; i.e., together these PECs represent the unique biodiversity and ecological processes of the KSNP. However, ecological systems, communities and species in KSNP are inherently complex, coupled to the limited human and logistic resources available, making it impossible for KSNP management to monitor, research, and manage all individual components of the ecosystem. Consequently, an adapted planning process—based on The Nature Conservancy’s (TNC) Conservation Action Planning (CAP) process that has been adapted by several conservation organizations including Conservation Development Centre (Nairobi), Tanzania National Parks and Ethiopia’s Bale Mountains National Park—has been used to identify and prioritize the components that will be the focus of management action. A number of secondary ecosystem components that co-occur with each PEC, termed here “Co-occurring Ecosystem Components”, are also identified. The key assumption here is that the PECs are truly representatives of KSNP’s biophysical components, concentrating on their monitoring and management will ensure that all ecosystem components within the park are conserved and, thus, an overall healthy ecosystem will be maintained.

Table 3 KSNP Principal Ecosystem Components and their Co-occurring Ecosystem Components

PECs	Co-occurring ecosystem components	PEC’S KEAs	KEA Rank
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Acacia-Commiphora Woodland	Conservation concern mammals, including	Extent	1
	-Elephant	Density	3
	-Roan antelope	Regeneration rate of key woody plants	4
	-Red-fronted Gazelle	Species richness and composition	2
	-Adonesia digitata		
	Several biome-restricted bird species		
Combretum-Terminalia Woodland	Economically important tress, <i>Boswellia papyrifera</i> , <i>Adonesia digitata</i>	Extent	1
	Greater kudu	Density	4
	Birds (e.g. GB Bunting and Bruce's Green Pigeon)	Regeneration rate of key woody plants	3
	Mammals	Vegetation species richness and composition	2
	Grasses		
Riverine Woodland	<i>Hyphenet thebica</i>	Tree density and structure	2
	Riverine vegetation	Canopy Cover	3
	Bird community	Species composition	1
	Mammals such as Elephant, Defarsa Waterbuck, kudu, etc		
	Aquatic animals		
	Butterflies (unknown sp.)		
Hydrological System	Rivers	Flow Rate	2
	Fish (unknown species composition)	Water Quality	1
	Wetland birds, including Demsseil Crane		
	Bird community		
	Crocodile		
Elephant		Population Size	1
		Extent of Suitable Habitat	2
		Reproductive Rates	3
		Spatial and temporal movement pattern	4
Roan Antelope		Habitat Suitability	2
		Population Size and demography	1
		Reproductive Rates	3
<i>Boswellia papyrifera</i>		Population density, structure and regeneration status	1
		Distribution	2

The PECs of KSNP cover various spatial scales and levels of biological organisations, from processes operating at the landscape and ecosystem level to components representing the communi-

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ty level and to species level (Table 4). Species were considered to be PECs if management actions implemented at habitat level is inadequate to secure their long-term perpetuity (e.g. disease, poaching, etc). For each PEC, a number of defining Key Ecological Attributes (KEAs; Table 4) have been identified. KEAs—defined as “attributes of biological composition, spatial structure, abiotic or biotic processes, or ecological connectivity”—are the ecological features that most clearly define or characterise the PEC, limit its distribution, or determine its long-term viability. The KEAs also provide a basis for developing a monitoring plan to improve our understanding of the PECs, their ecological functioning, and any threats to their integrity and long-term viability. Thresholds of Potential Concern (TPCs) will be developed for each KEA so as to identify when management actions are required to restore or rehabilitate a PEC/KEA to its desired state. For example, TPCs for KSNP might identify the minimum population sizes for Elephant and Roan Antelope. If such thresholds are reached management interventions will be called for.

PECs Prioritization for Management and Monitoring

In order to overcome the difficulties for KSNP management to monitor all individual components of the ecosystem, PEC prioritization was made based on their IMPORTANCE and THREAT LEVEL.

As shown on Table 5, PEC importance score, and subsequent ranking allocation, was made based on their economic values, biological values, and current condition. Economic and biological values were scored based on 1-4 ordinal scale, with a score of “1” implying “little to no significant value” and a score of “4” implying a “highly significant”; and current condition of each PEC was rated in three scales as a score of “1” implying “a good condition”, “0” implying “in a stable condition”, and “-1” implying “in declining condition”.

Table 4 : PECs Importance Ranking

PEC	Economic value	Biological value	Condition	Total	Rank
Acacia-Commiphora Woodland	4	4	4	12	1
Combretum-Terminalia Woodland	4	4	4	12	1
Riverine forest	4	4	1	9	4
Hydrological system	4	2	3	9	4
Elephant	4	4	4	12	1
Roan Antelope	2	3	2	7	6

Following PEC importance ranking, threats to each PEC were assessed and ranked by the EMMP planning technical working group. A threat, in this particular GMP, is defined as any

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factor, resulting either directly or indirectly from human activities (legal or illegal), that actually or has the potential to destroy, degrade, or impair a PEC or its KEAs in the next 10 years. Threats were ranked based on four criteria: according to their severity (i.e. level of damage), permanence (potential for permanent damage/loss), scope (geographic extent of occurrence) and status (increasing/decreasing).

As most threats identified during the threat analysis were found to be affecting more than one PEC, a threat matrix was developed to show which threats are cross-cutting and to depict their overall threat rank for each PEC (Table 6). Accordingly, uncontrolled fire, agricultural expansion, irrigation, gold mining, livestock overstocking and settlement are high-very high level threats that are affecting a number of PECs. Thus, immediate management actions are required to mitigate their negative impacts on ecosystem health and to improve the long-term viability of species identified as PECs. Prioritisation of these threats, based on their overall threat rank, also guides the 3-year action plan for EMMP and for “Park Operations Programme”—a programme which addresses the human-associated activities that are posing the greatest threat to ecosystem health and function in the KSNP.

In addition to the threats discussed so far and which are management-orientated with site-specific management needs, there are, however, other threat monitoring activities that should be included in ALL protected areas (PAs) ecological monitoring programmes globally. Such monitoring variables are termed as “Universal Ecological Attributes (UEAs)/Universal threats (UTs)”. UEAs/UTs influence all aspects of a PA’s ecology and impact all PAs worldwide. Climate is the most critical of these UEAs. Climate influences hydrological systems, species distribution and behaviour and vegetation patterns. Further, an increase in global warming (UT) has made many protected areas vulnerable to the impacts of climate change, becoming a significant threat to most PECs within PAs. Although the impacts of climate change provide us with critical information for decision making and hence indirectly to management actions compared to information leading to direct management actions per se, we consider impacts of climate change as critical components of both a PAs management-orientated monitoring programme (e.g. daily weather data collection) and management-orientated research programme (e.g. Impacts of climate change on ecosystem).

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Table 5: PEC Threats Rank (last column) and PEC Rank (last row)

THREAT	<i>Acacia-Comiphora</i> woodland	<i>Comretum-Terminalia</i> Woodland	Hydro-logical System	Riverine Woodland	Dry Afrom- montane Woodland	Elephant	Roan Antelope	Sum	Threat Rank
Uncontrolled fire	11	11	8		11	11	11	63	1
Crop cultivation	12		9		8	12	12	53	2
Irrigation			12	11		11		34	4
Gold Mining	11					11	11	33	5
Domestic dogs hunting on ungulates juveniles							11	11	11
Settlement			7	11		9		27	6
Overgrazing by domestic animals	9	9	8	9	9		9	53	2
Wild animal Poaching						10	10	20	7
Tree cutting for construction	7	5			7			19	8
Invasive species	6	7		5				18	10
Tree cutting for Charcoal	3					8		11	11
NTFPs collection	6	7			6			19	8
Sum	65	39	44	36	41	72	64		
PEC Rank	2	6	4	7	5	1	3		

Threat level key

Threat level	Severe = 4	High = 3	Moderate = 2	Low = 1
a. Severity	Destroying or eliminating the PEC/irreversible	Seriously degrading the PEC	Moderately degrading the PEC	Slightly impairing the PEC
b. permanence	Impossible to restore	Very difficult to restore	Moderately difficult to restore	Slightly difficult to restore
c. Scope	Very widespread	Widespread	Localized	Very localized
d. Status	1 = increasing	0 = stable	-1 = decreasing	
Overall treat level (a+b+c+d)	11-13	7-10	4-6	<4

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Overall PEC Priority Ranking was undertaken, considering both PEC importance and their threat ranks, assuming that a PEC that is of high importance and highly threatened should be prioritised over those that have a low importance and low threats (Table 7).

Table 6 : Overall Priority Ranking of PECs (economic, biological and current condition and Threat level)

PEC	Im- portance Score	Importance Rank	Threat Score	Threat Rank	Sum of Ranks	Ranked Priority
Acacia-Commiphora Woodland	9	1	65	2	3	2
Combretum-Terminalia Woodland	12	1	39	6	7	3
Riverine forest	9	4	36	7	11	6
Hydrological system	9	4	44	4	8	4
Dry Ever Green Montane Woodland	7	6	41	5	11	6
Elephant	12	1	72	1	2	1
Roan Antelope	7	6	64	3	9	5

KSNP Potential Ecological and Threat Monitoring Priority Variables

Prior to choosing priority monitoring variables, PECs KEAs were prioritised using a pair-wise comparison approach while considering the threats as well as the management objectives specific to that PEC. Table 3 shows the KEA ranks for each PEC. Selecting the number one ranked KEA for each PEC and the top two threats to the PEC (or umber 1 threats only, if more than one threat was ranked 1), Table 8 summarises the top potential monitoring variables.

Table 7 : Ranked top Potential Monitoring Priorities of PECs' KEAs and Threat

Rank	PEC	KEA	Threat
1	Elephant	Population Size and structure	
2	<i>Acacia-Commiphora</i> woodland		Cultivation Expansion
3	<i>Combretum-Terminalia</i> Woodland		Cultivation Expansion
4	Elephant		Poaching
5	<i>Acacia-Commiphora</i> woodland		Grazing
6	<i>Acacia-Commiphora</i> woodland		Fire
7	<i>Acacia-Commiphora</i> woodland		Gold mining
8	Roan antelope	Population Size and structure	
9	<i>Combretum-Terminalia</i> woodland		Fire
10	<i>Acacia-Commiphora</i> woodland	Extent	
11	<i>Combretum-Terminalia</i> Woodland	Extent	
12	Riverine Forest	Species Richness	
13	Dry Ever Green	Species Richness	

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14	Hydrology	Water Quality	
15	Hydrology		Irrigation
16	Dry Ever Green Forest		Fire

Ecological Management and Monitoring Programme 10-Year Objectives

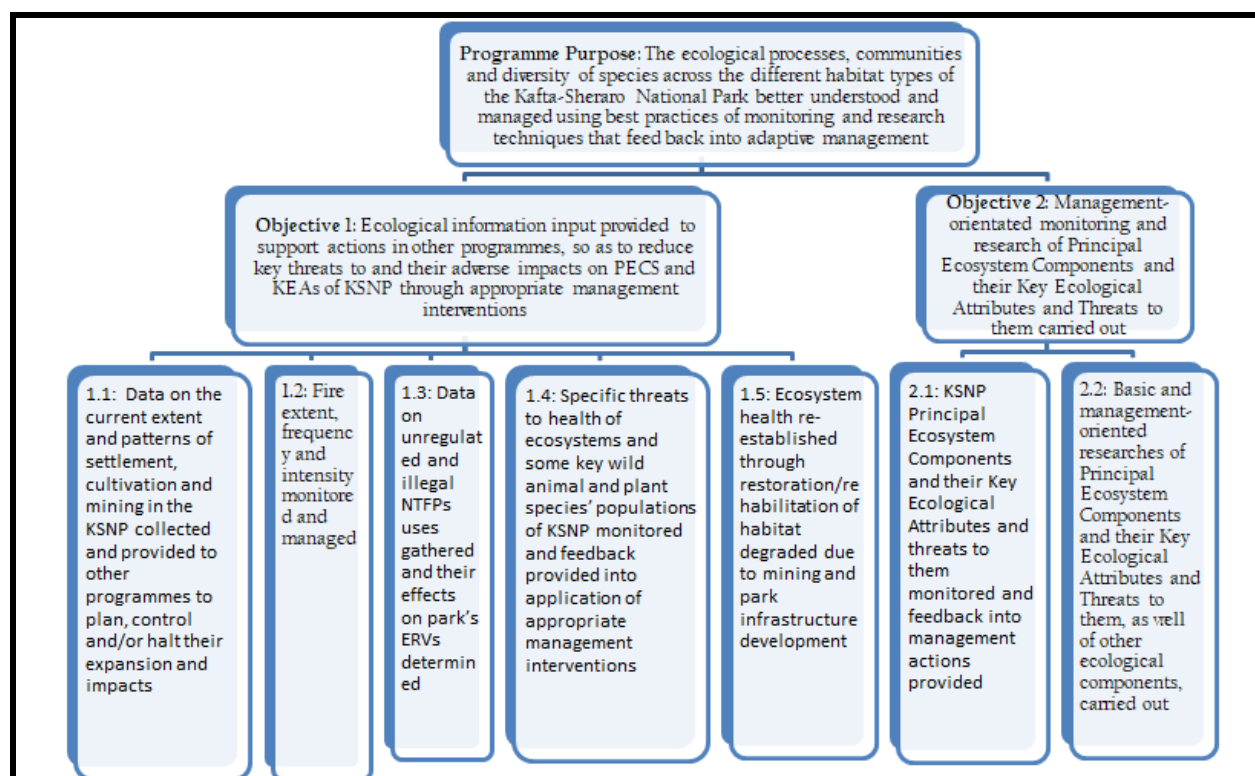


Figure 6 : *Logical Framework for the Ecological Management Programme*

To achieve the programme purpose, the following two objectives are formulated:

Objective 1: Ecological information input provided to support actions in other programmes, so as to reduce key threats to and their adverse impacts on PECS and KEAs of KSNP through appropriate management interventions

Objective 2: Management-orientated monitoring and research of Principal Ecosystem Components and their Key Ecological Attributes and Threats to them carried out

For each of these management objectives, a series of 10-year management specific objectives and associated actions have been formulated, and a brief description of the relevant management issues or challenges is included, providing justification for the actions. A cause-effect relationship between PECs and threats and feedback loop between the two objectives dealing with management actions and monitoring/research (Figure 7) forms the basis for adaptive management of the KSNP ecosystem to achieve the EMM Programme and the park purpose.

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Finally, the 3-year action plan for the Ecological Management, Monitoring and Research Programme, which lists the activities, input requirements, priorities, responsibilities and timeframe for carrying out the actions, is presented.

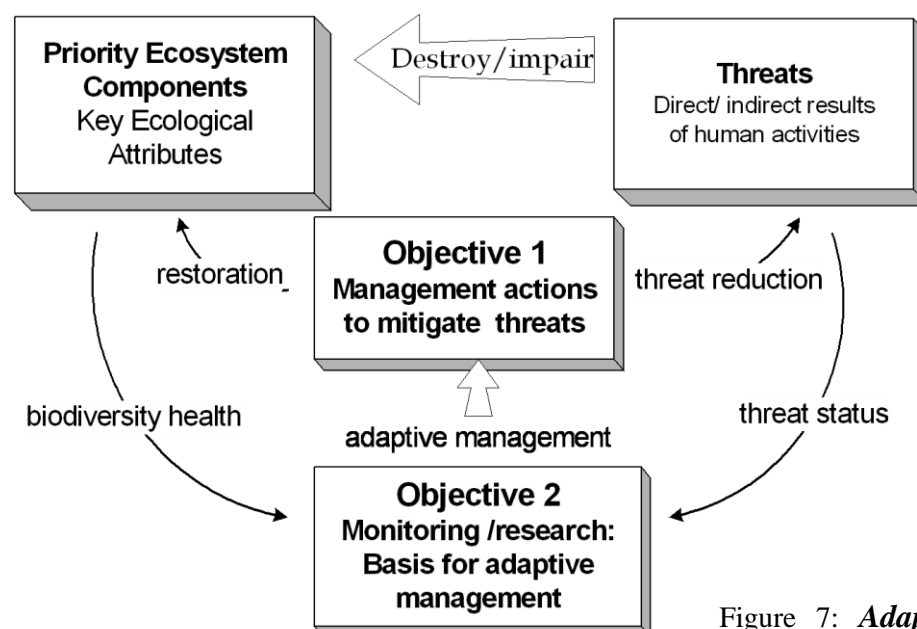


Figure 7: *Adaptive Management Framework*

Objective 1: Ecological information input provided to support actions in other programmes, so as to reduce key threats to and their adverse impacts on PECS and KEAs of KSNP through appropriate management interventions

The first objective deals with the provisioning of ecological data/information that would be used as input for ecological management necessary to mitigate human associated impacts on the KSNP exceptional resource values, through active management [but also under certain circumstances through passive management] that should maintain (or restore/rehabilitate) the desired state of the PECs and KEAs. As such, the Ecological department of the park should hold meetings with other Programmes regularly to discuss needs and identify information gaps where ecological input is required to fulfill park management requirements. Specific objectives with actions are outlined that deals with collection of data on priority threats that require immediate mitigation as well as PEC/KEA restoration once threats are reduced. The importance of carrying out each action, according to the threat level, is reflected in the priority rankings assigned to each action in the 3-year action plan (Section H).

Specific objective 1.1: Data on the current extent and patterns of settlement, cultivation and mining in the KSNP collected and provided to other programmes to plan, control and/or halt their expansion and impacts

At present, almost half proportion of the park area is converted to cultivation land. While some of farmland holders, particularly in Adigoshu and Tekeze villages, were there even before the establishment of the KSNP, thus have ownership legality, most of them are illegal landholders that came from

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areas far beyond the surrounding area pooled by the local people through acquaintance and irrelative-ness. For those legal agriculturalists the area of land allocated to each household was about 2 ha, but they have been expanding illegally through time and now have over 200 ha of cultivation. Because of they possessed excess land, most of the people rent portions of their lands to those people that came from other areas.

Areas around Adigoshu and along Tekeze river are the most affected sites of the park from cultivation of Sesame, mainly in the heart of the park, and from irrigation-based Banana plantation along Tekeze river. Although the number of people, legal vs illegal, extent of land legally vs illegally owned, and overall extent of land under cultivation is yet to be determined, it is obvious that these actions are causing severe threat to biodiversity and ecosystem of the park. In addition to causing wildlife habitat loss, they have led to habitat fragmentation and blockage of corridors. This, in turn, has led to frequent occurrence of human-wildlife conflict. For instance, Elephant crop-raiding has been repeatedly reported as the main problem of agriculturalists. Using this conflict as an opportunity, the farmers use various tools (e.g. poisoning and guns) to poach Elephants, thereby fulfilling their demand for Ivory.

Following cultivation and settlement, another critical threat to KSNP ecosystem is gold mining. This is practiced illegally by the local community and outsiders at a locality specifically named as Adebay-Tebeko. Marble mining is also exercised at the Shiraro Aditsetser locality although the mining site is outside park boundary. Despite any mining activities are strictly prohibited in wildlife protected areas according to Ethiopian Wildlife Law, the current activities in KSNP are illegally undertaken. Apart from modifying the ecosystem through ecological succession, such activities pose a significant threat to wildlife; such pits act as a trap even for larger animals like Elephants. Thus, mitigation measures are needed to reverse the situation.

Overall, promising initiatives have been made to curtail these conservation incompatible human activities, particularly cultivation expansion in the park. For example, a replacement land was given to people of Adebay village from outside the park and now the section of the park that had been impacted from cultivation is now freed. Such actions should be undertaken at critically affected areas, particularly at Adigoshu-Matu and Aditsetser localities, to ensure the long-term proper functioning of ecosystem of the park, and the regional government has expressed its commitment to scale-up this initiative to other villages. Such actions will include mapping the extent, identifying legal and illegal holders, and devise mechanisms to provide replacement land outside the park or compensation for rightful people (i.e. legal land owners). The effectiveness of such actions, in turn, depends on the availability of reliable scientific information on the extent and distribution patterns of settlement, cultivation and mining in the park.

Action 1.1.1: Quantify and map the distribution and extent of settlement, cultivation and gold mining areas in the park

In order for the KSNP management to achieve its park purpose and objectives, current threats to the ERVs should be mitigated and, whenever necessary, PEC restoration/rehabilitation should be undertaken. The effectiveness of such actions, in turn, depends on the availability of reliable scientific in-

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formation on the PECs/KEAs and threats to them. However, little information exists on the pattern and extent and effects on biodiversity of the threats. Thus, the distribution and extent of settlement, cultivation and gold mining areas in the park should be quantified and mapped.

Action 1.1.2: Provide information on the distribution and extent of settlement, cultivation and gold mining in the park to support actions in Park Operations and SNRM programmes that will reduce the threats and their impacts

The EMMR programme should provide ecological information input provided to support actions in other programmes that will reduce key threats to PECS and KEAs. As such, EMMRP should hold meetings with other Programmes regularly to discuss needs and identify information gaps where ecological input is required to fulfil park management requirements.

Specific objective 1.2: Fire extent, frequency and intensity monitored and managed

In Savanna ecosystems, like the KSNP, under controlled conditions, fire is one important habitat management tool to improve wildlife range conditions as it leads to increased plant species diversity, control of undesirable species (e.g. exotic/invasive species) and improved palatability of forage plants, especially for grazers and browsers that rely on short to medium height grasses (Dyer, 2002; NRCS, 2006; Hailu et al., 2015). However, depending on the seasonality, intensity and frequency of its occurrence, unregulated burning also has disastrous consequences both on wildlife and their habitat, because: (i) it destroys animals themselves, including bird nests and infant mammals, (ii) reduce available habitat due to vast area burning, and (iii) results to change in vegetation species turnover, likely replacing desirable species to undesirable ones, and (iv) changes in soil physical and chemical properties (Dyer, 2002). Fire in KSNP is set by the surrounding local community unintentionally during honey harvesting and deliberately to stimulate the growth of new grass for their livestock. It is reported that fire occurs throughout the park every year, often in October, where over 60% of the park area has been burnt every year (KSNP, 2008/2016). As a result, although the nature and extent of the impacts have not been examined, this uncontrolled fire is now thought to represent a serious threat to KSNP's ERVs.

A number of actions have been formulated in order to ensure that the extent, frequency and intensity of fire are appropriately managed within in KSNP, whilst acknowledging that fire has a role in ecosystem function.

Action 1.2.1: Develop and implement fire monitoring and management plan

A fire management plan will be developed that outlines the desired and acceptable frequency of fire and mechanisms to combat the threat from fire where necessary. Where fire may be a natural and necessary part of the ecosystem functioning, managed burning may need to be undertaken by the park in order to achieve the desired state of certain PECs or KEAs. In other areas, fire may need to be controlled to prevent severe habitat destruction. A deeper understanding of the role and impact of fire on the different habitat types and ecosystem is necessary to establish an appropriate fire management plan, and this will be achieved under Objectives 2.

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Action 1.2.2: Collaborate with Park Operations Programme and strengthen infrastructure, services, and human capacity for fire monitoring and control

The infrastructure, services, and human capacity for fire monitoring and response will be outlined in the fire management plan to be developed under Action 1.2.1 and over the course of this GMP, a strong capacity for monitoring and controlling fire will be built. However, the development and implementation of a comprehensive fire plan is unlikely to be achieved within the first 3-year action plan and some immediate activities should be undertaken to strengthen the park's ability to monitor and respond to fire outbreaks. Local fire monitoring, prevention and control committees will be formed. Several global datasets on fire activity are also available from remote sensing data that offer other options for fire mapping and monitoring in conjunction with ground surveys. Databases should be developed to enable analyses of the locality, seasonality, timing, and inter-annual variation in fire incidence and biomass burned in KSNP over the long-term. KSNP can also work with honey gatherers and other community members to minimize the use of fire in the park. Other options for fire monitoring need to be explored that include options using remote sensing, ranger based monitoring and other fire surveillance strategies.

Specific objective 1.3: Data on unregulated and illegal NTFPs uses gathered and their effects on park's ERVs determined

Kunamas are the indigenous community who inhabited the area for several hundred years. Until recently, the livelihood of these people largely relies on livestock husbandry and wild flora and fauna. In addition to hunting on wild ungulates for bushmeat, they used to freely-access NTFPs such as edible plants, honey, grasses and forbs for their livestock, fuelwood, house-hold utensils and construction materials. For example, they still use the Palm tree (*Hyphenea thebica*) for different types of foodstuff, such as for making local beverage (Tela), sauce (wot), porridge (genfo), handicraft, feeding plate and ornamental/jewellery materials. Even if these people are being denied the right of harvesting raw materials for such traditional use at present, because they are currently relocated to outside the park so as to enable them access modern public services like health and education, they have been opted to buy from illegal harvesters. In addition, they also use Babao tree (*Adonesia digitata*) for making carrying utensils and for mattress.

However, current proliferation of human population and settlements around the park has not only resulted into ever-increasing use of such NTFPs in the park, but also has resulted to the initiation of other forms of natural resources utilization, including gum/resin collection and charcoal production. Specific management actions that will help regulate the sustainable use of these resources by the indigenous community, and by non-natives, are developed.

Action 1.3.1: Establish data on spatio-temporal use of livestock grazing in the KSNP and its impact on KSNP's PECs and their KEAs

Hundreds and thousands of free-roaming livestock herds can be seen throughout the park area at any time. In addition to the surrounding local people, others from neighboring woredas and even from Eritrea use the park for grazing almost throughout the year. These herders also topple branch-lets or completely cut tree stems down of the incense-source trees, *Boswellia*, with axe to provide supple-

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mentary feed to their livestock. Thus, livestock herbivory (grazing and browsing) within the KSNP is thought as one of the most critical threats. Therefore, such unregulated grazing activities should be avoided by identifying grazing user types (i.e. historical/past vs recent users; or local vs faraway communities), assessing the rationale for allowing seasonal and regulated uses by locals, in accordance with Ethiopian wildlife law, and developing sustainable/regulated use approaches.

Action 1.3.2.: Determine extent of charcoal, fuel-wood and other forms of NTFPs extraction

Although the demand and supply of natural resource use are increasing with the increasing number of human population in and around the park, little information exists on the extent of the uses and their impacts on biodiversity of the park. Such notable uses of NTFPs include fuelwood collection (both for sale and domestic use), charcoal burning, resin collection from *B. papyrifera*, traditional use (food and making house utensils) of Babao and palm trees, etc. Thus, data on the spatial cover and extent of harvesting of these products should be established and provided to other programmes for actions that enhance sustainable use.

Specific objective 1.4: Specific threats to ecosystem health and populations of some key wild animal and plant species of KSNP monitored and feedback provided into application of appropriate management interventions

A critical part of maintaining ecosystem health is ensuring viable plant and animal populations. Throughout the world, active management is often necessary to maintain viable wildlife populations, when reduced by human-induced pressures (e.g. disease, disturbance, habitat fragmentation, etc.) and prevent them entering extinction risk. Less often, active management is used to prevent populations reaching high numbers that strain ecosystem balance (e.g. maintaining corridors for dispersal, removing invasive species) and restoring populations after large perturbations to the ecosystem.

A number of conservation concern species occur in KSNP and two mammals (African Elephant and Roan Antelope) and a plant (*Boswellia papyrifera*), with current knowledge, have been identified as PECs because they are subject to specific threats that will not be mitigated by the conservation of their resource base and other PECs. The most common of such threats include poaching of Elephant for ivory and Roan Antelope for bushmeat. In addition, the local community also hunts on other ungulates like Kudu for bushmeat, and Leopard for skin. Specific management actions have been drawn up to monitor the incidence of these threats, as outlined below. Furthermore, population demography of most ungulates shows that calves are under-represented, which may suggest that juvenile predation by carnivores is the most likely cause. Although it is unclear whether wild and/or domestic carnivores, mainly dogs, are responsible for such ungulates juvenile predation, the presence of a large number of free-roaming dogs in the park may suggest that domestic dogs pose an important threat to ungulates in the KSNP.

Finally, some habitats of the park are seen to be invaded by invasive (alien/indigenous) species, but the magnitude of the invasion, identity of invasive species and their impacts on the ecosystem has not been known. Thus, data on invasive species should be established and their current geographical distribution should be mapped and managed to mitigate negative impacts on ecosystem health.

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Action 1.4.1: Assess the extent and impacts of Elephant poaching in the park

In KSNP, Elephants are poached for their ivory and/or in revenge to their crop-raiding. Poachers use automatic rifles and poisons being baited in water ponds used by the animals. The location of the park being at the borders of Sudan and Eritrea has made easy transaction of ivory across borders, leading to increased demand of elephant poaching. Further, Elephant population in the KSNP usually move to and from Eritrea across Tekez river, suggesting that a collaborative work between the two countries is needed to minimized Elephant poaching in the area.

In general, in order to halt the incidence of elephant poaching in the park, forming strong collaborations with Eritrean wildlife conservation authorities, Ethiopian defense force and local community is needed. In addition, monitoring of illegal Elephant poaching should be included in ranger-based monitoring (RBM) plan of the park and should be undertaken in collaboration with MIKE and EMEPA project.

Action 1.4.2: Assess the extent of illegal human hunting of Roan Antelope and other species

Roan antelope, although it has a wide distribution in Africa, exists in fragmented and declining population across its ranges. Only two protected populations of the species occur in Ethiopia, in Gambella NP and KSNP, but with unknown status. The population in KSNP is thought to be declining due to increased hunting by local people for bush meat. In addition to Roan antelope, other species like Red-fronted gazelle and leopard are hunted by locals for bush meat and skins, respectively. Thus, mitigation measures should be developed and implemented to rescue the species from local extinction. This, in turn, requires assessment of the extent of illegal hunting of these species, developing and implementing monitoring systems, such as including in ranger-based monitoring (RBM) plan of the park. Then, such data should be provided to other programmes, particularly to the PO programmes, for planning patrolling activities and to conduct awareness creation of local communities on the impacts and consequences of poaching on the species involved.

Action 1.4.3: Assess the actual and potential impacts of ungulate predation by domestic dogs

Direct predation and attacks by dogs pose a threat to a number of wildlife populations, including rodents, Greater Kudu, Red-fronted Gazelle and other antelope species (especially young calves) in the park. They also can pose threats to wild carnivores through food completion and transmission of infectious diseases (e.g. rabies and canine distemper). At present, information available on this issue is very limited, partly because of the short duration of time since the park started appropriate management; thus data are not systematically collected. Nonetheless, abnormal age ratios (lower proportion of juveniles compared to adults) in populations of some ungulates, such as Kudu, Roan Antelope and others and the presence of a large number of free-roaming dogs in the park may suggest that domestic dogs could potentially be posing serious threats to ungulates in the KSNP. This supposition can be supported by the fact that dogs have been repeatedly reported as one key threats to wildlife globally, as well nationally (see Addisu Asefa, 2008), suggesting that there is high probability that dogs in/around the KSNP cause similar problems to ungulates. Thus, preliminary assessment will be collected, via social survey/key informants, to get an insight into the level of this threat and determine if management intervention is required in the short-term (within upcoming 3 years). This action is iden-

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tified as priority research topic in Objective 2. If preliminary assessment reveals that dogs are actually pose threats to wildlife in the park, a local dog control policy of the KSNP will be formulated and made effective. This local policy should be developed being aligned with the Ethiopian wildlife legislation which dictates that domestic dogs should not be allowed to freely wander in wildlife protected areas.

Action 1.4.4: Assess the impacts of unsustainable resin harvesting and develop strategies to ensure health population structure of *Boswellia papyrifera*

B. papyrifera is a chief gum resin producing tree species in Ethiopia. It is widely distributed in Africa, and in Ethiopia, hence in KSNP, it is found in dry *Acacia-Commiphora* woodland and wooded grassland, usually dominant on steep rocky slopes, lava flows or sandy valleys (Wubalem Tadesse et al., 2007). At present, frankincense production, and even the existence of the species in the country is seriously threatened due to human actions. One of the major problems associated with *B. papyrifera* is hampered natural regeneration (Wubalem Tadesse et al., 2007), which could be attributed to several factors. For instance, *B. papyrifera* is very sensitive for natural or human interferences and could be damaged easily. The most common factors reported to causing damage to the trees in Ethiopia are windfall (due to clearance of co-occurring trees), insect attack, termite, fire, improper tapping, clearing and de-branching by local farmers and trampling and browsing by cattle (Wubalem Tadesse et al., 2007). Currently little or no efforts have been made to domesticate the species. Therefore, mitigation measures that will ensure health population of *Boswellia papyrifera* in the park are required; but, this should be done following our understandings on the effects of fire, grazing, chopping branch-lets and tapping and collection of frankincense on survival and regeneration of the species.

Action 1.4.5: Undertake species inventory and develop and implement control mechanisms for the expansion of invasive plants in the KSNP

Invasive species, be it alien or indigenous, can seriously degrade communities and ecosystems as they can out-compete native species and permanently alter community composition and structure. Some Invasive plant species are known to occur in KSNP at localities degraded by livestock grazing and housing actions (Personal observation). This may implies that livestock are the main cause of invasive species expansion in the KSNP. On one hand, they can act as invasive species seed dispersal agents by carrying indigestible seeds, that passes with dung, that are eaten outside the park into the park, or seeds being stuck to their furs, and they can play a facilitation role (by modifying soil microenvironments in such a way that is favorable) for the seed germination and growth, on other hand. Although little is known about these cause-effect relationships and the distribution and impact of the presumed invasive species, the degree of threat is typically perceived to be high. As such, an understanding of which invasive plant species are there and are of greatest concern is needed.

Following research into species inventory, the second important step to managing invasive species is that park staff (ecologists, scouts and monitoring personnel) should be readily able to recognize and identify alien and native invasive species. Priority alien and invasive species lists with appropriate pictures and descriptions, identified under research in Objective 2, will be provided to all park staff, and will be regularly updated with new any information. Systems and databases for regular reporting of sighting locations of invasive species will be developed and integrated into park monitoring, and

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ranger-based monitoring. Finally, a strategy will be developed to control the extent of alien/native invasive species in KSNP and mitigate any potential negative impacts brought about by them. Invasive species control measures taken depend on the extent and severity of their threats, and includes actions such as complete removal from the park or maintaining their expansion, etc.

Specific objective 1.5: Ecosystem health re-established through the development and application of Environmental impact assessment (EIA) tools and restoration/rehabilitation of degraded areas due to mining and infrastructure development

Some habitats are severely degraded in KSNP due to high human pressures (mainly from mining, cultivation, grazing and settlement), posing critical destruction on the park's ecosystem. The Park Operations (law enforcement) Programme will deal specifically with reducing threats associated with human settlement, agriculture and illegal resource use. However, habitat restoration will be required and implemented at heavily damaged areas to achieve the desired state of some PECs and KEAs. Although halting of cultivation and settlement and regulating of grazing inside the park are planned to be carried-out in the coming three years, it is unlikely that habitat restoration action plans are achieved for areas impacted from these particular threats. However, impacts from gold mining will be undertaken not only because of its effect on ecosystem/habitat modification but also because of the need to reduce the direct impacts it poses onto to wildlife (acting as pitfall trap). Furthermore, environmental impacts of existing and future park developments such as buildings and roads should be monitored and mitigation strategies should be developed and implemented. For example, several wildlife species have been seen killed by vehicle trafficking along the tar road connecting Shire town to Humera, mitigation measures should be assessed and implemented. Such impacts should be assessed and mitigation measures developed and implemented accordingly.

The first step in devising and implementing mitigation measures for the environmental impacts of any development and/or park natural resource use is developing and implementing Environmental Impact Assessment (EIA). Once EIA guidelines are developed, EIAs should be conducted and, based on EIA results, re-establishment of ecosystem health should be made through restoration/rehabilitation and other measures where necessary.

Action 1.5.1: Develop and implement EIA guideline and procedures for KSNP

The environmental impacts of existing park development, including outposts and road-networks have not been assessed for their environmental impacts. Thus, these should be retroactively assessed, suggested mitigation measures implemented and the changes in the environmental impacts of the developments regularly assessed, and mitigation measures implemented. Given the actual and potential effects of such park infrastructure developments on biodiversity of the KSNP, EIA guideline should be developed and EIAs conducted so as provide recommendations on mitigation measures.

Action 1.5.2: In collaboration with Park Operations Programme, undertake ecosystem/habitat restoration/rehabilitation at sites that are heavily degraded due to gold mining

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One critical threat to KSNP ecosystem is gold mining. This is practiced illegally by the local community and outsiders at a locality specifically named as. Marble mining is also exercised at the Shiraro Aditsetser locality although the mining site is outside park boundary. Despite any mining activities are strictly prohibited in wildlife protected areas according to Ethiopian Wildlife Law, gold mining activities are currently becoming wide-spread threat in KSNP. Areas such as around Adebay-Tebeko are the most affected sites in the park. Although collaborative actions are required to curtail the activity in the long-term, EIA of the mining practice on the ecosystem should be carried-out and, based on results, re-establishment of ecosystem health at priority sites should be made through restoration/rehabilitation in the short term to mitigate the effects.

Action 1.5.3: Assess and retroactively mitigate the environmental impact of existing park and public infrastructures, including buildings and roads

Existing KSNP infrastructure and other developments were not assessed for their environmental impacts. Thus these developments must be retroactively assessed and mitigation measures suggested. Over time these must be implemented and the changes in the environmental impacts of the developments regularly assessed. Special attention may be required for Ethiopian Road Authorities, especially the tar road crossing the park along where many wild animals are reported to be killed by traffic accidents.

Objective 2: Management-orientated monitoring and research of Principal Ecosystem Components and their Key Ecological Attributes and Threats to them carried out

Ideally, the functioning of the KSNP ecosystem should be fully understood, the status of the PECs and their KEAs should be known and the threat levels should be comprehensively identified and monitored. This knowledge can be used to make informed management decisions in order to meet the park's objectives and thus a fully adaptive management system would be operational. Although this knowledge is not currently available in KSNP, a framework has been drawn up in this GMP to assess the severity of potential threats where these are unknown, to monitor the ecosystem's health, and to ensure that the most important applied monitoring that will inform management decisions and increase the park's knowledge base will be carried out.

Specific objective 2.1: KSNP Principal Ecosystem Components and their Key Ecological Attributes and threats to them monitored and feedback into management actions provided

A plan has been developed for monitoring the health of the KSNP ecosystem, based on developing protocols for monitoring the desired state of the KEAs for each PEC. Threats will also be monitored under the same plan, since these are an integral facet of ecosystem health and can impede any management actions for maintaining ecosystem health. Given the limited human and financial resources available to KSNP, monitoring of threats classified as severe or high are prioritised. The actions under this specific objective are designed to ensure the development and implementation of a comprehensive and scientifically robust monitoring programme in KSNP that will monitor ecosystem health and feedback into adaptive management and the actions outlined in Objective 1 of this programme.

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Action 2.1.1: Develop and implement protocols for collecting data on PECs, KEAs and threats as per monitoring plan and priority setting

Formulation of the GMP revealed that there were few detailed data on the PECs and KEAs, despite the growing recognition of the exceptional resource values of KSNP. Furthermore, there are few, if any, systematic processes in place to document and evaluate the severity of many of the threats identified in this programme. Developing and implementing the necessary protocols to gather systematic baseline data on PECs, KEAs, and threats is a priority to meet this sub-objective, as well as carrying out ongoing monitoring. From these data, trends can be assessed, management effectiveness can be evaluated and adaptive management can be put into practice.

Current KSNP resources prohibit the full monitoring plan from being implemented immediately or in the very near future. Therefore, an annual prioritisation process, particularly as management actions reduce threat levels, is required for the annual implementation of the monitoring activities in KSNP, to enable this to feed into prioritisation of KSNP management action.

Action 2.1.2: Assess and prioritise threats to PECs and KEAs annually based on monitoring data and research findings and inform management actions in this and other programmes

The park ecologist should be up to date with research and monitoring outputs from KSNP, or other similar ecosystems, and thus be determining the priorities for management action in this programme and other programmes (PO, and OR). With data on ecosystem health accruing from the implementation of the KSNP monitoring plan, regular reviews and assessments of these data will be required, as part of the adaptive management process depicted in Figure 7.

Action 2.1.3: Assist the development and implementation of ranger-based monitoring (RBM) plan

Ranger-based monitoring can be an effective means of collecting data from all parts of the park on an *ad hoc* basis while scouts are on patrol. This model has been used in other parks (e.g. Bale Mountains National Park, Ethiopia and North Luangwa National Park, Zambia) and thus KSNP can review potential models and data collection protocols. In brief, simple but valuable data will be collected by scouts on incidents such as animal carcasses, tree cutting, fire, wildlife sightings, etc. Scout will be trained in basic data collection skills and field techniques, including the use of GPS and binoculars, and provided with data sheets during patrols. Data collection will be checked regularly to ensure the data are reliable and accurately recorded for ease of analysis. A database system will also be set up for data entry, storage and analysis.

Action 2.1.4: Establish functional climate change monitoring system

Climate is one of monitoring variables [termed as “Universal Ecological Attributes (UEAs)/Universal threats (UTs)"] that should be included in ALL PA monitoring programmes globally. Global warming caused by climate changes influences hydrological systems, species distribution and behaviour and vegetation patterns. Knowing the impacts of climate change on ecosystem, communities and species therefore provide us with critical information for decision making, hence should be considered as

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critical component KSNP's management-orientated monitoring programme. As a result, procurement and installation of meteorological instruments and daily record of weather data will be undertaken.

Specific Objective 2.2: Basic and management-oriented researches of Principal Ecosystem Components and their Key Ecological Attributes and Threats to them, as well of other ecological components, carried out

The current state of knowledge on the status of the ecological processes, species and threats in KSNP is low and most management decisions have to be made based on practitioners experience rather than based on scientific knowledge. This entails the urgent need of scientifically sound, reliable data on the ecosystem, habitats and species and threats to them in KSNP. Thus, in addition to undertaking monitoring of the PECs/KEAs and threats identified and prioritized based on our current knowledge, further researches are required on these and low prioritized and/or unidentified PECs/KEAs and threats. Obviously, implementing these tasks is tedious and difficult for KSNP and forging and maintaining strong collaboration with national and international universities and research institutions is therefore required. In addition, KSNP will establish a formal research guideline and administration system so as to use research findings as an input for management decisions.

Action 2.2.1: Promote and facilitate research by national and international institutions and persons

As is true of in any protected areas of developing countries, currently there is a resource (expertise and financial) limitations in the KSNP. Thus KSNP recognizes that it will have to rely on stakeholders/partners to a great extent to fulfil the purpose and objectives of the Ecological Management Programme. As such, research and monitoring carried out by other national and international institutions/persons will be promoted and supported within KSNP. The list of priority research topics identified herein (see Appendix 3) will be circulated to external academic, conservation and research institutions by a variety of methods and research will be facilitated by KSNP management by assisting with permissions, providing facilities and/or support for overall logistics, and other aspects where possible. This will foster strong partnerships, improve KSNP capacity for research and monitoring through knowledge and experience-sharing, and provide critical information and data to guide this and other programmes. A set of rules and regulations have been currently drafted by EWCA's Wildlife Research Directorate outlining operational guidelines for undertaking research in Ethiopian protected areas, ensuring exchange of information between external researchers and protected area management (e.g. reporting and data sharing), and promoting capacity-building for research within protected areas wherever possible (e.g. park-researcher collaboration). KSNP will adopt this rules and regulation to get the most benefit of research works undertaken in the park.

Action 2.2.2: Develop functional research guideline and administration system

KSNP management recognizes both basic and applied researches as the principal management tool for the conservation of the ERVs. Current research in the park is scanty, but it is thought that research activities in the park will be increasing afterwards by park/EWCA's professionals and by international and national students and researchers alike. Therefore, there should be a database of these studies which assurances that their findings are reported back to management or that reports are available to

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the park. Accordingly, KSNP ecologists will ensure that such research findings are appropriately documented and their key findings are reported back to protected area management. As such, EWCA's recently developed "Scientific Research Administration Manual" will be adopted to provide the park with procedures for research registration, reporting and administrative/monitoring system.

Action 2.2.3: Analyze and prepare annual reports of ecological and threat monitoring activities to enhance understanding of the KSNP ecosystem

In order to enhance understanding of the KSNP ecosystem, monitoring data should be analyzed and annual reports prepared and disseminated to internal and external end users of the information derived from the monitoring data. Furthermore, the PECs identified in the Ecological Management and Monitoring Programme were selected by a working group of experts familiar with and knowledgeable about the KSNP ecosystem and the park's exceptional resource values. However, new knowledge and data will be acquired as part of the EMM programme that will enable the PECs to be continuously evaluated as to whether these Principal Ecosystem Components represent the whole ecosystem and are suitable as basis for the Ecological Management Programme. This process feeds readily into adaptive management, a key component and one of the key guiding principles of the Ecological Management Strategy. Thus, a systematic review process will be undertaken as new information is accrued to assess whether the PECs/KEAs effectively and exhaustively represent the KSNP ecosystem, including its biodiversity and ecosystem processes. Furthermore, currently, the state of knowledge of the cause-effect relationships of PECs and their threats is low. Therefore, monitoring and research data will be continuously evaluated to increase understanding of ecosystem of the park.

D. SUSTAINABLE NATURAL RESOURCES USE AND THREATS MANAGEMENT PROGRAMME

Sustainable Natural Resource use and Threats Management (SNRUTM) Program Purpose

Programme Purpose: KSNP's biodiversity and livelihoods of park-associated communities mutually enhanced and its Ecological Connectivity Maintained through implementation of SNRUM with collaborative and adaptive Systems

Programme Purpose: KSNP's biodiversity and livelihoods of park-associated communities mutually enhanced and its threats significantly reduced through collaborative and adaptive Systems

SNRUTM Programme Strategy

The KSNP is endowed with many fold local communities' demand driven and vulnerable Natural Resource. The demands of the communities to use such resources are still the huge attractive factors behind the anthropogenic pressures of the park. Including the Tekeze River which passes engulfing over 160 km inside the NP, the arable and irrigation lands, the existence of many economical beneficial non timber forest products (NTFP) like gum, resin, grass, fodder useful tree species and the availability of different types of mineral deposits, and the like are the key natural resources which attract the human being from every corner and neighboring countries' like the Sudanese and Eritreans whose using the natural resources unsustainably.

Likewise, the biodiversity and ecological processes of KSNP are being severely impacted by the expansion of human activities in and around the park due to unsustainable use of natural resources. In order to secure the long-term future of KSNP, it is critical that a balance is struck between human needs, natural resource use, and the conservation of the exceptional resource values of the park. It is therefore important that a multiple land use area be designated where the complete removal of human influence is not achievable or realistic.

In the future, a desired state of affairs in KSNP is that important to allow local communities' access to use on selected types of natural resources and a multiple land use area be designated where the complete removal of human influence is not achievable or realistic and livelihood improvements is mandatory; NRU by local community is sustainable and occurring only in des-

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ignated Zones and land use are planned and coordinated within and outside the park; resource users are regulated and negative human impacts are minimal; and where permanent settlements, irrigation investments and so called legal agriculture areas which are found inside the park will be banned.

The Sustainable Natural Resource Use Management (SNRUM) strategy provides a general statement of the policy and principles that will guide the management of natural resource use in KSNP, while also taking into account the socio-economic need of the local communities, over the 10 year period covered by this GMP. Most of these policies embrace the concepts of benefit-sharing with local communities and some degree of joint involvement in park management. Internationally, Ethiopia is a signatory to a number of conventions CBD, IUCN, the 2030th Agenda of SDG, CITES, World Bank policy, **ICCA** Consortium and WCPA guideline. The conventions recognizes participatory biodiversity conservation, SNRU and equitable benefit sharing of local community's living in/around PAs, indigenous peoples customary right to use/access NR, and community engagement in shared governance of national PAs system. Article 8(j) and 10(c) of the CBD recognizes conservation of biological diversity as “a common concern of humankind” and is an integral part of development process. The 2030 Agenda for SDG explicitly recognizes that social and economic development depends on the SMNRs. PAs contribution are reflected across more than half of its Goals and targets. The emphasis on the inter linkages between social protection, economic development and environmental health makes the 2030 Agenda truly integrated and supportive of better investment in natural resource management.

At national level, there are a number of policies, proclamations, directives and guidelines which support implementation of the SNRUMP. The National Constitution of Ethiopia, Wildlife Development, Conservation and Utilization Policy (2005) and Environmental policies emphasized on the communities' Right to Development, the Key Guiding Principles to sustainable development, Decision to recognize access right to land and natural resource of the local community, importance in integrating human population planning, sustainable natural resource management and rehabilitation of and care for the environment.

Proclamations including, Environmental Impact Assessment Proclamation (Proc. no. 299/2002), The Wildlife Development, Conservation and Utilization Proclamation (Proc. no.541/2007), the Ethiopian Wildlife Authority Establishment Proclamation, the most importantly, recent policies/development plans GTP and CRGE plans are important statutory component of this GMP. The development, conservation and utilization of Ethiopian wildlife proclamation (Proc. no.541/2007) and Regulation (No. 163/2008) Article 2 (e) clearly states that: Based on the

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agreements made between a national park management and surrounding community seasonal utilization of natural resource such as bee-keeping and honey harvesting, cutting and taking forage and medicinal plant collection, may be permitted under controlled conditions. Article 2(f): National important mining and other development activities can be performed in harmony with wildlife development, protection and utilization activities. Moreover, the Ethiopian Wildlife Authority Establishment Proclamation 575/2008; Article 5 States that the objectives of the Authority shall be to ensure the development, conservation, and sustainable utilization of the country's wildlife resource.

Other proclamation/regulation/directives relevant to the implementation of this program include: Kafta-Sheraro National Park Designation Council of Ministers Regulations No. 335/2014, Forest development, Conservation and Utilization Proclamation No. 1065/2010, Frankincense and Gum Arabic development and production of the National state and Regional Government of Tigray improved Directive No. 1/2012, Fishery and Livestock development proclamation, Fodder and forage management, The Mining Proclamation No. 52/1993, Mining Regulations No. 182/1994 and Income Tax proclamations No. 53/1993.

Although all these policies, proclamations and regulations support the participation of local communities in developing and using of natural resources, none of them have clearly stated the mechanisms how local communities are involved and benefited from all types of natural resources. Nonetheless, a ratified General Management Plan of KSNP that specifies natural resource use, combined with formal natural resource use agreements that are drawn up and signed between KSNP management and local communities, provides the legal basis for natural resource use inside and around the park. Whilst participatory NRUM has been recognised and fully legally supported in Government forest areas in Ethiopia, formal NRUM systems have not yet been implemented yet within Ethiopian National Parks. Consequently, it should be foreseen that implementing a system similar to that used in forests outside parks in KSNP may present some particular challenges and therefore, designing its impact controlling mechanism very important.

Sustainable Natural Resource Management Programme 10-year Objectives

The Sustainable Natural Resource Management Programme provides a framework for the development and implementation of sustainable natural resource use management systems in KSNP. Key activities in this framework of the programme are setting up natural resource management agreements with community management groups in designated Conservation & SNRUM Zones and seeking alternative business options for local communities.

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The actions in this programme are based upon best practices of Participatory Forest Management elsewhere in Ethiopia. For example, the models used by Farm Africa/SOS Sahel in Ethiopia break down the establishment of participatory natural resource management systems into three key phases: investigation, negotiation and implementation (Farm Africa/SOS Sahel, 2007). The investigation phase involves carrying out a stakeholder analysis, assessing and mapping the natural resources and their use through participatory methods, and establishing community institutions that will manage the resources. The negotiation phase involves planning which resources can be used, how much, by whom, and how use will be managed. Subsequently, resource management plans and agreements are negotiated carefully with the concerned communities, which lay out the responsibilities of both community resource management groups and KSNP management. The agreements are based on some understanding of acceptable and sustainable levels of use for particular resource type. The implementation phase then includes the development of roles/responsibilities and training, so that representatives of the resource management groups have the required skills for agreement implementation. Development and implementation of participatory monitoring, evaluation, and protection systems are also key to the overall functioning of the system, so that agreements can be reviewed and revised and, thus, adaptively managed. A series of principles were drawn up from national policy and legislation to guide the design and implementation of the SNRUM Programme in KSNP.

Guiding Principles:

1. Principle of Conservation

The goal KSNP is to ensure the long-term conservation of biodiversity integrity and functioning of ecosystem processes of KSNP. As such, conservation and developing of the Exceptional Resource Values (ERVs) of the park takes priority in all actions.

2. Principle of sustainability, fair and equitable benefit sharing

SNRUM programme bases on the concept that NRs use of local communities will lead to mutually developed livelihoods and biodiversity in a sustainable manner. It also assumes that local communities will have rights to access NRs use and share benefits derived from natural resources fairly and equitably.

3. Principle of participation and partnerships

The programme follows the principle of active and full participation of local communities and other partner organizations, including relevant regional and local government bodies and development NGOs, starting from the planning of the programme up-to implementation and monitoring phases.

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4. Principle of Legislation and agreements

Although National legislations underpin the programme approach, natural resource use in KSNP will be negotiated, agreed and formalized under natural resource management plans and agreements.

5. Principle of zonation

Zoning is commonplace in IUCN Category II Areas/National Parks to allow and differentiate for NR and tourism use and conservation zones. Strict conservation completely protected areas, visitor use and use by indigenous people.

6. Principle of adaptive management

Adaptive management and ‘learning by doing’ are key aspect of implementing natural resource management systems in KSNP, so as ensure appropriate ecosystem functions and process are maintained.

Sustainable Natural Resource Use Management Programme 10-year Objectives

The Sustainable Natural Resource Use Management Programme provides a framework for the development and implementation of sustainable natural resource use management in KSNP. The core framework of this programme involves setting up natural resource management agreements with community management groups in designated Conservation & SNRUM Zones (see Park Zoning Scheme). The actions in this programme are based upon those used in Participatory Forest Management elsewhere in Ethiopia by several organizations such as GTZ. According to the models they use, the establishment of sustainable, participatory natural resource use management systems can be broken down into three key phases: investigation, negotiation and implementation phases (Farm Africa/SOS Sahel, 2007). The investigation stage involves carrying out a stakeholder analysis, assessing and mapping the natural resources and their use through participatory methods, and establishing community institutions that will manage the resources. The negotiation stage involves planning which resources can be used, how much, by whom, and how use will be managed. Subsequently, resource management plans and agreements are negotiated carefully with the concerned communities, which lay out the responsibilities of both community resource management groups and KSNP management. The agreements are based on some understanding of acceptable and sustainable levels of use for particular resource types. The implementation phase then includes the development of roles/responsibilities and training, so that representatives of the resource management groups have the required skills for agreement implementation. Development and implementation of participatory monitoring, evaluation, and protection systems are also key to the overall functioning of the system, so that agreements can be reviewed and revised and, thus, adaptively managed.

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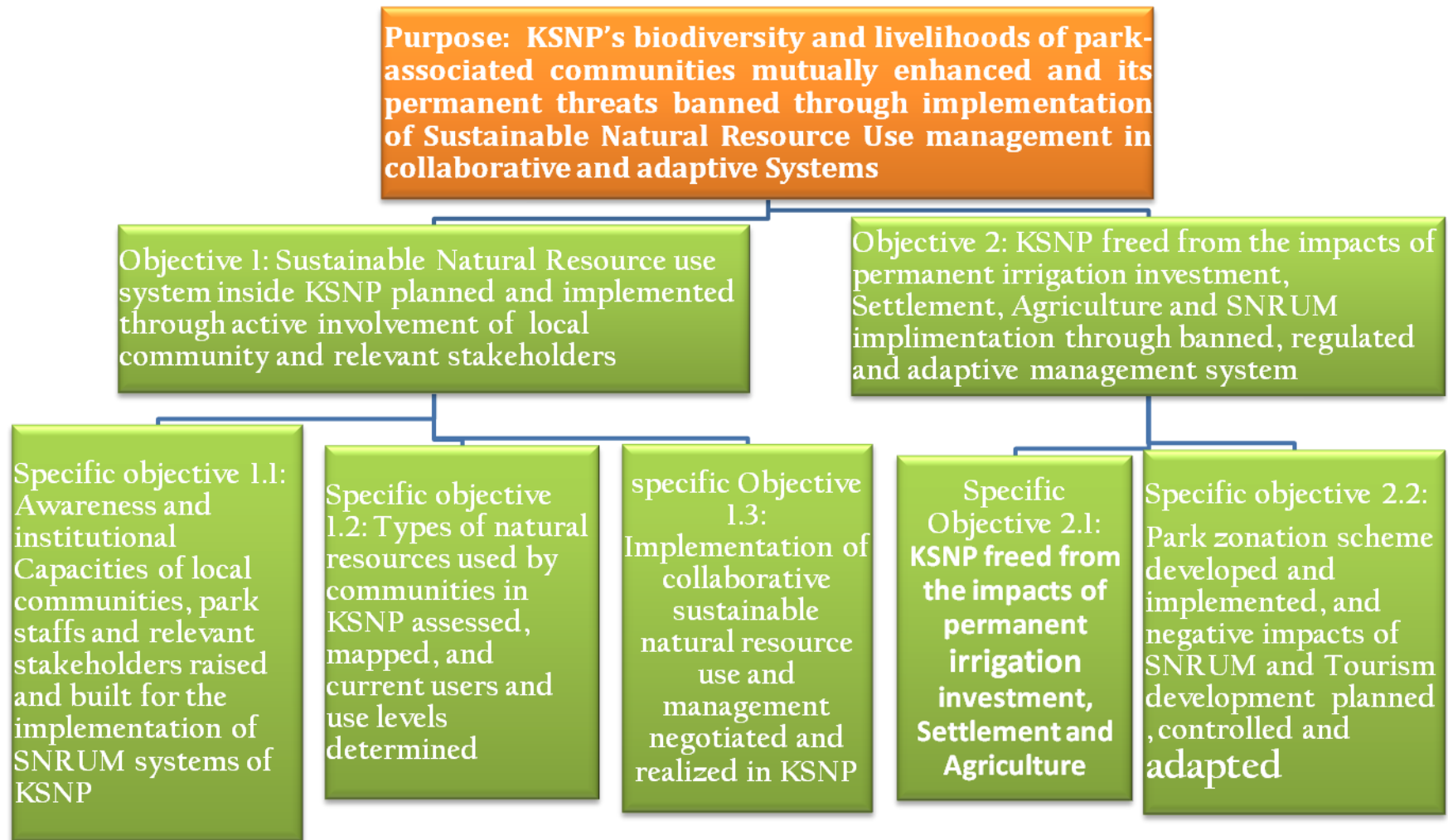


Figure 8: Logical Framework for the SNRUTM Programme including the programme purpose, objectives, and specific objectives

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In order to achieve the programme purpose, the following three 10-year objectives and specific objectives have been drawn up, based on the guiding principles of KSNP sustainable natural resource management strategy, along with the issues and opportunities analysis two strategic objectives and 5 specific objectives with a series of associated actions have been formulated for the SNRU Management program and are described below. In addition, a brief description of the relevant management issue or challenge is included, providing the justification for the actions. The 3-year action plan for the Sustainable Natural Resource Use Management Programme, which lists the activities, input requirements, priorities, responsibilities and timeframe for carrying out the actions is explained below.

Objective 1: Sustainable Natural Resource use system inside KSNP planned and implemented through active involvement of local community and relevant stakeholders

Some of the key facts of the socioeconomic and natural resources that are found inside and adjacent KSNP are ~ 60,000 human population; ~ 1,172,406 Livestock population such as 490,845 cattle, 613,593 sheep and Goats and 67,968 Camels & Donkeys; Existence of Community demanding & attractive Natural Resources –like Non timber forest products like ~ Full area coverage of forage and fodder plant species, ~ 30,000ha *Boswellia papyrifera* ~ 15,000ha *Acacia Senegal* and ~ 8000ha *Doum palm*; Marble minerals deposit; the multi potential of River Takeze for different development activities; and there are other potential artifact species which are useful to the local community. The above facts are some of the source of the local communities' dependency and resource access delivery means.

Implementation of SNRUM systems requires the availability of human, institutional and legal capacities. In the case of KSNP, stakeholder analysis should be carried out and their knowledge base and skill set for participatory SNRUM assessed and strengthened. Methods to legalized natural resource management agreements between resource management groups, park management, legal recognition of community-based NRUM institutions with regional, national authorities and institutions will be developed. Other key actions include assessment of resource and users, sustainable limits and business options for rightful user groups on potentially allowable natural resources.

Specific objective 1.1: Capacities established for the implementation of sustainable natural resource use management systems of KSNP

There are a number of capacity gaps that need to be filled before sustainable natural resource use management in the KSNP is operational and effective. Obviously, both KSNP management and the local communities have inadequate capacity to implement or monitor the natural resource management agreements that will be drawn up. Thus, capacity building needs to be undertaken as a prerequisite for achieving the purpose of this programme. Furthermore, the institutional and legal framework to manage natural resource use needs to be established, strengthened, and incorporated into NRM plans and agreements.

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Action 1.1.1: Carry out stakeholder analysis and assessment of human, institutional and legal capacity levels for negotiation and implementation and strengthen their knowledge base and skill set for participatory SNRUM in KSNP

Currently, KSNP management has little manpower, training or financial capacity to negotiate with local communities, facilitate and draw up resource management agreements, or manage the agreements themselves. Thus, KSNP needs to conduct a stakeholder and institutional analysis of potential NRM partners in the park, in order to know whom they should work with and to assess relevant stakeholder capacity needs. The identification of community representatives that represent all gender and socio-economic groups is a key part of this action. Subsequently, a capacity assessment of all key stakeholders for participatory SNRM (park staff, local government, and communities representatives) is required that will lay out in detail the capacity gaps and training needs. Experience-sharing visits to other community-based natural resource management areas, both inside and outside the country, are encouraged as a means of strengthening capacity for joint SNRM in KSNP. Finally, the “Learning by Doing” approach will be a key part of capacity development, so that adaptive and appropriate skills are developed as new needs are identified. KSNP will work closely with nearby universities and training institutions to plan and carry out training needs identified by the capacity assessment.

Action 1.1.2: Establish resource user/management groups (CBOs) to ensure sustainable natural resource use and equitable access, as per priority setting

In addition to assessing the availability of human, institutional and legal capacities, another key action required to implement SNRM schemes, on top of empowering existing ones, if any, is establishing community-based organizations such resource user groups. These organizations will be established based on the type natural resources used by communities that can be considered to be feasibly allowable for sustainable use.

Action 1.1.3: Identify and develop plans of business options for resources user groups that improve natural resource status for harvesting and/or production and community’s livelihood in an environmentally sustainable way

KSNP has several NRs which can potentially sustainably be used as livelihood improvement strategies for the local communities; provided that such uses would be in a sustainable manner and positively impact ERVs/PECs of KSNP.

One of the business options could be the potential use of Tekeze River for irrigation-based cultivation along the river falling in the Conservation & SNRM zone of the park and in the arable lands outside the park. Other significance of Tekeze River is sustainable harvesting of fish and crocodile. These resources have been freely exploited by local communities, but level of their exploitation, economic benefits, challenges, etc have not been assessed.

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Furthermore, nearly more than half of the KSNP's vegetation is covered by gum and resin bearing tree species, such as *Boswellia papyrifera*, *Acacia senegal*, *Sterculiaceae Africana*, etc. These gum and resin tree species have considerable economic benefits for the local community, as well in boosting foreign currency for the country. Similarly, trees like Doum palm and African Black wood are other resources would be used as raw materials for artifact crafting, with potential contribution to improve the livelihoods of the communities.

Livestock husbandry is still one of the main livelihood basis of in the surrounding communities of KSNP. The KSNP area is full of forage and fodder materials which can be used for feeding communities' livestock. Furthermore, KSNP and its surrounding areas are endowed with high accumulation of different types of natural minerals, such as Iron, Gold, Marble, etc. However, these resources have been exploited in ad hoc basis.

The consensus is, therefore, that if methods that improve the status of these natural resources for harvesting and/or production are developed, and if their uses are undertaken in planned, environmentally friendly and sustainable manner, it has high potential to promote both biodiversity conservation in KSNP and livelihoods of the surrounding local communities. Thus, best management practices need to be identified for all types of resource use and written into resource management agreements for implementation by resource management groups in KSNP.

Action 1.1.4: Develop and implement methods to legalise natural resource management agreements between resource management groups and park management

In any participatory NRM initiatives, establishing an appropriate institutional and legal framework is needed to enforce the management agreements. Under current legislation, such a legal framework involves formulation and ratification of bye-laws between KSNP and resource user/management groups that will outline resource use in designated areas and management plans. These will be ratified by both parties and incorporated into natural resource management agreements between the park management and resource management groups. KSNP and partners will facilitate community level decision-making for determining these bye-laws. It is also crucial that the judiciary, police and local government understand and give guidance on the legal status, development, implementation, and enforcement of such bye-laws.

Action 1.1.5: Ensure legal recognition of community-based NRUM institutions with regional and national authorities

The local communities are considered to be rightful resource user groups need to obtain legal recognition to negotiate and enforce resource management agreements, but also they need to obtain external supports for such activities. A working group will be formed to establish an appropriate legal framework for joint NRM in KSNP and promote the wider legal recognition of community-based NRM institutions.

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Specific objective 1.2: Types of natural resources used by communities in KSNP assessed and mapped, and current users and use levels determined

Current resource use in KSNP is in an unplanned and unregulated fashion thus needs to be regulated and managed in such a way to ensure it occurs in a sustainable manner. The key aspect of this programme is the development of specific site-based plans and natural resource management agreements with communities. These plans and agreements will legitimise the sustainable use and management of natural resources within prescribed areas of the zonation plan of KSNP. Resource management plans and agreements will be negotiated with individual kebeles and/or community based resource management groups as appropriate. These plans and agreements will outline what KSNP and local communities negotiate and agree is acceptable in terms of sustainable management of natural resources. This will include which resources may be used (e.g. honey, coffee, grass), who may use them, to what degree, and in what manner. Community-based methods for monitoring and enforcing resource use will also be developed between KSNP and the community-based resource management groups. These will be linked to park monitoring and enforcement as a mechanism for verification and cross-checking data reliability and agreement implementation.

Action 1.2.1: Assess and map potential natural resources use option

Documenting and mapping resource use and extent will be undertaken as a first step in determining sustainable levels use of different natural resource types for the development of resource management agreements. Participatory methods will be used to identify and define resource types used in KSNP, their socio-economic and cultural importance and, in concert with the park monitoring plan, map and quantify resource availability and use throughout the park.

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Figure 9: Basic Natural Resource Use Option Modelling of KSNP

Action 1.2.2: Identify and develop package plans of business options for resources user groups that improve NRs status for harvesting and/or production and community's livelihood in an environmentally sustainable way

NRU packages are an identified use options which have specific use criteria, different approach, different management and development issues. It is necessary to formulate once NRU development and production entity/package that guide the whole business process. These guidelines or formulated packages are developed in collaboration subject matter experts of different stakeholders. The packages seek the knowledge's of improved variety of animal husbandry science (live-stock fattening, fishery, crocodile farming, honey, fodder and forage development, production, and management). Similarly, from the forestry sector, the knowhow of Forest seed and fuel wood collection, handling and marketing is needed. The improved energy saving stoves construction and bio-fuel development, knowledge has to be acquired from the Energy development sector. Hence, the help of the respected experts from the regional offices of Agriculture and Rural Development and from Mining, energy development and water supplies are important to formulate the packages.

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Some of the potential packages of NRUs from the KSNP are: The Frankincense and Gum-Arabic businesses; Forage and fodder development and utilization scheme; Honey development and production package; Fish development and production; Crocodile Farming development and production; Forest seed collection and marketing; Dry Fuel Wood collection and supplying ; Energy saving and providing technology; The Bio-fuel technology ; Improved variety/modern animal husbandry and other packages

Action 1.2.3: Identify the current users and use levels and sustainable limits, with resource management groups

Where information is lacking or data are not available to determine sustainable levels of use, literature from similar areas/situation will be sought for guidance and research must be promoted by KSNP as a priority, so that resource management can be adapted appropriately to ensure sustainability. This is an ongoing feedback process in which knowledge acquisition and monitoring will be used for NRM implementation through adaptive management. Trends in resource use will also be assessed using historical, current, and future data collected in this fashion.

The 3-year activities set out under this action specifically highlight the need to understand the level and extent of grazing pressure, wood extraction, and associated negative impacts on the PECs and KEAs to determine where interventions for SNRM are best targeted initially and over the course of the GMP implementation. Collection and mapping of baseline data on settlement and agriculture will be undertaken under Objective 2 of this programme. Discussions with potential NRM groups will also be held to explore mechanisms for determining and negotiating sustainable limits of use.

Specific Objective 1.3: Implementation of collaborative sustainable natural resource use and management in the KSNP negotiated and realized

Following investigation stage, and provided that opportunities for sustainable resource use are available, the next key component of joint natural resource management is negotiation and implementation of the system. The key activities in the negotiation stage of collaborative natural resource management include drawing up of NR use planning, outlining which resources can be used, how much, by whom, and how use will be managed.

Another key action during negotiation and implementation phase is finalizing and implementing the proposed zonation plan to secure both the Conservation Zone (CZ) and Conservation & SNRM Zones. Finally, based on the monitoring data, rehabilitation of prioritized degraded areas should be undertaken.

Negotiation is the key phase in sustainable natural resource management in order to practice successful and effective natural resource conservation and socio-economic development of the local community. At this stage resource use agreements should be drawn up and negotiated with the con-

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cerned communities, laying out the responsibilities of both community resource management groups and KSNP management. The agreements should outline which resources can be used, how much, by whom, and how use will be managed.

To implement effective and successful collaborative natural resource management, capacity of the implementers should be enhanced, so that representatives of the resource management groups have the required skills for agreement implementation. Further, a joint community and KSNP natural resource use control and protection, and monitoring and evaluation systems should be designed and implemented.

Action 1.3.1: Draw up resource use agreements and negotiate with the concerned communities

Natural resource use should be planned and resource use agreements will be drawn up and negotiated with the concerned CBOs, which clearly lay out the responsibilities of both community resource management groups and KSNP management. The acceptable and sustainable levels of use for particular resource will also be determined in the agreements.

For the utilization of Natural Resource (NR) communities' organization and formulating criterions of statutory issues are the fundamental tools for fair and equity utilization of the resources. The fundamental for forming user groups is dependent on the availability, amount and risk management option of the given Natural Resources.

Some Criterion of the communities to NRUs

1. The top principle of the NRUs is to safeguard the ERVs and PEC
2. The chosen communities have to be the vulnerable one (communities which are more nearer to the border of the NP and/or which are affecting the NP more and *vice-verse*).
3. The youths and women shall be given the top priority.
4. Communities have to be organized into legalised user groups
5. Communities shall have the obligatory responsibility to rehabilitate and protect the NP and sustainably use the NRs.
6. Spatial and temporal utilization termination by the NP management shall be obeyed
7. Specific bylaws and other statutory issues with respect to NR utilization and sustainability assurance have to be obeyed
8. Fair and equity resource sharing ought to be implemented.

Action 1.3.2: Provide capacity building trainings for CBOs

Capacity building trainings will be provided for CBOs so that the resource management groups have the required skills for agreement implementation. These trainings should be provided based on skill gap identified during need assessment.

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Action 1.3.3: Design and implement a joint community and KSNP natural resource use monitoring and evaluation system

A key component of joint natural resource management is monitoring and evaluation, in order that an adaptive management system can be adopted by building on new knowledge and experiences over time, thus embracing the “learning by doing” approach. Whilst scientific input is required to design such a system and provide capacity building for community monitors, it is crucial that resource management groups are empowered to also collect and evaluate information on the state of the resources they are using and managing. Simple monitoring and evaluation systems need to be developed and incorporated into NRM agreements and adapted if further complexity and capacity is deemed feasible. An audit and cross-checking system that includes parallel scientific procedures implemented by KSNP is a requisite component of such a system to ensure data reliability and verification of results and also build trust. This will establish a key component of the feedback loop for adaptive management that reviews, evaluates and adjusts the management of resources and sustainable levels of use at regular intervals.

Objective 2: KSNP freed from the impacts of permanent irrigation investment, Settlement, Agriculture and SNRUM implementation through banned, regulated and adaptive management system

Key facts: -

There are permanent settlements, legal irrigation investment and annual crop farms which have blocked the Elephant’s corridors and dismantled the park connectivity. More than 904 hectares of irrigation investment land following the course of Tekeze River; 300 permanent households who are settled and more than 3000 legal farmers owning more than 6189 hectares of land are found inside KSNP.

Significance of the strategy:-

- To maintain the Park’s ecosystem integrity, connectivity and to secure Elephants corridors, animals and birds watering, nesting, feeding, ranging and reproductive areas.

Strategic Approach

The major threat of KSNP is the habitat loss and fragmentation through the cause of called legal agriculture, settlement and irrigation investments which are carried out inside the NP. Almost all part of the area was once overrun with the massive agricultural practices by the nearby local community and other illegal farmers who came from other part of the region and the country as a whole. Important the park areas like the animal watering points, reproduction, ranging, bird watching and recreational areas are occupied by human activities. Elephant’s corridors which were used to path to neighboring countries are blocked and the park is fragmented into pieces.

Therefore, it is too important to reverse the ecosystem of the park to its natural phenomenon. The illegal encroachments can be overturned through the normal law enforcement and park operation

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strategies. Nevertheless, the serious threats which are coined with legal situations cannot be reversed overnight and will take multi sectors integration, huge political commitment, capacity and resources to reverse. The long-term goal must therefore be put into perspective by planning manageable short-term and medium-term actions leading towards the long-term goal.

The authority has to play a great role in perusing the high level political officials on the importance of reversing the situation and in searching alternative options. The Regional and the Federal government are ultimately responsible for relocation and replacement of these legal settlers, investors and farmers. The eligibility of households and investors for compensation payments or replacement land is a political and legal decision that will be decided during the resolution management process by the taskforce.

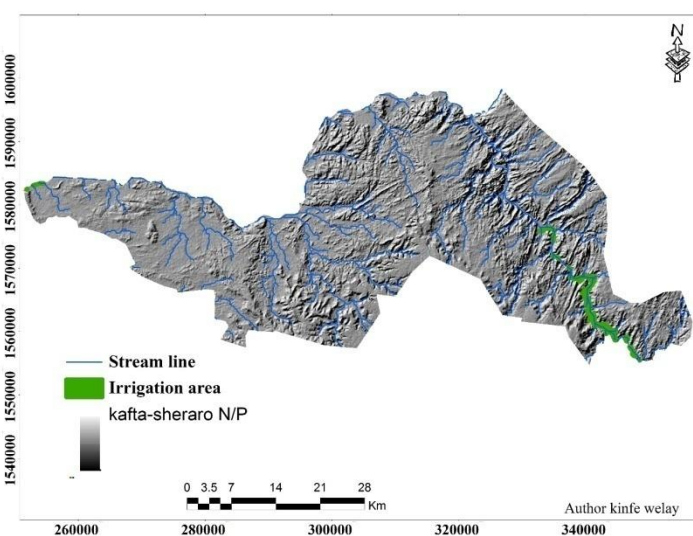
In order to accomplish this resolutions management process in details three specific objectives and appropriate actions are formulated.

Specific Objective 2.1: KSNP freed from the impacts of permanent irrigation investment, Settlement and Agriculture

1. Banning of the Irrigation investment and securing Elephant's Corridors

Irrigation inside the NP has been started in recent years. This was done through woreda and kebele administrations interferences. By then it become legalized and long term agreement was put into practice between the regional beauro of environment, land administration and use authority and the irrigation investors.

Figure 10: Irrigation Land Found Inside KSNP following the Tekeze River



According to the Office of Agriculture and Rural Development (OARD) of Woreda Kafta-Humera and Tahitay-Adiabo (2016), there are above 904 hectares of irrigation investment land along the Tekeze River course. This investment of irrigation has about 60 investors who have agreement between 15 to 35 years. The rest (226) are small scale irrigation farmers. This chain of irrigation follows the course of Tekeze River expands more than 20 km.

Figure 10 above shows the spatial information of the area developed with irrigation inside KSNP following the Tekeze River. It covers an area of 440.87 hectares. This is 48.7% of the total figure given by the two districts OARD. This indicates that the irrigation land size, what is given in written paper and the actual developed land has significance differences.

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This irrigation land is devastating the biodiversity functional components of the area. Crocodile reproductive areas are under cultivation. The watering points of the big animals like Kudus and Elephants are blocked. Moreover, habitats of important migratory birds like the Demossiene crane resting and other bird nesting, feeding area are under sever attack. The most riparian forest of the area is totally cleared. Instead man made banana belt is created in the area. Corridors and movement of the elephants to the area are blocked. Elephants have stopped to come to the surroundings. They are all confined in a very small portion of the park and they are moving to outside the park and creating conflict with agrarian farmers.

In other way, the irrigation land is using as inlet for intruders, Wofer Zemet inter to the NP pretending as a daily labourer of the irrigation farm. Then via that irrigation site they will move inside the park and clear vast habitat of the animals for agriculture.

Furthermore, the irrigation crop also has become the cause of Human wildlife conflict (HWC). Wild animals are becoming familiarized with the annual and perennial crops especially at dry seasons when animals feed become scarce. The irrigation through the Adebay kebele and the Humera (outside the park) side is best example for the active HWC occurred in the area. Elephants are the major source of conflict.

Elephants have been harming the irrigation crop inside the park and the adjacent irrigation lands of Humera town almost every year. This has creates inconsistency with the nearby community and the Elephants. More than six elephants had been killed by poisoning in 2015/2016 (KSNP office report 2016). This is the worst and devastating poaching happened in the history of the animal in the area and this has created apprehension sense throughout the park environment.

Hence special concern has to be given to free Tekeze River. This river is the source of lives of the entire lowland ecosystem of the NP. Unless the river course inside the park is set free of any human activity, the entire NP ecosystem functioning falls at higher risk. This risk is doubling nowadays. Moreover, a shocking phenomenon is being observed via the country Eritrean side, resettlements activities are being observed following the park border through the Tekeze River.

If the area is allowed to restore to its previous natural phenomenon, the area could ideal place for the diverse tourism attractions and safe guarding the whole ecosystem functioning of the NP. Even though, currently the irrigation/banana belt has very important crop commodity for the investors, it will disconnect the entire ecosystem of the NP. Hence it is necessary to ban that irrigation investment and restore the area to its natural environment.

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Elephants used to range to the south and southwest of the current park, even into the country Sudan, but with increasing settlement this ranging is now restricted. The irrigation land is now blocking the prime corridors and watering points.

2. Relocation of the Permanent settlers and maintaining connectivity of the park

The Tigray regional government had been practicing the resettlement programme inside and around KSNP from the year 2003 to 2005. During this time from 30 different woredas of the region collected settlers were settled in woreda Kafta –Humera and Tsegede. By the then, park was a wildlife reserve area and covers 5000km². Within the reserve area kebeles like Fire-Selam, Wuhdet, May-Weyini, and May-Kayih with 2 villages of Adi-Goshu kebele, like Zerbabit and Miglab- Feres were settled to the southern side of the main road which is inside the park. This was the main reason to re-demarcate the park and depart the settlements outside of the park and have the current area.

However, there are two remain settlement villages named Tekeze villages inside KSNP which were created following the presence of the irrigation investment land across the Tekeze River. Since the area is very significant to the continuity of the park's ecosystems; it was impossible to detach the villages from the park area during the re-demarcation time. These villages are found on the right and left side of the river and were established illegally. Through time they become well established and legalized. In 2011 the Tekeze village found in woreda Kafta-Humera side has only 69 households and administered by May-Keyih Kebele. Whereas, the other Tekeze village administered by Adi-Aser kebele also has about 231 hhs.

Since both the villages are serving as a get for the iteration of the park area, they are providing as path pointers for the Wofer Zemets. Moreover, the dwellers are also participating in illegal house constructions and agriculture expansions. They have blocked the integrity of the animals and ecological continuity for the system. Hence, resettlement or moving back farther to their kebele side or to the way they were coming from is very crucial for the continuity of the park.

3. Avoiding of the permanent Agriculture cultivation and securing connectivity of the park

The major threat of KSNP is the habitat losses which is caused by illegal agriculture invasion and so called legal agriculture expansion. Almost all part of the area was once overrun with agriculture practices by the nearby local community and other illegal farmers who came from somewhere else part of the region and the country as a whole that are named “Wofer Zemet”.

In 2014, the Tigray Regional State has established a special Rural Land Administration Proclamation No.239/2013 and its respected Regulation No. 85/2014 for those farmers who were cultivating inside the KSNP. The special rural land administration proclamation has given the first hand priority to totally relocate the farmers who used to be cultivating inside the NP. As a result of it, 6 kebeles' farmers (from Adebay, Hilet-Koka, Fire-Selam, Wuhdet, May-Weyini and Adi-Hirdi)

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were given agriculture land for land substitutions elsewhere and displaced from the NP. Now that area is freed from agricultural practices and start flourishing again within two years

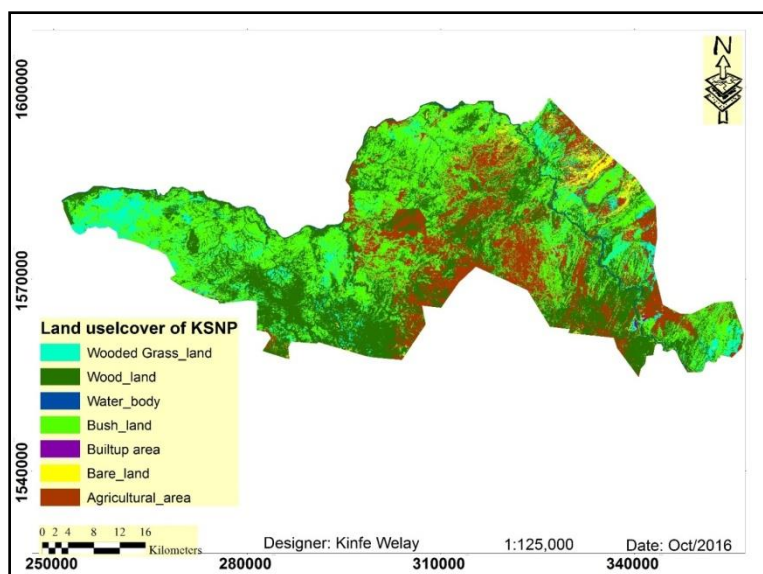


Figure 11 :Map of Land Use/Cover of KSNP

However, the rough study done in 2011 by the re-demarcation committee of the park indicates the numerical figure of the legal farmers who have been cultivating inside the NP and need to be seeking for agriculture land substitutions for land elsewhere. through the villages of kunama Adigoshu, Adigoshu ketema, Matrebele, Lihamat, Miglab Feres, May-Temen, Adi-Aser, Adi-Tsetser and to some extent May-kuhli side there are about 3235 so called “legal farmers” who have covered about 6198.55 hectares of land. These rigorously have harmed the NP’s ecosystem

Furthermore, the above land use/cover map of KSNP spatial information indicates more than 33,279.48 hectares of land (15.41% of the NP area) are at the moment converted to agriculture land both by the illegal wofer zemet and by the legal farmers. According to the land holding sizes per house hold level of the area; these 3235 so called “legal farmers” covered only about 18.6% of the cultivated areas. Hence, this figure evidence that more than 81% of the agriculture land inside KSNP are infatuated illegally and holds mostly because of those who are known as legal farmers. Likewise, KSNP is fragmented into different parts because of the massive and longer time agricultural practices happened in the area. The ecosystem connectivity and functionality are disconnected. Elephants and Roane antelope habitats are being converted into agricultural areas. The Tekeze River is also fully overrun by the human influence in the area. Hence, it is necessary to free the area from the agricultural practice and restore to its original nature.

Action 2.1: Create awareness and build consensus on all stakeholders for the permanent irrigation investment, Settlement, and Agriculture banning adoption

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To implement this programme the awareness of the stakeholders on its importance is very vital. The awareness creation aims to reach up on the consensuses of all stakeholders and to gain the political support of the very high level officials.

The programme will not proceed unless consensus is reached across community, relevant regional and federal agencies and alternative means of support is approved. This will require lobbying, workshops/retreats and potentially a local study tour for relevant decisions makers to agree and adopt the strategy and action plan. Practicing of the experience of the Simien Mountains National park's relocation programme will be best example for this programme.

Finally, the understanding and participation of the communities and at kebele level in the development and implementation of the process is essential for accomplishment.

Action 2.2: Form taskforces to qualify and estimate the irrigation investment, Settlement, and Agriculture land properties' of the beneficiaries

Task forces that have relevant members from the federal, regional, and local beauros, offices and administration including the community representative will be formed. Three task forces that have different expertise knowledge for the measurements of irrigation crop, settlement and agriculture land properties will be formed. These task forces will determine the rights of park resident communities' property and oversee the implementation of this abandonment programme. These task forces will develop action plans for the irrigation crop, resettlement and agriculture land properties' amount and cost estimations that follow current legislation and practice in Ethiopia and international guidelines.

The action plans will incorporate establishments of the criteria for legal status and entitlement to abandonments of irrigation investment, agriculture cultivation and resettlement packages. These criteria will then be incorporated as elements of the study to establish the exact number, location and specific details of each park residents. Clarify the legal status of residents and users; determine how the current land certification process will be used to obtain land outside the park for the people; prioritize communities for relocation based on feasibility and the level of threat they post to biodiversity and ecosystem integrity.

Moreover, the task forces will identify and record the current property of the dwellers. Including extent of homesteads, farm land, village boundaries, perennial crops, trees, fences...etc of each investor and/or person's belongings. Records will be made in a participatory process involving community representatives, park staff and woredas land administration, irrigation investment and agriculture office to ensure all farmland (size and location) and houses (number and type, date of establishment) and perennial crops ages that will help for the later cost estimations will be recorded.

Finally, the task forces will estimate costs or involved and each resident's potential package. The costs will be estimated following compensation laws of the country per the record of each property.

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Action 2.3: Motivate and develop resource mobilization and compensations payment scheme for the irrigation and settlement and substitution land for the Agriculture beneficiaries' property

The relocation action plan will be authorized and implemented by all relevant federal, regional and local authorities and communities and it will be delivered to EWCA. EWCA must however lobby for this funding once consensus is reached with Federal and Regional Government and put detailed financing plans forward with the Region to MoFED to secure this budget. The compensation financial cost will be covered by both the regional and/or federal government per the consensus.

However, for those farmers cultivating inside the park a land substitution for land will be searched by the regional and local government. Monetary payment will be mobilized for only the irrigation and settlement properties.

Action 2.4: Implement as per detailed relocation and banning plans developed

The relocation and banning of irrigation and farming inside KSNP implementation process will be followed after the adoption of the programme and securing of the compensation payment. After each dwellers will be paid his/her properties' compensation as per the estimation scheme. Soon, the handover of the area to the park office/EWCA with signed adoption letter will be done by the respected woredas' administration.

Specific objective 2.2: Park zonation scheme developed and implemented, and so that negative impacts of SNRUM and Tourism development planned, controlled and adapted

"Zoning defines what can and cannot occur in different areas of the park in terms of natural resources management; cultural resources management; human use and benefit; visitor use and experience; access; facilities and park development; maintenance and operations. Through management zoning the limits of acceptable use and development in the park are established" (Young and Young, 1993).

Underlying Principles of Zonation

- ❖ Conservation of biodiversity and ecosystem processes is the primary management objective in all zones
- ❖ Strict Conservation zone and conservation followed by regulated and sustainable NR utilization zones are selected systematically
- ❖ Boundaries of zones will be based on current understanding of the conservation requirements of KSNP's Principal Ecosystem Components, the location of biodiversity rich areas and the natural resource use potential options
- ❖ communication, discussion and understanding of long term gains support all management actions and interactions with residents or other stakeholders

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Introduction of Zonation scheme in KSNP is important to provide a framework for securing the protection of the park by reconciling the primary management aim of protecting the natural resource values whilst allowing limited use of these resources by communities and /or tourism development. Zonation is a vital management tool that will be used to bring the current unsustainable utilization of resources under control and thus reconcile the twin objectives of biodiversity and ecosystem process conservation and sustainable use, KSNP. The goal of zonation, within this GMP is to secure KSNP's Exceptional Resource Values (ERVs) – whether they be in Conservation or Conservation and Sustainable Natural Resource Management Zones; the whole of KSNP.

The Zones will identify where various strategies for management and use will best accomplish management objectives to achieve the desired future of the protected area. The conservation of biodiversity and ecosystem processes is the primary management objective throughout KSNP. Moreover, the zoning scheme will be introduced to deal with the pressures of the communities induced threats.

This specific objective will have actions of different zones which have specified management objective and the recovery actions of settlement, irrigation and agriculture areas. Similarly, the regulation actions for the impacts of SNRUM will also be seen under this specific objective.

Action 2.2.1: Understand the existing phenomenon of KSNP, develop and implement a zonation plan to secure both the Conservation Zone (CZ) & SNRM Zones

Literal viewing, the current phenomenon of the park, based on present understanding of the principal ecosystem components, the location of biodiversity rich areas, human induced threats, roads and the attracting natural resources indicates that by default the NP has 3 zones. Such as the Core /wilderness, Limited and Intensive development/services zone. Nevertheless, the park area was not separated as its portion of importance and the whole area used to be considered as core or wilderness area. Even, it doesn't have buffer zone area yet. However, as a result of anthropogenic pressures and management activities observable facts indicate that the park has three features of areas. This occurrence of the park with minimum modification is used for the zonation of the park in order to specify what can and cannot occur in the specified future desired zone. The fourth zone i.e community use zone is added to address some of the community demands from the NP's resources. An action plan to implement zonation will be developed. Initially the proposed zone boundaries will be compared with the realities on the ground and then proceed to the revision of the proposed zone boundaries as appropriate, before up a full zone boundary description. A key initial stage of the zonation action plan will be an outreach and awareness-raising campaign to ensure that all park users, including residents, staff and tourists are understand the principles and justification behind zonation and the location of the zone boundaries.

Areas will then be prioritised for initial implementation, based on degree of threat to critical biodiversity or ecosystem processes, level of human occupation and the resources available. This process will use all available data and knowledge on the level and extent of resource use within KSNP and

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the degree of threat imposed to the KEAs and PECs as a result of human settlement in different areas of the park. This prioritisation process should be developed and implemented in close collaboration with the EM Programme, whose role it is to monitor the state of all KEAs and PECs and threats to the ecosystem and run in concert with the prioritisation process undertaken for the development of action plans and agreements for NRM, thus these Natural Resource Management Agreements should policies, guidelines, and rules/regulations to limit growth and negative environmental impacts. The zonation action plan will be implemented in conjunction with the resettlement plan developed by the relevant regional and local partners. It will be mainstreamed into this GMP's 3-yr action plan and thus into KSNP's annual operation plans.

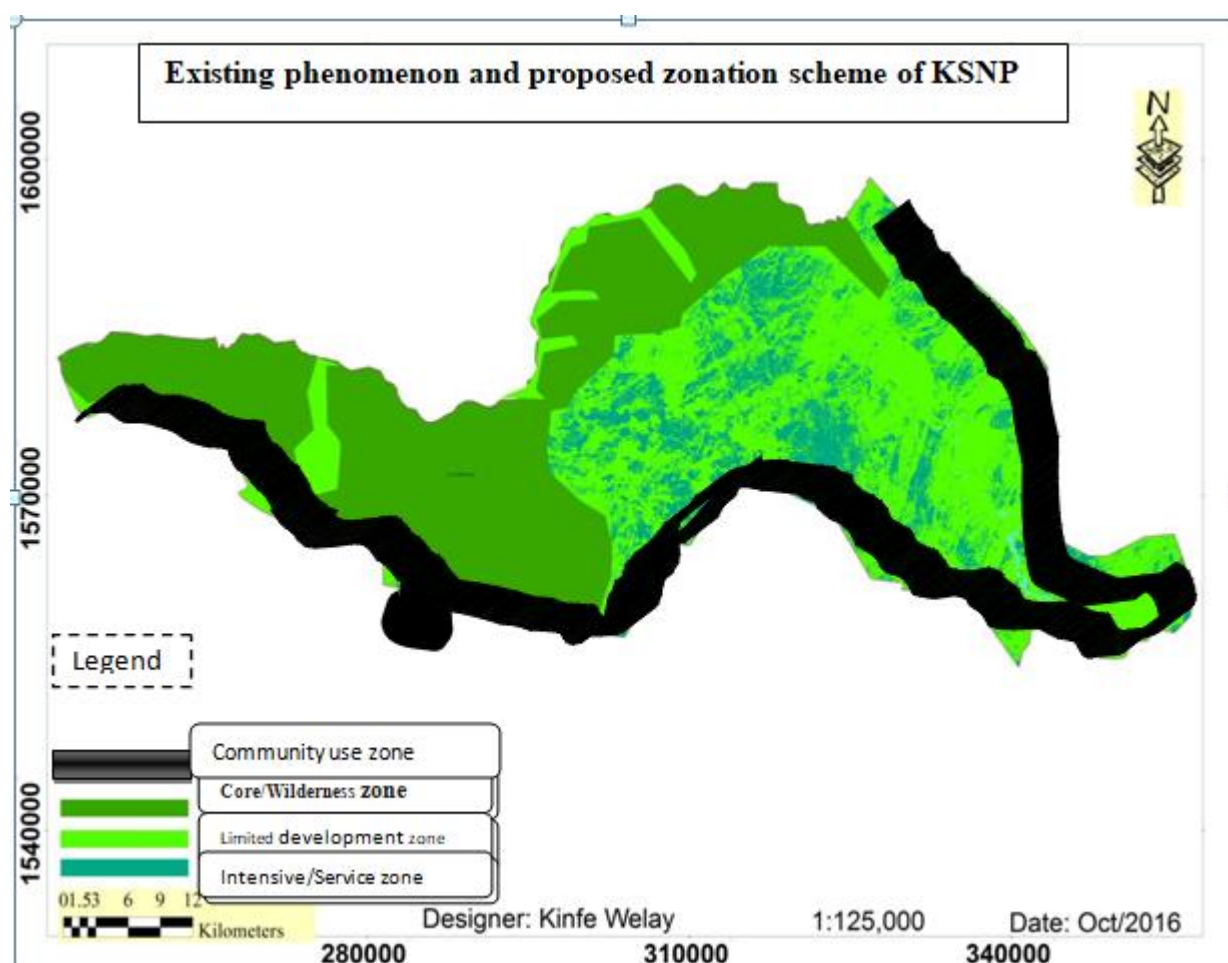


Figure 12 : Existing Phenomena and Propsed Zonation Scheme of KSNP.

1. Core are/Wilderness zone

The core area is the main wildlife habitat zone where the key ERVs of the NP found in. Similarly, it is an area where the Principal Ecosystem Components and the location of biodiversity rich areas originate. It covers about 89782.99 hectares 41% of the NP. It is the area all along the Tekeze River. It comprises the main potential habitats of the big mammals like the Elephant, Greater Kudu, Roan Antelopes, Red fronted gazelle, Grey duiker, Water back, Bush back and others. It is also important

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bird, reptiles and amphibians area. All the major 3 types of vegetations (Acacia-Commiphora Woodland, Combretum-Terminalia Woodland and Riparian Woodland) are found in the core wild-life area. Therefore, this zone has relatively great potential to accommodate high diversity of wild-life. This core area, relatively have low human induced problems. It is freed from the agriculture invasion. Nevertheless, it is facing with the problems of poaching, livestock grazing, small scale .irrigation, fire damage and intensive traditional park's management road networks.

Prohibited and Allowed actions in Core area/Wilderness zone

The proposed core area should be delineated, blocked and mapped by the park management bodies in collaboration with the local community and local leaders. With regarding Sustainable Natural Resource Use in core area is profoundly prohibited. Utilization of *Boswellia papyrifera* and other NTFP, livestock grazing, fishing, irrigation, mining, Roads and infrastructure development should be excluded and manipulative management techniques normally prohibited. The area is conserved mainly for the wilderness and proper ecosystem functionality.

Under normal circumstances, trails and perhaps a few, basic special camping sites, bird watching and some game viewing of tourism products and some temporal tourism facilities and to some extent utilization of doum palm and research would be permitted – but their nature, number and extent shall be strictly controlled.

2. Limited development zone

Limited development use area, the area mostly covered the undulating terrain and chain of dot hilled areas. It has mammals like the Greater kudu, roan antelopes, red fronted gazelle and others. The vegetation is dominated more by *Boswellia papyrifera* species. It serves as a gene bank for the survival of the species.

The area is almost found on the upper topography /terrain and has medium human interference. However, most of the gentle slope areas found under it cultivated. It covers 79458.32 ha 36.5% of the NP. It is facing with problems of illegal gold and marble mining, poaching, fire and grazing. Most of the view points and undulating horizons are found here.

Prohibited and Allowed actions in Limited Development Zone

An important purpose of this zone is to cater for certain types of recreational use, thereby relieving pressures on primitive or wilderness areas. In all cases the development should have minimal impact and serve only the immediate users of the designated area. Road networks, out posts, camping sites and other tourism facilities and products would be developed and manipulated. To some degree NTFPs other than *Boswellia papyrifera* would be used by organized user groups under controlled manner. The NTFPs utilization type and extent will be determined by the Park management bodies.

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Livestock grazing, mining, agriculture, irrigation, settlement and poaching are prohibited. Special attention will be given to research and conserve the *Boswellia papyrifera* and Roan antelope species.

3. Intensive interim development/services zone

In many more strictly protected areas, this zone would be inappropriate. Its purpose is to accommodate major roads, hotels, accommodation and service facilities. The goal should be to avoid creating zones of this kind in or near areas containing special or unique values or that exemplify an ecosystem type etc.

However, the current condition of the KSNP needs the interim Services zone. Temporal time would be needed until all the spatial threats of KSNP are solved by the regional government and EWCA. The immense agriculture, irrigation and settlement are found on this service zone area. To carry out the re-location of the settlers, to compensate and evacuate the irrigation investment probably take longer time.

The area is estimated to cover an area of 46729.16 ha. It encompasses the partial Adigoshu, May-Keyih, Adi-Aser, Adi-tsetser and partial May-Kuhili kebeles. According to the regional government promises, there might be high probability that the farmers who are cultivating inside the KSNP would soon leave the area by having other substitution land elsewhere. This Services zone should have clear distinction from the core and limited use zone. It should be well delineated.

Prohibited and Allowed actions in the Limited Development Zone

Temporal organised user groups like cooperatives may allowed on controlled manner to work on fodder and forage management. Cut and carry system of forage for livestock ranchers and artefacts development using doum palm, beekeeping, forest seed and fuel wood collection may permitted under special control and sustainable approach. Constructing roads, loges and other tourism service and facilities may permit under controlled manner.

The Settlers and irrigation investors will be allowed to work temporally until the abandonment is accomplished. But they will not be permitted constructing new buildings and expanding farther areas. Livestock watering points found inside the park and through Tekeze River via Adi-Goshu, Adi-tsetser, May-kuhli, Adi-Aser shall be selected and allowed by the park administration accordingly.

The legal farmers should be identified and have ID; the allocated land size and place has to be rearranged and corrected according to their legal paper land holding size. Having this size of land farmer ought to have gathered to the inlet boarder side of the NP. Hence farming at the dip and Tekeze river side of the NP ought to be stopped.

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Grazing, poaching and farming additional land and renting the land for wofer zemet is prohibited. As soon as the settlement is relocated, agriculture and irrigation is banned this zonation will terminated and the zone may be included to the limited development zone.

4. Traditional and Indigenous Use Zones

Traditional and indigenous use zone is also called Community use zone. This zone aimed mostly for the implementation of the SNRUM system of this programme. The Traditional and Indigenous Use Zones are areas set aside to accommodate the sustainable utilization of ecosystem goods and services by affected neighbouring communities.

Prohibited and Allowed actions in Traditional and Indigenous Use Zones

Organised user groups like associations/ cooperatives in fodder and forage management and live-stock development, dairy and fattening farms will be used. The cut and carry system will be in placed by the indigenous and local communities.

Therefore, fodder and forage species, NTFP and artefact materials including doum palm, African black wood and other species may be allowed to used. The area may be specified under 1 km length from the border of the park.

Grazing, poaching, mining, irrigation and farming and renting the land for wofer zemet shall be prohibited. Livestock watering points may be allowed under special permission by the park administration. Under special circumstances the park manager may be able to permit interim grazing. The proposed community use area should be well understood and delineated, blocked and mapped by the park management bodies in collaboration with the local community and local leaders.

Action 2.2.3: Develop grazing protection mechanism and formulate integrated bylaw that specifies the livestock charging sharing scheme

The undeniable fact of KSNP is the pressure and the tensions create by livestock population that grazes in the area. The livestock populations are not the only local people's but are also belonging to farmers who come from other areas, from the whole districts of Tigray region. Similarly, so many numbers of the neighboring country's livestock come to graze into the NP. Hence, allowing the option of grazing strategy to the area due to its multidimensional demand by multi-communities' types would be difficult to mitigate its impact. Even with strong law –enforcement, it is difficult to control it fully.

The practice of livestock grazing protection in the area was giving full responsibility to the local/district and kebele administration bodies' militia and scouts. Every neighboring kebele administration bodies set traditional by law which was formulated and approved by the local communities

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to punish the owner of the livestock per livestock based. The by-law was strictly implemented and huge amount of money was collected every year.

The revenue's benefit sharing was formulated to three bodies. The scouts/militias that are participated in the handling and protection of the livestock from the NP will get 30% of the punishment revenue collected. The remaining 70% will be divided into two and half portion of the revenue will go to the respected district administration and the half to the holder kebele administration. The share money of the district will go to forest development fund of the region which in return used for the protection of deforestation in the area. Similarly, the money taken by the kebele administration bodies uses the money for public service administration and park protection.

This type of benefit sharing mechanism was developed by the office of agriculture and rural development of the Kafta-Humera district. The objective was to protect wafer Zemet and participate the local communities in the protection of the park from illegal farming, livestock grassing and illegal mining. Therefore, the community shares the revenue collected from livestock grazing punishments. Hence, this revenue sharing collected from punishments of livestock grassing inside the KSNP should be continued and more of the revenue should be given to the local communities. It is this benefit sharing mechanism that participate the local community in conservation. It has high significance value and shall be permitted to continue as the accustomed sharing mechanism. However, this needs the decisions of higher officials and the financial system of the country.

Action 2.2.2: Develop and implement a joint community and KSNP natural resource control and protection system

A system that ensures resource use control, resource protection and enforcement of agreements by resource management groups is another key component of SNRM. Discussions need to take place with resource management groups to facilitate the development of such systems and identify a management group subcommittee that will be responsible for control and protection activities. This process will be included in the development of NRM agreements. Other activities will need to be developed and tested, such as reporting and recording systems, linkages with monitoring systems, and procedures for reporting back to the resource management group. As for monitoring systems, linkages need to be made with enforcement activities of the National Park staff, police and judiciary to ensure cross-checking mechanisms, mutual understanding of enforcement procedures and compliant conduct of enforcement activities.

Action 2.2.3: plan and implement the Rehabilitation and restoration of the degraded and up-rooted irrigation and settlement areas

In a number of areas in the KSNP are highly degraded areas due to settlement, gold mining, irrigation and cultivation. Once the zonation scheme is finalized and implemented, areas most degraded due to these activities should be identified and prioritized for rehabilitation/restoration. Then, ap-

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appropriate methods of restoration /rehabilitation approaches should be reviewed from best experiences from elsewhere and applied in KSNP accordingly.

E. TOURISM PROVISION AND MANAGEMENT PROGRAMME

Tourism Provision and Management Program Purpose

Programme Purpose: Diverse tourism opportunities in the KSNP developed and managed in collaboration with key partners so as to improve the sustainable conservation of KSNP's exceptional resource values and to create livelihood opportunities for park-associated communities

Development and Management Strategy

Tourism is becoming the fastest growing industry globally and in most of the least developed countries, in particular, it contributes more than 50% of their GDP and is creating a local incentive for conserving natural areas and enhancing the economic income of the local people (UN-WTO, 2009). Ethiopia is characterized by high level of flora and fauna diversity and endemism, contrasting scenic landscapes and ecosystems, hosts 70 ethnic groups with varying culture and tradition, and has a number of ancient historical and religious places and geological/archaeological resources (Mckee, 2005). Despite this, the country is currently sharing a small fraction of global tourism market compared to its counterpart east African countries like Kenya and Uganda (Biniyam Admasu et al., 2011; Addisu Asefa, 2015), because Ethiopia has been known mostly from its cultural/traditional and historical aspect with most tourists visiting the northern historical places and cultural aspects of the southern Peoples and Nations and Nationalities. Only few (e.g. Simien Mountains and Bale Mountains National Parks) of Ethiopia's protected areas are relatively enjoying good tourism arrivals. Nonetheless, the overall current status of tourism in Ethiopia shows a positive and an increasing trend. For example, according to The World Bank group (2017) report tourist arrival in the country has increased from 103,000 visitors in 1995 to 86,4000 in 2015, and in the year 2012 tourism has made 12.3% to total GDP (AWF, undated).

Arguably, Ethiopia has high potential of ecotourism development, but a major challenge is to recognise this tourism potential whilst structuring and managing tourism development to best

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benefit Ethiopia and its people for the long-term. Other challenges to overcome are the preservation of important sites, the lack of community-participation and benefit-sharing, infrastructure deficiencies, the lack of tourism facilities (hotels, lodges, etc), skilled human resources and management capacity, a negative image of the country and the lack of a marketing strategy.

There are many positive opportunities that exist for tourism development in Ethiopia – besides its having 8 World Heritage Sites. The government has recently declared tourism a priority growth; as revealed from Ethiopian Tourism master plan natural land scape and national parks are recognized as the second major potential attractions, next to cultural and historical heritages. Ethiopian Airlines connects Africa with the world, whilst on the ground there is new and better infrastructure (e.g. airports, roads, telecommunications and electricity). For the last 16 years Ethiopia has been largely politically stable with extremely low crime rates and it boasts the political capital of Africa. On top of all this, the wildlife tourism sector is just starting to develop its potential – assisted by partner projects in some of the major National Parks.

The KSNP contains a unique natural heritage with outstanding beauty, diverse attractions and great tourism potential (see Table 1). As also indicated on Table 2, apart from the natural assets, the cultural and historical tourism attractions found within and surrounding the park deserve special consideration right by their own. However, this potential has not been untapped yet and subsequently the area has only been visited by few tourists, which is coupled to lack of recognition, on the one hand, and the park being established recently, on the other hand. For example, KSNP was visited by only 300 visitors, 28 foreigner and the remaining being students and teachers from higher educational institutes and researchers. A simple SWOT analysis conducted by the planning team (Table 3) indicates that, for instance, information on tourism attractions of the park has not been documented well, tourist infrastructure and facilities (road networks inside the park, lodges, campsites, etc) are not in place, and almost no promotion and marketing has been done.

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Table 8 Natural Tourism Attractions Identified from KSNP

Attraction	Location and description	Access	potential uses
Landscape and Mineral deposits	Spectacular scenic view points (at Mt. Hilegil, Tsirga Girmay, Emba-Durkuta, Ziban Wediemi, Tahitay and Laelay Siye) and several mountains in Aditsetser	Easy (up to 1-2hr) by car	Trekking, Mt. climbing, Photographing, Camping, wildlife viewing, picnicking,
	The magnificent view of the Elephant corridor area between Ethiopia and Eritrea across Tekeze River has a panorama view	Easy (up to 1hr)	Hiking, camping, photographing, Elephant viewing, bird watching,
	The ample smaller hills and undulating terrain of the areas have panoramic view of different horizons	Easy (up to 1hr)	Landscape viewing, photo graphying
	Tebeko Inda zibie (the Hyena cave): has unique and attractive features including large-sized natural stones with beautiful curvatures and structure, with some of the stones being wrapped around the magnificent and gigantic Baobab tree.	Difficult (>=2 hrs)	Trekking, Photographing, Camping, wildlife viewing, bird watching
	Gold and marble	Moderate	Sightseeing
For-ests/vegetation	Acacia commiphora wood land, Combretum terminalia woodland, Riparian forest, savanna grasslands	Easy (up to 1hr)	Photographing
Beaches and waterfalls	Beautiful beaches along all its course, especially near Tekeze village, Humera Town and Sudan side; Tekeze waterfall on Sheraro side	Easy (upto 1hr)	Camping, river rafting, bird watching, picnicking, fishing and swimming.
	More than 160 km length of navigable area at the border of Ethiopia, Eritrea and Sudan	Easy (upto 1hr)	Boating and bird watching
Unique and endangered mammal	Unique populations of several endangered mammals, including: African Elephant, Red fronted gazelle, Roan antelope, Waterbuck, Greater Kudu, Leopard,, etc	easy to difficult	Wildlife viewing and photographying
Unique and endangered bird species	Over 200 species of birds	easy to difficult	Bird watching and photographying
	Several globally threatened species (e.g. at least six spp. of vultures)	easy-moderate	
	Several biome-restricted species	easy-moderate	Bird watching and photographying
	The only known population for some species like Demosseil crane	easy-moderate	
	Several wetland birds, including Egyptian plover, Thick-knees, etc	easy-moderate	Bird watching and photographying

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Table 9: Description of Cultural and Historical/Heritage Tourism Attraction Identified from KSNP

Category	Name and description	Location and timing	Potential activities/uses
Cultural	Ritual, religious and festival ceremonies celebrations of Kunama and other community	Everywhere in the surrounding villages and any time	Learning culture
	Handicrafts	Kunama village	Watching how and from what materials they are made; buying as a gifts to home friends
	Traditional Tigre and Kunama Music and dances	Everywhere in the surrounding villages and any time	Traditional Dancing, cultural learning
	Traditional cuisine (e.g. Feta) and beverages (Tela)	Everywhere in the surrounding villages and any time	Eating and drinking
	Farming style using camel (one riding/leading and the other plowing)	Kunama village	viewing, photographing
	Traditional gold mining	Central part of the park (any time)	viewing, photographing
	Traditional resin tapping	Almost everywhere	Photographing
Histor-ic/Heritage Attractions	Several ancient Churches	In all villages (plus at Mt. Embadurkutan)	Appreciation and photography-ing
	Burial sites of Kunama people: An ancient ancestors' tomb /grave site of all kunama tribes found where they use them as a place to present memorial services and pray for their ancestors every year.	In the centre of the Park at Menta- Dibue, Tekileemba, and Ayifora/Doni localities	Appreciation and photography-ing
	Meeting natural Halls of TPLF during the early gorilla fitting time found at Aditsetser	Learning military wisdoms and tactics	Learning history

Table 10: Summary of SWOT Analysis of Ecotourism Development in the KSNP

Product/service	Strengths	Weakness
Attractions	High diversity of attractions	Increasing threats to biodiversity
Infrastructure and Services	Transportation to the area well developed	Lack of road networks inside the park
	Hotels available	Available hotels are of low standard
		No lodges and appropriate camp sites inside the park

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	Availability of mobile networks, health and security services	Lack of tourism awareness
Promotion and marketing	some attempts made (e.g. brochures)	No website, signposts, etc
Human/institutional capacity	Highly committed park experts and managers	Inadequate staffing level
		Low tourism budget
Issue	Opportunities	Threats
Socio-Political, and environmental factors	Presence of conducive private investment, tourism development and conservation/land use policies	Unpredicted border crossing by Eritrean army
	Relatively good peace and stability	Previous bad image on security issues in the area
		Global Economic crisis
		Climate change (increasing temperature)
Local government and community participation	High willingness	Failure organize and misunderstandings among them
Partners	Availability of other destination sites along the route (Axum, SMNP, etc)	Communication gaps
	Presence of tour operators at Axum	
	Several universities in the nearby	

Tourism can and must become a conservation tool that proactively assists KSNP management in achieving its aims. The strategy of KSNP Tourism Development and Management (TDM) Programme is to achieve this whilst aligning the long-term development of tourism in the area with the programme purpose described above and with national and regional policies and action plans. It also aims to ensure that tourism development and management is coordinated with the efforts of other actors in the area, so that an integrated and synergistic approach is ensured. Key national policies relevant to implementation of the programme include: Tourism Development Policy (2009), The Wildlife Policy and Strategies of Ethiopia (2005), Ministry of Culture and Tourism Establishment proclamation No. 471/20, Wildlife Development, Conservation and Utilization Proclamation No. 541/2007 and accompanying regulation, and Tourism transformation Council and Ethiopian Tourism Organisation regulation no. 294/2013, Sustainable Tourism Master plan (STMP): 2015-2025.

Guiding Principles

1. Principle of customers' recreational satisfaction

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A high level of tourist satisfaction is maintained so that the tourist destination (KSNP) will become popular and retains its popularity. This will be achieved by promoting and offering diverse recreational opportunities in the area, and by developing quality services and infra-structures.

2. Principle of partnerships

Effective community-private- government partnership should be developed for tourism provision and management both destination management and for sustainable tourism use system

3. Principle of Fair and Equity

The benefits of KSNP tourism will be shared in fair and equitable manner among the local community

4. Principle of sustainability

Tourism development in the KSNP should be in such a way that ensures social and environmental sustainability in/around the park.

5. Principle of Conservation

Tourism activity in the KSNP should contribute to the conservation of ERVs of the park.

6. Principle of adaptation

Tourism management in KSNP should base on experience and learning in adaptive system to changing circumstances.

Tourism Devolvment and Management 10-year Objectives

Programme Purpose: Tourism opportunities in the KSNP developed and managed in collaboration with key partners so as to improve the sustainable conservation of KSNP's and to create livelihood opportunities for park-associated communities

The 10 years objectives have been drawn up, using the guiding principles, to provide the strategy for achieving the program purpose, there by touching the issues, challenges and opportunities identified by planning team and park stakeholders relevant to this program.

The following three 10-year objectives provide the strategy for achieving the programme purpose:

Objective 1: Tourism Opportunities in KSNP developed and provided in Partnership with Key Stakeholders

Specific objective 1.1: Types of tourism products in KSNP identified and described

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Specific objective 1.2: KSNP tourism promotion and marketing strategy developed and implemented, while linking with plans of relevant tourism providing partners

Specific objective 1.3: Basic Tourism infrastructures, facilities and services developed and maintained in KSNP in collaboration with partners

Objective 2: Capacity developed for effective and adaptive management of tourism activities in KSNP

Specific objective 2.1: KSNP tourism department capacity is developed to deliver and manage effective tourism services

Specific objective 2.2: Tourism provision experiences monitored and evaluated, so that appropriate measure taken to mitigate the negative impacts and to improve service provision

Specific objective 3.1: Involvement of local communities in the KSNP tourism development and management facilitated and realized

Specific objective 3.2: Diverse tourism-related income generation opportunities created and equitably and fairly shared among the KSNP-associated local communities

Objective 1: Tourism Opportunities in KSNP developed and provided in Partnership with Key Stakeholders

The exceptional resources of the KSNP and its surroundings are the fundamental units that are used for the attraction of visitors and realization of the potential for tourism in Park. The desired future state of tourism programme of KSNP is one where visitors can enjoy the wilderness character of the park and have the opportunity to observe the full diversity of wildlife and other attractions in its natural habitats. The first step in developing tourism in KSNP is identification of best tourism attractions from the ERVs and development of those possible tourism products are the beginning of the tourism formulation plan. Identification and description of KSNP tourism resources is dealt under specific objective 1. Once the ranges of potential tourism attractions, including cultural and historical attractions found around the park are identified, they should be promoted and marketed to attract tourists. However, this alone is not enough to ensure sustainable tourism development in the area; basic tourist facilities and infrastructure should be fulfilled in order to run meaningful tourism activities in the park. Marketing and tourist facilities and infrastructure will be addressed in specific objective 2 and 3, respectively.

Specific objective 1.1: Types of tourism products in KSNP identified and described

As preliminary report of the TWG indicated (see Table 1 above), KSNP has diverse natural, cultural, and historical attractions. KSNP consists of several globally recognized flagship, charismatic mammal and bird species that have maximum tourism significances. The park also boasts amazing landscape features that capture the attention of tourists. Tekeze River can serve for navigation (boating) and the riverine forest along the River is home to many mammal and bird species. Thus, it is one of the best places in the park for game viewing, bird watching, boating, beach recreation, swimming, fishing, etc. The Spectacular scenic view of

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Mount Hilegin, which is the nearest Mt. to the Humera town, along the dense vegetation where elephants cross to Eritrea is eye-catching.

Despite the presence of such diverse tourism attractions, they have not been well documented, described and mapped. Actions to document and characterize these products are formulated and described below.

Action 1.1.1: Identify and describe natural tourism assets of KSNP Activity

In order to initiate and develop tourism in KSNP, an important and foremost step is identifying, describing and mapping all attractions. Hence, the tourism team of KSNP will work in collaboration with the ecological research and monitoring team to identify game viewing sites and map home range/spatial distribution of each key species. Further, scenic viewpoints and birding routes and sites should be described and mapped

Action 1.1.2: Identify and describe cultural and historical tourism assets of KSNP and its surrounding areas

In order to provide diverse tourism provisions in the park, the various traditional and cultural and historical attractions should be assessed. This includes describing the timing, season and/or relevance of the cultural and traditional/historical attractions to visitors.

Specific objective 1.2: KSNP tourism promotion and marketing strategy developed and implemented, while linking with plans of relevant tourism providing partners

Tourism development of a particular destination area requires prudently designed and implemented promotion and marketing strategy. This is especially true of sites like KSNP where tourism initiative is at its infant stage and where marketing and promotion has been merely made. Thus, KSNP will identify potential tourism demand (market inventory) and define the targeted groups. This will help the park to decide where (geographical region) and which tourist type to focus on and what promotion and marketing strategies are best for the different tourist groups. Overall, KSNP tourism marketing and promotion should be linked with plans of relevant tourism providing partners in the region, as well nationally.

Action 1.2.1: Identify potential tourist demand of KSNP and define and implement targeted marketing

Key activities in this action include obtaining tourist data, particularly their geographical origins and type of visitor to the region, from nearby private tour companies and government tourism agencies. Based on the information obtained, carry out detail tourism market inventory/demand for KSNP and design appropriate promotion and marketing strategies (e.g. web site, public media, etc) and implement accordingly. Basic visitor information materials such as brochures, maps should be developed and posted on websites, as part of promotion. Further, a brand for KSNP will be developed and used in all marketing and promotion.

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Action 1.2.2: Establish networks and liaise with relevant local, regional and national tourism service providers for coordinated marketing and promotion work

Currently, KSNP has no linkages and collaborations with any tourism service providers. Thus, KSNP will establish networks and liaise with relevant local, regional and national tourism service providers for collaborated and coordinated tourism marketing and promotion works.

Action 1.2.3: Develop and implement achievable 5-year marketing plan to work with private sector operators, Government, partners, donors, tourism agents and other actors

This marketing plan must focus on developing a tourist market that is compatible with the purpose and ethos of KSNP. Implementing the marketing plan must be coordinated with tourism development activities so that the levels and segments of tourists arriving match the provision of services. This will also require close cooperation with tour operators, travel agents, guide books, travel magazines, airlines and other appropriate tourism sites as well as with other commercial and government marketing organisations. Appropriate literature and promotional materials must be developed; KSNP website must be created and regularly updated to incorporate marketing materials and links to other websites and other efficient distribution channels must be identified and developed.

Specific objective 1.3: Basic Tourism infrastructures, facilities and services developed and maintained in KSNP in collaboration with partners

Obviously, KSNP is currently enjoying poorly developed infrastructure and facilities that would serve both for overall park management and tourism activities. Basic Tourism infrastructures and facilities such as accommodation (lodge and campsites), trekking routes and interpretation center are apparently lacking. Thus, all these issues should be addressed if quality tourism services are to be developed and maintained in KSNP.

Action 1.3.1: Assess and prioritize sites suitable for building Eco-loges and provide recommendations for lease out

Lodges/accommodation is one of the most important basic needs of tourists; otherwise, tourists are not interested or stay only over few nights whatsoever the site is of incredible attraction. Some potential sites for building lodges were identified by the TWG during the planning stage, but this needs to be refined based on internationally acceptable suit of criteria used for lodge building site selection. Following this, recommendations should be made for lease out (see the next action)

Action 1.3.2: Develop and implement lease concession procedures, standards and agreements for private and community stakeholders

Currently, there is no transparent procedure for deciding locations and type of tourism concessions in KSNP, or for how to apply for them. Standard procedures to develop tourism con-

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cessions, whether for communities or private investors, need to be developed with the relevant environmental, socio-cultural and business communities. Prototype agreements with guidelines and a checklist of issues that need consideration and inclusion will be drawn up. In addition, development standards that ensure minimal environmental impact will be finalised and integrated environmental management implemented.

Action 1.3.3: Assess current status of existing and future needs of road-networks in the park and improve their accessibility

A limited extent of road network is currently available in the park. However, this by itself is only accessible during certain time of the year. Therefore, existing roads/routes should be maintained and new routes/roads will be designed and developed to enable accessibility to all attraction sites, including taking to scenic viewpoints and camping sites within the Park. Such roads/routes should also be maintained/designed in a way that enable tourists' use for mountain trekking, desert walking, camel riding, biking, etc. In addition, viewpoints/picnic sites should be identified and developed along the routes/roads at suitable sites, where tourists will have a rest/stop, while also providing with all basic facilities such as tables, benches, and dust bins at such picnic sites.

Action 1.3.4: Build KSNP visitors' information/interpretation center at park entrance gates

Currently there is no any education/interpretation/resource center in the KSNP. Within the lifetime of this GMP interpretation points should be planned for development in the park. Welcome points where visitors pay park fees should be constructed near the park gate. These would be the ideal site for a range of information on organising treks, local transport, fishing, park regulations, local culture, accommodation and food available in the particular area. It could also potentially house a shop that sold or made available both park publications such as guidebooks, maps and postcards and perhaps local artefacts and products.

Action 1.3.5: Plan and produce interpretation materials

Currently, almost there is no information readily available for visitors to KSNP, whether internationally, within country, or within the park. The internet is now the first port of call for many international visitors contemplating a visit to destination areas globally. The official park website should be launched in the first year of this GMP, whilst links between KSNP website and other relevant websites, e.g. EWCA, MoCT, Tigray region, and private tourism providers must be incorporated and maintained.

A guidebook, flyers with visitor information on the park and trekking map, all containing park regulations, will be produced and made readily accessible. Information and promotional material on cultural sites and traditional/historical resources in and outside of the park, which are

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additional destinations for visitors, could also be improved. In addition, signposts need to be designed, developed and erected at appropriate locations.

Objective 2: Capacity developed for effective and adaptive management of tourism activities in KSNP

Effective delivery and management of tourism services requires the presence of adequate human capacity. Currently, KSNP lacks such capacity and thus all KSNP tourism staff should receive related training on tourism awareness, customer care and handling and equipped with basic skills and knowledge necessary for day to day activities. Furthermore, tourism provision experiences in the park should be monitored and evaluated, so that appropriate measure taken to mitigate the negative impacts and to improve service provision.

Under this objective, capacity need assessment and building will be addressed in specific objective 2.1, while tourism management under specific objective 2.2. For each specific objective, series of actions, with brief justifications, required to achieve them are described as follow.

Specific objective 2.1: KSNP tourism department capacity is developed to deliver and manage effective tourism services

National Governments are critically important in promoting their national treasures and regulating tourism industries, but are typically very poor at providing profitable and high quality tourism services. For example, in many countries, National Parks Authorities do not provide tours or run hotels; they rather outsource all such activities on a lease basis. Thus, running successful tourism industries in protected areas requires considering the private sector as a key component and driving force for the provision of tourism opportunities and services.

The primary role of KSNP management will be to develop policy, guidelines, monitoring and enforcement of tourism activities. The tourism services will be provided by the private sector or community groups, under agreement with KSNP management, though KSNP still have some management role in coordinating and monitoring service providers.

Action 2.1.1: Assess human capacity required for KSNP tourism management and recruit accordingly

Given the limited number of tourist flow to the area at present, it is difficult to comment on what the capacity level and gap is exist among all KSNP staff. Nonetheless, it is possible to predict that the park has limited number of experts in this field. Thus capacity gap in terms of quantity and quality of experts of KSNP in tourism development and management should be assessed and new staff should be recruited accordingly.

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Action 2.1.2: Ensure all KSNP tourism staff received related training on tourism awareness, customer care and handling

In addition to fulfilling staffing need, further gap assessment should be carried-out focusing on determining staff capacity in understanding tourists, the tourism industry and tourism management, and tourism service provision and management. Then training courses for all staff need to be developed and carried out urgently. Staff should also be fully updated on the TDM Programme, policies and developments in KSNP.

Specific objective 2.2: Tourism provision experiences monitored and evaluated, so that appropriate measure taken to mitigate the negative impacts and to improve service provision

Although current tourism activity in the KSNP is insignificant, actions formulated under this specific objective are of low priority relative to others. However, it is expected that implementation of this GMP will lead to increased number of visitor influx to the area. As tourist arrival increase, tourism administration systems need to be developed that support and inform KSNP tourism management actions. Computerised revenue collection, tourist management, visitor evaluation and satisfaction surveys, regulation enforcement systems and tourist movement monitoring will be developed as a basis for efficient and adaptive tourism management. This information will be collated and bi-annual reports disseminated to relevant stakeholders.

Action 2.2.1: Develop and implement tourism administration and information systems for easy retrieval, interpretation and reporting of tourism data

As a basis for efficient and adaptive tourism management, revenue collection, tourist management, visitor evaluation and satisfaction surveys, regulation enforcement systems and tourist movement monitoring will be developed and implemented. This information will be stored and managed in a computerized system and bi-annual reports disseminated to relevant stakeholders.

Action 2.2.2: Design and establish systems for monitoring and mitigating the environmental and cultural impacts of tourism facilities and activities

Whilst tourism can clearly bring enormous economic benefits to individuals, communities and nations, as well as for the conservation and management of natural resources, there are often drawbacks associated with an influx of relatively wealthy visitors to an area. Most frequently, a high level of visitor use can have a direct impact on the quality of the environment they have come to enjoy. For example, tourism overuse can degrade roads and tourist sites, produce waste and litter and can use water that is essential for natural hydrological processes. Moreover, exposure and contact with people from other countries, whilst beneficial in many ways in introducing and widening the horizons and knowledge of local communities, can have a detrimental impact on the culture and social wellbeing of communities.

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The development of tourism in KSNP must be carefully planned and regulated, with mitigation measures designed and implemented to reduce adverse impacts on both the exceptional resources and surrounding communities. Thus an auditing system to review the environmental, social and cultural effects of all proposed objectives and actions will be developed and embedded in KSNP tourism management.

As such, a Visitors Code of Conduct has been drawn up to minimise both environmental and socio-cultural impacts of the tourism:

KSNP Visitors Code of Conduct

- Please keep on designated trail, do not disturb animals, plants and their natural habitat.
- Please dispose of your litter carefully. If you can't take your litter with you
- Don't take pictures of anyone without asking their permission
- Please, don't give sweet, other materials particularly to children, it encourages begging
- Respect the traditional value and lifestyle of the local community by behaving in an appropriate manner
- Leave only footprints. Take only photographs:
- Appreciated if you educate yourself about the custom, and cultures of the local community
- Do not buy products made from endangered animals and plants
- Support conservation-oriented program and organisations working to preserve the environment

Action 2.2.3: Establish adaptive management system to link visitor experience to management action

Visitor surveys and feedback collected as part of tourism provision and infrastructure monitoring must be taken into account in order to improve the quality of the KSNP tourism experience. Informal feedback forms should be available in every tourism facility and submitted to the Tourism Department and then considered at regular Tourism department meetings and at quarterly and annual planning meetings.

Objective 3: Opportunities, involvements and benefits of local community created, diversified and sustained in KSNP Tourism Development

Specific objective 3.1: Involvement of local communities in the KSNP tourism development and management facilitated and realized

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Involving communities directly and indirectly in tourism, in a culturally and socially acceptable manner, is a key tenet of tourism development in KSNP. It is important to ensure that communities are taken into consideration in any partnerships between KSNP and private investors, for example by ensuring local staffing, the purchasing of local produce and services, and benefit sharing. Such community tourism development is a growing area and there are a number of such initiatives within Ethiopia such as around Lalibela and Simien Mountains National Park in northern Ethiopia and in the Adaba-Dodola and Bale Mountains National Park in the south-eastern Ethiopia, and in Wenchi area in the central Ethiopia.

For local communities to become central partners in KSNP tourism provision and management, the following actions have been devised. To realize this, a considerable capacity building within communities needs to be carried out in order for them to participate in an equitable and sustainable way. Steps to ensure that local communities have the knowledge and skills to become proactive and equal stakeholders and partners are laid out below.

Action 3.1.1: Facilitate and provide awareness raising education for the prioritized communities in/around KSNP

In order to ensure active participation of local communities, tourism awareness creation education and skill development training should be provided for the local communities in/around the KSNP. ‘Tourism Awareness’ campaign will be developed for prioritised communities to ensure that they are fully aware of the positive and negative impacts of tourism development in the area. Expectations of the potential benefits of tourism development will be managed by explaining predicted incomes and impacts. Discussion on tourism options and opportunities and the types of tourists that can be expected will be held. Where necessary, specific training and site visits will be held.

Action 3.1.2: Facilitate and provide tourism-relevant skills development training for community members in prioritized communities

A range of training and skills development will be required from basic financial management, interaction with tourists (customer care and handling), effective service delivery, hygiene maintenance, food provision etc. Further, training should also include the use of concession agreements to benefit all parties. Examples of other agreements must be reviewed for suitability and to ensure that a fair deal is obtained for all both communities and KSNP. A prototype agreement, compatible with NRM agreements, the legal framework, KSNP and local government must be drawn up together with these relevant communities. This will be a valuable training and trust building exercise and it can then be used in the pilot areas. Experience sharing visits to and from other community enterprises in the region and the country will be valuable. In addition, links and opportunities provided by initiatives of other actors in the ecosystem, particularly Tigray regional bureau of culture and tourism need to be closely coordinated,

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Action 3.1.3: Assist communities in setting up and implementing tourism management, governance and benefit-sharing structures

Given the diverse group of people (e.g., rich vs wealthier; men vs women; etc.) expected to be involved in the tourism activity of the park, it is likely that conflict in benefit sharing and responsibilities may happen among them. Currently, there are no structures or bodies within communities to develop and manage tourism and which can interact with other stakeholders, particularly KSNP management to represent community interests. Prioritised and interested communities will be facilitated to set up Community Tourism Development Committees (CTDCs) with the capacity to govern and manage tourism concessions and benefit sharing mechanisms. They also will be assisted in fund raising for Community-based Tourism Development projects.

Specific objective 3.2: Diverse tourism-related income generation opportunities created and equitably and fairly shared among the KSNP-associated local communities

Wherever possible, local communities must take additional advantage of economic opportunities from tourism activities in the area through marketing local cultural/traditional tourism handicrafts. The first step will be to review community tourism models in Ethiopia and the wider region to investigate what realistic development options might be appropriate for KSNP. These reviews must be discussed with the relevant communities for suitability and feasibility. In particular, the potential for marketing cultural and traditional handicrafts, traditional foods and ceremonies, and developing community-based ecotourism through concessions should be explored and realized.

Action 3.2.1: Work with local communities to explore and exploit the potential for marketing cultural and traditional handicrafts

Wherever possible, local communities must take additional advantage of economic opportunities from tourism activities in the area through marketing local cultural/traditional tourism handicrafts. As such, communities that can or will come into contact with tourists must be identified. Similarly, together with local communities, cultural and traditional products that could also be sold must be identified. These currently include inter alia basketware, cow horn spoons and decorations, and wooden food storage containers. Opportunities for tourists to buy these artefacts in a mutually respectful way must be identified; for example by establishing handicraft producers and sellers (Souvenir producers and sellers) associations.

Action 3.2.2: Work with local communities to explore the potential for marketing cultural and traditional foods and ceremonies

Among important products/services tourists want to experience at any destination area are the traditional /cultural dancing and songs, traditional food and drinks. Furthermore, local communities' mode of life, such as farming, transportation (e.g., camel riding) and religious ceremonies are of interest to tourists. All such products should be well identified and made avail-

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able for tourists. In doing so, however, communities should be assisted and organized in associations to enable them deliver quality services.

Action 3.2.3: Work with CTDCs to develop tourism opportunities through concessions where CBT Cultural/village tourism is possible

There are a number of opportunities in/around KSNP where community-based ecotourism can be developed that benefit local communities. For example, Emba-Durkutan area around the park is one of the relatively intact forest patches in the region with amazing scenic views and where community-based conservation and ecotourism development could be considered. Thus, the possibility of designating the site as CBT site should be explored and implemented. Further, Kunama village in Adigoshu woreda can be considered for developing cultural and ethnic tourism product, especially if Kunama Cultural Museum is built. To realize this, KSNP tourism management team should work with relevant woredas and the local communities (CTDCs) to explore the feasibilities of these opportunities. Finally, communities living along and around Tacazze river can also be organized as community-based boating and fishing safari associations. The first step in realizing these opportunities will be to review community tourism models in Ethiopia and the wider region to investigate what realistic development options might be appropriate for KSNP. These reviews must be discussed with the relevant communities for suitability and feasibility. Possible concessions must meet the needs of the tourists and the community to have a chance of success. Specific concession agreements for proposed tourism developments must then be drafted. These will detail quality standards and have implementation and monitoring systems for achieving and maintaining quality. The next stage will be to support the CTDCs to elicit funding for developing the identified tourism concessions. Potential donors will be identified and technical advice and help with application procedures given.

F. PARK OPERATIONS PROGRAMME

Park Operations Purpose

Programme Purpose: KSNP Exceptional Resources Conserved Using Effective And Adaptive Protection And Management Systems

Park Operations Strategy

Improving resource management and protection is a key feature of The Park Operations Program, given the need to control the illegal utilization of resources by adjacent local communities and this requires a number of initiatives. TAs such, the Park Operations Program lays out a vision for a secured and efficiently run National Park with good infrastructure, facilities/equipment and where additional financing can be obtained to support this development and management. Actions have been drawn up to improve the human and institutional capacity of KSNP management through training, providing incentive mechanisms and improved structures and staffing levels. Systems and the framework/structure for resource protection will be strengthened by increased involvement of community members, local law enforcement agencies and scouts, by improving the awareness of communities and the police and courts. Planning of activities and the alignment of financial and human resources will be improved by coordinating annual and quarterly planning and budgeting with the GMP implementation, as well as monitoring and evaluation of its implementation.

KSNP infrastructure will be improved through the construction, renovation and provision of equipment to outposts and improving transport and vehicle provision in the park. A better communication network, including a radio systems will be designed and put in place and improved field equipment will be provide for patrolling and other park operations. Finally, with inadequate financing is a key barrier for KSNP management actions have been drawn up that will investigate innovative internal and external funding mechanisms and assessment of the potential to prepare and adopt a business plan for the park.

The park operations strategy aligns the management and development of KSNP, its infrastructure, services and operations with the above programme purpose and with regional and national policies. The principal regional and national policy-level instruments relevant to the Programme strategy and its implementation include Federal and Regional Environmental Policies, which include environmental impact assessment guidelines, and Regional and Federal economic and property management, federal civil servant and federal wildlife conservation policies.

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The PO Strategy incorporates a set of principles designed to achieve the programme purpose and to ensure alignment with national policies and strategies, as described below:

Guiding Principles

- Conservation of the Exceptional Resource Values takes precedence in all management actions and decisions
- All park operations, developments and activities, including water and fuel use, will be designed and conducted so as to have minimal environmental impact
- Staff will set the example of best practice as park users
- Best quality and high standards will be the benchmark for infrastructure and equipment procurement, construction and maintenance
- Park management recognize that they are managing resources

KSNP Park Operations Programme 10-year Objectives

Taking into account the guiding principles for this management programme, the Park Operations Programme 10-year objectives have been designed to address the relevant issues and challenges facing KSNP management, as identified by the park stakeholders. The following three objectives of the programme are:

Objective 1: Effective resource protection system strengthened for KSNP through infrastructure development and equipment procurement

Objective 2: Effective and efficient human, financial and equipment management and administration systems established for KSNP

Objective 3: Potential for the development and implementation of sustainable financial plan for KSNP investigated

A series of 10–year specific objectives and associated actions have been formulated to achieve these management objectives and are described below. In addition, a brief description of the relevant management issue or challenge is included, providing the justification for the actions. The 3-year action plan for the PO Programme, which lists activities, input requirements, priority, responsibilities and timeframe for carrying out the actions are included in Section H.

Objective 1: Effective resource protection system strengthened for KSNP through infrastructure development and equipment procurement

Of the key impediments to effective management and protection of the resources of KSNP at present is poor infrastructure, inadequate equipment or human resources required for effective management and patrolling systems. Furthermore, systems for effective resource protection and development and for assessment and mitigation of the environmental impacts of existing and future park development (e.g., building and road constructions) have been lacking. In the future, KSNP man-

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agement should have the tools to efficiently and professionally manage and secure the park's resources. Three specific objectives have been developed to achieve this.

Specific objective 1.1: Park infrastructure developed and equipment procured

Effective protected area management requires quality, well designed and well located infrastructure and adequate equipments and facilities to enhance management activities. Protected area headquarters need to provide accommodation for senior staff and scouts, storage facilities, be a hub of both internal and external communications, and have sufficient office space and ancillary services. Effective Protected Area management also requires regular patrolling throughout the PA and thus outposts must be strategically located to maximise patrol coverage, communication and comfort. In addition, equipments required for effective management and protection of park resources should be fulfilled.

A park infrastructure development plan, based on Table 1 is outlined in the following actions and in the 3-year action plan. Outpost development plans will be aligned with increases in scout numbers and with administrative zonation boundaries.

Action 1.1.1: Relocate Park Headquarters and build Sub-headquarters

Currently KSNP has building infrastructure only at three sites: the HQs at Humera and two outposts located at Sherona and Adigoshu. However, the HQs building at Humera is thought to be located at inappropriate area given the extent of the park and the distribution of key park management and protection issues and activities. Therefore, for effective management purpose, the current headquarter at Humera should be moved to Adigoshu town, which is center to all sections of the park, and two additional sub-headquarters are planned to be constructed in the short-term (at Adebaye & Sheraro areas).

Action 1.1.2: Construct accommodation for senior staff and scouts at park HQs

Currently, accommodation/residence house is not available for all park staff. Thus, accommodation/residences houses with all its facilities (shower, kitchen, electricity, water tap, toilets and house furniture) will be constructed, at least, for senior staff and scouts at park HQs.

Action 1.1.3: Construct new and rehabilitate existing outposts and furnish them with basic facilities

Regular scout patrolling and a presence of other park staff is required throughout the PA, to afford law enforcement, tourism management and good community liaison/link/. Scout outposts must be strategically located to maximize patrol coverage, communication and comfort. Currently, the park has only two outposts at Sherona & Adigoshu, but they themselves are inactive due to lack of facilities such as water and light. Thus, only less than 5% of the park is relatively effectively managed and the rest of the park is visited rarely or not at all. This management vacuum is contributing to resource degradation.

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For effective management of the KSNP, about 37 potential sites for new outpost construction were identified and mapped by the planning team. Of these, 15 priority sites represent those should be considered in the first 3-years of this GMP implementation (Kondoro, Endagber, Worawro, Elaselemon, Tsegayegrmay, Mltsay, Sutuna, Sheshina, Aribay, Endaamham, Serbadug mobile outpost, Endanerbi, Hiligen, Meamteyel, Entebteb). Furthermore, the existing 2 outposts at Sherona & Adigoshu areas also require maintenance and fencing and solar power, water facilities should be installed, and storage facilities are also required. Existing and the proposed new outposts should be furnished with all the necessary facilities such as solar power, radio or other communication means, water facilities, etc.

Table 11: Proposed and Existing Outpost of KSNP

Name of the outpost	Labeling number	GPS Location	
		X	Y
Geyatsgobo outpost	1	354050	1562933
Adigoshu existing outpost	2	316163	1571815
Kondro outpost	3	332560	1580426
Endagabr outpost	4	341136	1575424
Worawro Outpost	5	272491	1575062
Elaselemon outpost	6	274605	1569032
Sherona existing out post	7	255844	1578054
Ligimaryam out post	8	334915	1590009
Entebteb outpost	9	295979	1559699
Mumatbula outopost	10	341440	1559004
Tsrgya grmay Mobile outpost	11	284853	1574683
Katema outpost	12	349546	1562101
Mltsay outpost	13	282520	1567183
Tkeldengay outpost	14	325472	1593096
Hilegen outpost	15	252081	1582024
Endaserawat outpost	16	341937	1581226
Mantay outpost	17	339545	1570561
tekeze adiaser outpost	18	342561	1565236
Endanebri outpost	19	354062	1558529
Walki sur outpost	20	349758	1558686
Machew outpost	21	302321	1562456
Agelgel outpost	22	303179	1567143
Aribay outpost	23	297026	1573574
Endaasa outpost	24	305674	1577772
Aribay ketin Mobile outpost	25	291346	1574608

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Sheshina outpost	26	305653	1594139
Serbadug mobile Outpost	27	312249	1583738
Sutuna outpost	28	319348	1592310
Maykeyh out post	29	329393	1563795
Brsasa outpost	30	310532	1574314
Maykolonka outpost	31	318825	1571056
Maytemen outpost	32	338434	1560672
Near Tekze Meam teyel out post	33	331113	1572711
Barnasot outpost	34	318507	1586818
Balalegit outpost	35	318824	1581225
Endaamham outpost	36	321600	1576673
Dubue mobile out	37	265355	1582232
Jebelusmal mobile outpost	38	257943	1581888
Lijmarya endaserawat out post	39	330453	1584861

Table 12 : Existing and Required Building Infrastructure for the KSNP

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Area	Existing	Required
HQs at Humera	Offices	Change it to outpost/sub-HQs
	Toilets	Maintenance/renovation
	Store	Upgraded toilet and waste disposal
	Tables/chairs	Livestock pen
		Erect fence
		Power, water, and radio room
		Power and water
Adebayo and Adhigoshu outposts (non-functional)	2 Accommodation sets each	Maintenance/renovation
	Kitchen	Upgraded toilet and waste disposal
	Toilets	Livestock pen
		Erect fence
		Power, water, and radio room
		Power and water
New HQs at Adigoshou town		New HQs offices
		Tourist reception centre
		Warden accommodation
		Senior and mid-level staff housing and power (some
		Staff recreation center
		Meeting hall room
		Museum/Information center
		Stores
		Garage
		Office waste disposal
		Office ablution block
		Communications (VSAT/WIFI, radio room)
		Tourist reception centre
		Basic toilet
		Toilet
Adebayo and Sheraro (New sub-HQs)		Senior staff accommodation
		Scout accommodation
		Small office
		Security fence
		Livestock holding pen
		Store
		Waste disposal system
		Radio room
		Kitchen
		Power and water
New outposts (potentially at kondoro, Endagber, Worawro, Elaselemon, Tsegaye grmay, Mltsay, Sutuna, Sheshina, Aribay, Endaamham, Serbadug, Endanerbi, Hiligen, Meamteyel, Entebteb)		Accommodation for 4-6 scouts at each outpost
		Security fence
		Livestock holding pen
		Store
		Waste disposal system
		Radio room
		Kitchen
		Power and water
		Toilet
		Bed

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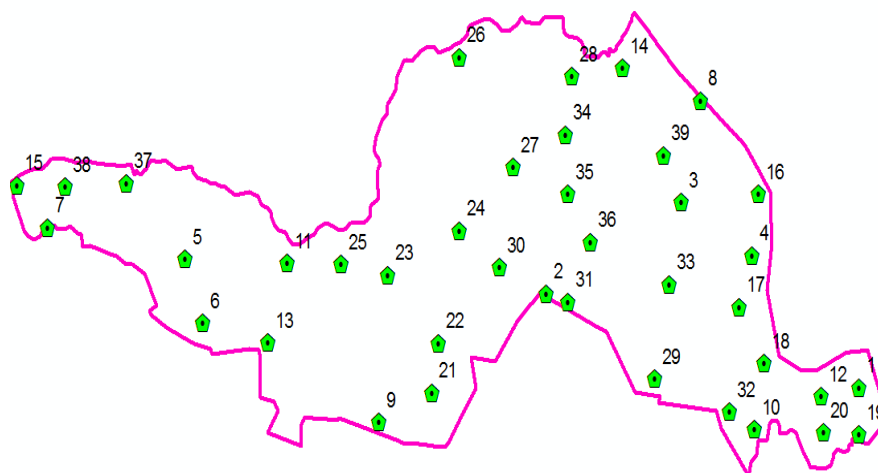


Figure 13 : Existing and Required Building Infrastructure for the KSNP

Action 1.1.4 Maintain existing and plan and construct new management road-network

The road network is one of the most critical factors for effective resource management and development. A road network will allow access for management research, monitoring and tourism, as well as enhancing the safety of park users. However, the current road network in KSNP is under-developed and most part is inaccessible even to undertake regular patrolling activities. Thus, management and tourism requirements will be assessed and a road and track network planned, built and maintained accordingly.

In this plan, the total length of the proposed road network inside the park is 522.24 km. The road which needs urgent response based on the human activities (to control the challenges of the park) is the 168.45 km long running from Tekeze River to Sheshina-Serbadug-Teklaenba-degagum-Adigoshu having total length of.

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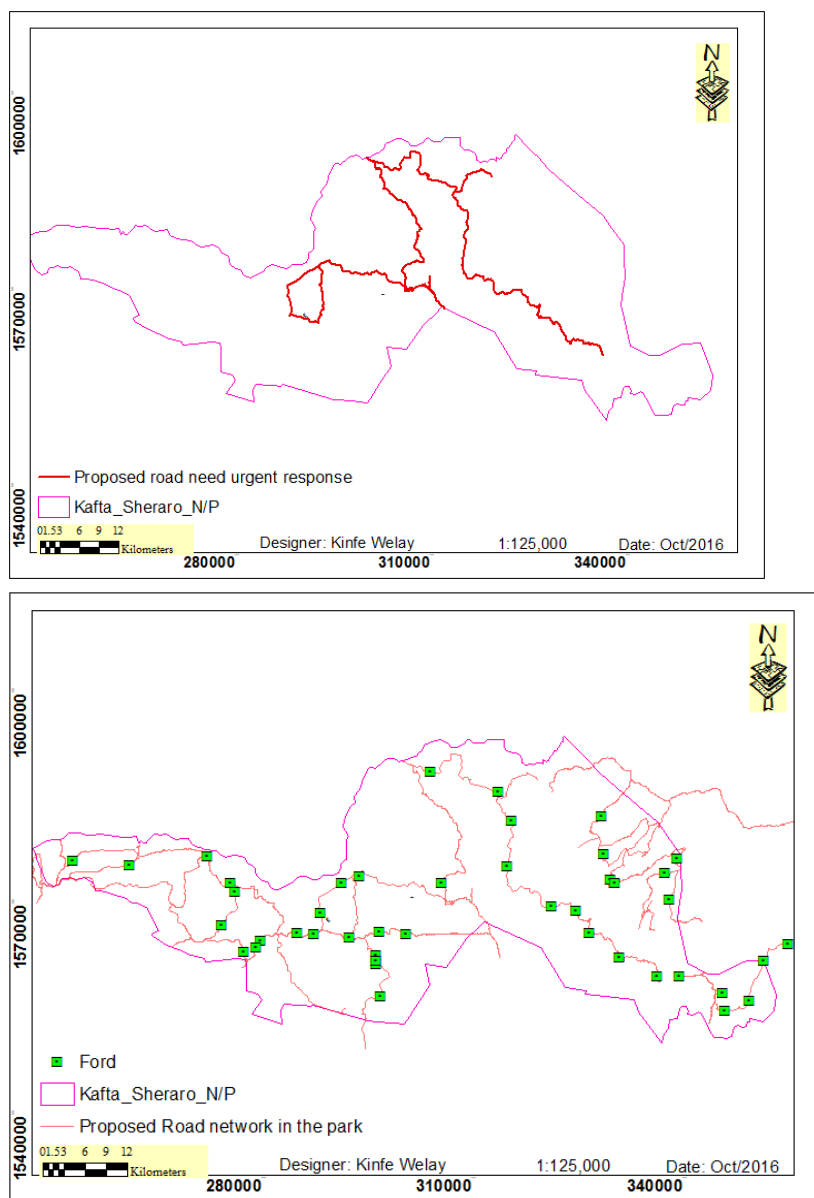


Figure 14 : Proposed Road Network (the bottom map) and that Requires Urgent Action (the top map)

Action 1.1.5: Improve and maintain signposting

Sign post/board is a tool to direct and enable visitors to reach the appropriate places and is one strategy to improve marketing and interpretation within the park. It also displays rules and regulation of the park and reduces vandalism/damage/. Big signboards describe the rules and regulations of National park at the gate of the National park and at the headquarters. This helps to aware and guide visitors the Do's and Don'ts while they are staying in the National park.

While signposting in KSNP is virtually absent currently, only 3 signposts are found at Adebaye, Adaser and Maykeye areas which themselves are of poor quality or inappropriately positioned. Thus, professionally and high quality signs will be placed wherever the park boundary crosses roads and in other relevant sites.

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Action 1.1.6: Procure and maintain sufficient field and office equipment, vehicles and communications systems

At present, KSNP scouts have limited functioning field equipment for mobile patrols. They require adequate camping equipment, uniforms and technical equipment (binoculars, GPS, compass, first aid kits), which will need to be replaced throughout the life-time of the GMP. The firearm complement needs to be regularly assessed, repaired and refurbished and non-functioning weapons decommissioned. The requirement for other equipment to apprehend those contravening park regulations will be assessed.

Although some computers are currently available, further computers and other computer accessories, such as software, office equipment including a photocopier, a scanner and digital cameras are required at HQ. Improved communication systems are a priority for KSNP. Phone and fax systems are essential for HQ and, with expansion of the internet, a satellite internet connection (such as broadband, WIFI, etc) is required for efficient communication and information searches. The park also requires a HF radio system for HQ to communicate with distant outposts where mobile network coverage are limited and the sub-HQ, and a VHF radio system for outposts to communicate with patrols. Furthermore, staff needs to be trained in radio communication and maintenance. Where cellular phone network is functioning, mobile phones could be provided as a back-up to each outpost where reception is available.

KSNP currently has three 4WD vehicles but only two of them are functioning at present. Thus, one additional 4WD vehicle (one to be used at each of the two sub-HQs proposed above) and at least five motorbikes are needed to be used by supervisory staff such as Chief Scouts to check outposts and patrols. Further, adequate budget for running costs and maintenance of vehicles should be allocated.

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Table 13 : Existing and Required Office and Field Equipment's

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Category	Existing	Required
<i>A. Transportation</i>		
Motor bike	1	10
Tractor with trail	N/A	1
Pickup vehicles	3	5
Camel	N/A	20
<i>B. Office equipments</i>		
Photo copier/printer/printer machine	N/A	3
Desktop Computer	6	25
Laptop	2	25
Digital Camera	N/A	30
LCD projector	N/A	3
Tables ,chairss	Inadequate	??
<i>C. Equipments for outposts</i>		
VHF radios	10	30
Solar panels	N/A	??
Beds and bed mats, bed sheets, bath equipment	N/A	??
Tables ,chairs, cooking/kitchen equipments	N/A	??
Digital camera	N/A	??
<i>D. Garage equipments</i>		
Welding machine , Compressor, Jack, General service tool, Fuel tank, etc)	N/A	1 set
<i>E. Camel equipments</i>		
Saddle, Bride, Horse blanket & Ridding	N/A	20 sets
<i>F. Fire fighting equipment</i>		
Fire bitter, back bag spray, fire resistant cloth, fire helmets, chain saw, water tanks	N/A	20 sets
<i>G. Field equipments</i>		
GPS		15
Digital camera		15
Compass		15
Bionoculars		150
Rucksac		150
Boots, rain-coat, hear-torch		150
Tents		30
Sleeping bags		100
Air mattres		100

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Specific objective 1.2: Environmental impacts of park infrastructure development on ecosystem health minimized through restoration/rehabilitation of affected areas

Most KSNP habitats are severely degraded due to high human pressures (mainly from mining, cultivation, grazing and settlement). The Park Operations (law enforcement) Programme will deal specifically with reducing these threats associated with human settlement, agriculture and illegal resource use, and habitat restoration will be required and implemented in collaboration with Ecological management and SNRUM programmes at heavily damaged areas to achieve the desired state of some PECs and KEAs. However, environmental impacts of existing and future park developments such as buildings and roads should be assessed and mitigation strategies should be developed and implemented.

To this end, the Park Operations programme will collaborate with the ecological monitoring programme in devising and implementing mitigation measures for the environmental impacts of any park development. Such measures include conducting EIAs prior to implementation of any planned infrastructure development and, based on EIA results, re-establishment of ecosystem health should be made through restoration/rehabilitation.

Action 1.2.1: Develop and implement EIA guideline and procedures for KSNP, in collaboration with the Ecological monitoring programme

The first step in mitigation of environmental impacts of existing and new park development initiatives, including outposts and road-networks, is developing EIA guidelines/procedures. Thus, the KSNP Park Operations Programme will work with the Ecological monitoring programme to ensure the development of EIA guidelines for the park.

Action 1.2.2: Facilitate the assessment of and retroactively mitigate the environmental impact of existing and new park infrastructures, including buildings and roads

Existing KSNP infrastructure and other developments were not assessed for their environmental impacts. Thus these developments must be retroactively assessed and mitigation measures suggested. Over time these must be implemented and the changes in the environmental impacts of the developments regularly assessed. Once EIAs park development activities are conducted and, based on the EIA results, re-establishment of ecosystem health should be made through restoration/rehabilitation.

Specific objective 1.3: Effective resource protection plan developed and operational

Currently, there is no resource protection and staff deployment plan or patrolling plan for KSNP. A comprehensive patrolling system that takes into account increasing scout numbers and encompasses the whole park must be developed and implemented accordingly. While developing patrolling plan, attention should be given to acknowledging of the role and support of local (site level) law enforcement agencies such as local community representatives, woreda administrators, police and judiciaries for effective patrolling and resource protection. Thus, they must therefore be fully aware

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of all resource protection operations, modes of activity, legal and technical issues and there must be full agreement and understanding of the prosecution system and procedures. Finally, the plan should be implemented effectively and major threats to the park should be minimized or controlled.

Action 1.3.1: Develop and implement operational patrolling system

A patrolling system must maximize efficient deployment of staff whilst covering as much of the park as possible, as frequently as possible. Given the constraints of scout numbers in KSNP, a prioritization assessment taking into account ERVs, threat types and levels and thus level of protection required, will be undertaken. The resource protection system will incorporate a feedback system for incident reporting, a ranger based resource monitoring system and administrative zoning. Law enforcement procedures will be developed in consultation with local police and judiciary. Scouts will then be trained to understand the powers and protocols they have at their disposal in the field.

Action 1.3.2: Obtain support from local law enforcement agencies (administrators, community elders, police and judiciary) for resource protection

Local stakeholders in each woreda, including administration, communities, police and judiciary are essential partners in a resource protection system. They must therefore be fully aware of all resource protection operations, modes of activity, legal and technical issues and there must be full agreement and understanding of the prosecution system and procedures. Focal point of contacts for discussion of resource protection issues between KSNP management and these stakeholders must be established for efficient communication and cooperation, followed by ongoing discussions and appropriate training. Furthermore a database for following up the results of actions and prosecutions must be constructed and used in monitoring the outcomes of infringements.

Action 1.3.3: Strengthen the participation of local law enforcement agencies' (kebele and woreda levels) in resource protection

Currently, local level law enforcement committee has been established by the park with the support of the “Enhanced management and Effectiveness of Ethiopia’s Protected Area Estate (EMEPA)” project. Working guidelines for the method of operation between the committee and park scouts is also developed and endorsed for implementation. Thus, using this local committee as a means of dialogue with communities, community scouts will be selected in all kebeles, trained, equipped and an appropriate reward and incentive mechanism devised (planned). Once an operation system for committee is implemented, the effectiveness of this approach needs to be monitored and evaluated.

Action 1.3.4: Avoid illegal settlement, cultivation/irrigation and gold mining practices in the core conservation area of the KSNP

Major issues associated to settlement, cultivation/irrigation and gold mining practices in the KSNP is to be dealt with in the SNRUM programme, but new incidences of such activities should be halted, particularly in the core conservation zone of the KSNP.

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Action 1.3.5: Avoid illegal wildlife poaching/hunting in the park

In KSNP, Elephants are poached for their ivory and/or in revenge to their crop-raiding. Poachers use automatic rifles and poisons being baited in water ponds used by the animals. The location of the park being at the borders of Sudan and Eritrea has made easy transaction of ivory across borders, leading to increased demand of elephant poaching. Further, Elephant population in the KSNP usually move to and from Eritrea across Tekez river, suggesting that a collaborative work between the two countries is needed to minimize Elephant poaching in the area. In general, in order to halt the incidence of elephant poaching in the park, forming strong collaborations with Eritrean wildlife conservation authorities, Ethiopian defense force and local community is needed. In addition, monitoring of illegal Elephant poaching should be included in ranger-based monitoring (RBM) plan of the park and should be undertaken in collaboration with MIKE and EMEPA project.

Other wildlife species targeted for poaching are Roan antelope, Red-fronted gazelle and Greater kudu (all for bushmeat) and leopards for their skins. Thus, to mitigate this illegal activity, the extent of illegal hunting of these species should be assessed continuously as part of the ranger-based monitoring (RBM) activity of the park. In particular, data on wildlife poaching (incidences of mortality cases) should be collected and these data should be used as input for planning patrolling activities and to conduct awareness creation of local communities on the impacts and consequences of poaching on the species involved. Additionally, liaison with government agencies such as judiciary, police and local government offices can be improved to assist with monitoring and control.

Action 1.3.6: Collaborate with the Ecological Management Programme and implement fire management plan

Fire in KSNP is set by the surrounding local community unintentionally during honey harvesting and deliberately to stimulate the growth of new grass for their livestock. It is reported that fire occurs throughout the park every year, often in October, where over 60% of the park area has been burnt every year (KSNP, 2008/2016). As a result, this uncontrolled fire is now thought to represent a serious threat to KSNP's ERVs.

A number of actions have been formulated in the Ecological management programme in order to appropriately manage within in KSNP. However, scout patrolling system in the park should also incorporate controlling and preventing of occurrence of fire incidences. They should work with the "local fire monitoring, prevention and control committees" that will be formed.

Action 1.3.7: Take actions to control wild ungulate depredation by domestic dogs

Direct predation and attacks by dogs pose a threat to a number of wildlife populations, including rodents, Greater Kudu, Red-fronted Gazelle and other antelope species (especially young calves) in the park. They also can pose threats to wild carnivores through food competition and transmission of infectious diseases (e.g. rabies and canine distemper). At present, information available on this issue is very limited, partly because of the short duration of time since the park started appropriate man-

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agement; thus data are not systematically collected. Nonetheless, abnormal age ratios (lower proportion of juveniles compared to adults) in populations of some ungulates, such as Kudu, Roan Antelope and others and the presence of a large number of free-roaming dogs in the park may suggest that domestic dogs could potentially be posing serious threats to ungulates in the KSNP. This supposition can be supported by the fact that dogs have been repeatedly reported as one key threats to wildlife globally, as well nationally (see Asefa, 2008), suggesting that there is high probability that dogs in/around the KSNP cause similar problems to ungulates. Thus, preliminary assessment will be collected, via social survey/key informants, to get an insight into the level of this threat and determine if management intervention is required in the short-term (within upcoming 3 years). This action is identified as priority research topic in Objective 2. If preliminary assessment reveals that dogs are actually pose threats to wildlife in the park, a local dog control policy of the KSNP will be formulated and made effective. This local policy should be developed being aligned with the Ethiopian wildlife legislation which dictates that domestic dogs should not be allowed to freely wander in wildlife protected areas.

Action 1.3.8: Regulate livestock grazing in the KSNP to mitigate its negative impacts on KSNP PECs and their KEAs

Hundreds and thousands of free-roaming livestock herds can be seen throughout the park area at any time. In addition to the surrounding local people, others from neighboring woredas and even from Eritrea use the park for grazing almost throughout the year. These herders also topple branch-lets or completely cut tree stems down of the incense-source trees, *Boswellia*, with axe to provide supplementary feed to their livestock. Thus, livestock herbivore (grazing and browsing) within the KSNP is thought as one of the most critical threats. Therefore, such unregulated grazing activities should be avoided by identifying grazing user types (i.e. historical/past vs recent users; or local vs faraway communities), assessing the rational for allowing seasonal and regulated uses by locals, in accordance with Ethiopian wildlife law, and developing sustainable/regulated use approaches.

Action 1.3.9: Stop unregulated small scale timber, charcoal and NTFPs extraction

Kunamas are the indigenous community who inhabited the area for several hundred years. Until recently, the livelihood of these people largely relies on livestock husbandry and wild flora and fauna. In addition to hunting on wild ungulates for bushmeat, they used to freely-access NTFPs such as edible plants, honey, grasses and forbs for their livestock, fuelwood, house-hold utensils and construction materials. For example, they still use the Palm tree (*Hyphenea thebica*) for different types of foodstuff, such as for making local beverage (*Tela*), sauce (*wot*), porridge (*genfo*), handicraft, feeding plate and ornamental/jewellery materials. Even if these people are being denied the right of harvesting raw materials for such traditional use at present, because they are currently relocated to outside the park so as to enable them access modern public services like health and education, they have been opted to buy from illegal harvesters. In addition, they also use Babao tree (*Adonesia digitata*) for making carrying utensils and for mattress.

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However, current proliferation of human population and settlements around the park has not only resulted into ever-increasing use of such NTFPs in the park, but also has resulted to the initiation of other forms of natural resources utilization, including gum/resin collection and charcoal production. Specific management actions that will help regulate the sustainable use of these resources by the indigenous community, and by non-natives, are developed.

Wood extraction is occurring at an alarming rate in KSNP mainly used for household and firewood, for fencing, for building, for household and agricultural implements and for ceremonial and fumigation purposes. Charcoal is also produced in the park, apparently at increasing rates, although the scale of this activity is unknown.

Further information is required on the extent and location of charcoal extraction, and once data on the extraction is collected and mapped, the resource protection and patrolling plans of KSNP and communities can cover these areas and activities. In the interim, liaison with communities, local administration, police and judiciary concerning laws regarding charcoal extraction, the park boundary, park regulations and increased enforcement is required.

Objective 2: Effective and efficient human, financial and equipment management and administration systems established for KSNP

Current management and administration structures and systems in KSNP are insufficient to manage a protected area the size and the complexity of KSNP, particularly to follow the work plan laid out by this GMP. There is insufficient staff with appropriate capacity and working conditions, and staff morale and professionalism are at low levels.

Effective management structures, systems and capacity should be established by reviewing and revising current park management systems and departmental and staffing structure and filling the gaps, in light of GMP implementation. Furthermore, park regulations and policies should be made understood by park users and staff. Similarly, equipment use, handling/care and maintenance systems should be improved.

Specific objective 2.1: Appropriate management structures, systems and capacity established

Responsibility for meeting many of the desired objectives within this GMP (*e.g.* implementing sustainable natural resource management agreements, public relations, tourism development and marketing) are difficult to assign logically with current management structures. Besides, as park staff has low salaries, they do not lead good life and are unable to work to best of their ability. As a result, staff turnover is common every year in search of better salaries.

Lack of adequate operational budget to carry out their responsibility and to run the day-to-day activities, and inadequacy of human resources with skill and experience in the scientific, technical, fi-

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nancial and managerial function required for proper conservation and management of the park is a serious issue that will be concerned in GMP.

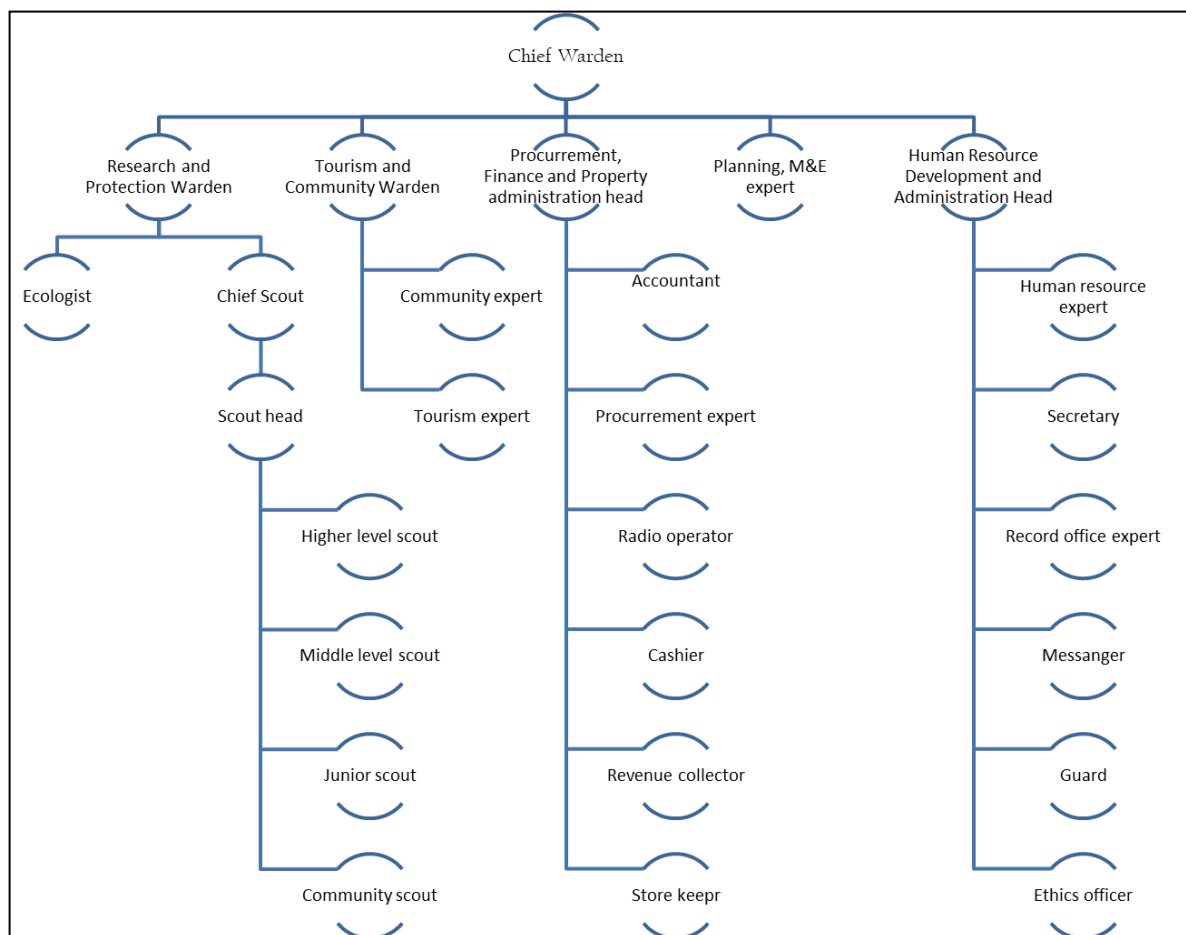


Figure 15 : Current Staff Structure of KSNP

The park management will have five main departments with associated Team Leaders under the Park Warden, as in Fig. F4. The five team leaders will serve as the internal KSNP management committee and will be responsible for designing and implementing the Annual Operations Plans and annual budgeting. The detailed terms of reference for each team leader will be prepared by the Park Warden, with appropriate technical advice and using best practice from other protected areas in Ethiopia and more widely in Africa, as part of preparation for management plan implementation.

* Indicates positions that concur with posts that are filled in current staff organization (i.e. Sociologist ≡ SNRM and Outreach TL), Ecologist ≡ EM TL). In addition, one additional experts are currently employed that will have to be reassigned. The current chief scout will be assigned as a section head.

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Table 14: Proposed and Existing Staff Positions in KSNP

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Position	# Currently allowed positions	# Currently held positions	Total required	New addition required		
				2019	2020	2021
Chife Warden	1		1	1		
Research and Protection Warden	1		N/A			
Ecological Research and Monitoring Warden	N/A		1	1		
Park Protection Warden	N/A		1	1		
Ecologist	3	1	3	1	1	
Wildlife vet	N/A		1			1
Tourism and Community Warden	1		N/A			
Tourism Warden	N/A		1	1		
Community and Outreach Warden	N/A		1	1		
Community Expert	4	2	4	2		
Tourism Expert	3	1	3	1	1	
Procurement, Property and Finance Administration Head	1		1	1		
Accountant	1	1	1			
Casher	1	1	1			
Revenue collector	1	1	1			
Store keeper	1	1	1			
Radio operator	1	1	1			
Driver	4	3	4		1	
Cleaner	2	2	2			
Procurement expert	1		1	1		
Chief scout	4	-	6	4	2	
Scout head	7	1	8	2	2	3
Higher Scout	24	1	24	14	9	
Middle Scout	19	1	20			20
Junior Scout	27	16	43	11		
Community scout	38	33	55	11	11	
Human resource administrator head	1		1	1		
Office clerk/secretary	1		1	1		
Record office expert	1		1	1		
Messenger	1	1	1			
Guard	1	1	1	4	4	
Ethics officer	1	1	1			
Lawyer	N/A		1		1	
Planning	1		1	1		

Action 2.1.1: Review and revise park management systems and staffing structure, in light of GMP implementation

Current management structure, responsibilities and job descriptions of park staff will need to be examined and revised appropriately. With revised job descriptions, the payment level for many posts must be also be reassessed, particularly because park staff currently receive very low salaries com-

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pared to civil service rates in other offices, with a similar education level, responsibilities and volume of work. For example, scouts are paid at the level of a guard, rather than an employee who is expected to work independently in sometimes basic and adverse conditions, carry out negotiations with community members, collect information and make reports. This is the first step in trying to ensure that staff salaries match job descriptions and responsibilities under the revised management structure. Human capacity need assessment is therefore required as a first step to meet the demand of human resource for effective park management and protection.

Action 2.1.2: Increase and maintain staffing levels as required

Once the current park management structure reviewed, staffing levels and duties and allocation of financial resources is required to ensure whether the organizational structure is fit-for-purpose and that all responsibilities of KSNP management can be met and the GMP implemented. Responsibilities and job descriptions will be reviewed and appropriate payment levels assessed within the civil service structure. Where gaps or inappropriate staffing are identified, an appropriate overall structure will be proposed and implemented. New posts/systems must be identified and job descriptions drawn up and requested from EWCA. In addition, equipment needs for all staff departments & field must be identified and supplied as funding allows.

Action 2.1.3: Facilitate short- and long-term training for KSNP staff

Training and capacity building needs for KSNP must be assessed and clearly identified, particularly with respect to GMP implementation. After appropriate training opportunities and options have been explored and identified a training plan must then be drawn up and implemented as funding allows. Experience sharing visits to other protected areas both within and outside Ethiopia could be particularly valuable. Particular capacity gaps are also identified under other management programs thus such initiatives must be cross-referenced.

Action 2.1.4: Introduce strategies to strengthen staff morale including internal competitive reward system for good service

Staff morale is identified as being poor in KSNP and a number of strategies should be adopted to improve this situations. A competitive reward system can be a very effective motivating factor for many staff. Those receiving awards, aside from any financial or material benefit, experience pride and a rise in self-esteem, which improves job satisfaction. This will be executed following EWCA's model employee selection currently in effective.

Action 2.1.5: Improve and maintain good employment benefits such as housing, uniforms and medical insurance provision

Good employment conditions lead to effective and motivated staff. Currently employment benefits in KSNP are poor, with few additional incentives for living or working in remote areas. Incentives can be provided in a number of ways, not just by direct financial means. Provision of good quality equipment, uniform, housing, training, social benefits (e.g. medical, life insurance or education

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support) recognition of effort, overtime rate, and international recognition will all contribute to job satisfaction and improved employment conditions. Good uniforms and appropriate equipment for work are important in ensuring staff are able to carry out their jobs efficiently, in comfort and with pride. Uniforms have been recently provided to scouts and management, but annual requirements for all staff need to be assessed and procurement made. Lack of medical insurance, house for the staff workers, emergency medical fund and treatments should be benefit to all staff. In addition, hardship (extreme weather) allowance and per diem rates are lower compared other offices in the Tigray region, Zones and the neighboring districts. All this issues should be addressed to motivate the staff.

Action 2.1.6: Implement government health and safety standards

Health and safety at work is an increasing concern across the world, but little attention has been paid to ensuring safe working practices within KSNP. With an increase in activities, particularly for scouts carrying firearms, regulations and procedures must be set up to ensure staff safety and health. As a first step, current government standards must be investigated, before KSNP procedures for working, fire prevention, first aid, and accident reporting can be drawn up. Finally, staff must be made aware of policy, regulations and procedures and trained where appropriate.

Specific objective 2.2: Effective and secure administrative systems operational

Action 2.2.1: Ensure park regulations and policies are up-to-date, understood by park users and functional

A variety of regulations and policy relating to the park use are either in force, detailing punishments that might be accorded to their violation. For example, there is a local bylaw which has been agreed by the park management and local communities and is effective for punishing illegal livestock grazing in the park. All such documents should be regularly reviewed, updated and implemented.

Action 2.2.2: Improve equipment care and maintenance

Even though KSNP is currently poorly equipped, existing ones are not well maintained by both staff users and storekeepers. As new and better quality (and thus more expensive) equipment becomes available care protocols must be drawn up and established in working practices. Specific accountability for maintenance must also be assigned. This will ensure cost-effective.

Action 2.2.3: Improve and maintain efficient electronic and paper filing system

The current KSNP administrative system is not very efficient with filing systems, reports and record archiving poor. This means that letters and reports cannot easily be retrieved for reference and collective knowledge is lost. In addition, records are not computerized and capacity to operate systems is low. To improve the system, a review and redesign by experts is required and then identified capacity needs addressed.

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Action 2.2.4: Improve and maintain financial management system

A number of factors have combined that have resulted in current poor financial management with poor financial planning and reporting with inefficient use of the already low budget allocated. Capacity levels of park staff are poor, recording and reporting systems inadequate and park staff at management level unaware of how government financial systems operate, and thus how to optimize their use. The system can be improved by a thorough overhaul, and improving staff capacity and responsibilities.

Specific objective 2.3: Collaborative and adaptive planning and review system operational

Strategic and operational planning is critical for any organization both to ensure a common purpose and for aligning financial and human resources. Within government systems, it is also essential for budget requests and management. At both regional and federal level in Ethiopia, emphasis has recently been placed on business planning re-engineering, supported by a balanced scorecard system of monitoring and evaluation, in order to help implement more effective and transparent management and governance. Thus it is vital that adaptive planning is a core part of KSNP activities and that the GMP action plans are regularly reviewed in the appropriate cycle. The following actions have been developed to achieve this:

Action 2.3.1: Implement GMP monitoring and evaluation plan

The monitoring and evaluation framework developed as part of this GMP is too extensive for implementation. Annual review meetings should be held to monitor and evaluate the implementation of the GMP, management effectiveness and the impact of GMP implementation, as outlined in the Monitoring and Evaluation Section of this GMP. This action will therefore not only provide a key “review” component of the planning and management cycle, but also be the basis for an adaptive management system that is flexible and responsive to changes in context. Baseline assessments need to be undertaken once the GMP is approved, for example of the Management Effectiveness Tracking Tool (METT) score and then regular monitoring systems need to be integrated into work plans and annual operational planning and reporting. A report should be produced of results achieved and why actions were not carried out or require adaptation.

Action 2.3.2: Improve annual and quarterly operational planning and budgeting

The 3-year Action Plan within the 10-year strategic framework of the GMP will be the basis for annual work plans and used in all planning activities. However activities under this action will ensure that the whole management team is involved in regular planning and that budgeting is aligned with activities, with realistic outputs and timelines that take into account the financial, human and technical capacity available. Reprioritization and assessment of appropriateness of actions and activities identified in the 3-year Action Plan, in line with changing circumstances and new knowledge is a key component of implementing an adaptive planning and budgeting system. Part of the planning process also requires the clear allocation of responsibilities to staff members (and po-

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tentially linking this to appraisals/value and rewards/recognition) so that implementation will take place.

Action 2.3.3: Develop next 3-year Action Plan for 10-year GMP

In order to ensure that subsequent rolling 3-year Action Plans within the GMP are produced in a timely fashion, protected area planning will be built into management structures at HQ.

Objective 3: Potential for the development and implementation of sustainable financial plan for KSNP investigated

A global survey of protected area budgets and staffing level, carried out by the World Conservation Monitoring Centre in 1996, revealed that worldwide mean budgets for protected areas were \$893/km², with a mean of \$257/km² in the eastern Africa Region. The report suggested that \$526/km² were required in developing countries for effective management, although in 1988 another study put this figure at \$200-230/km². Figures for Ethiopia were estimated at just \$5/km² in 1996, the third lowest for any country in the world. The implication, and factually, is that financial resources provided for the management and development of KSNP is inadequate. Thus, a sustainable business and financial plan for the park should be established.

Business plans are management, strategic planning and communication tools which inform key stakeholders including government agencies, local communities, the private sector, investors and donors of the vast potentials in the sector. They are also effective marketing instruments that should be widely utilized (Moyini, 2005). The concept of business planning for conservation in Africa is now well entrenched through the Conservation Finance Program of the Wildlife Conservation Society (WCS) and the World Conservation Union (IUCN). Conservation business plans have been developed for the wildlife sectors of Madagascar and Rwanda, and the forest sectors in Uganda and Rwanda (GoU, 2003; Moyini, 2005). Protected Area business planning is an objective of the current GEF-PASP for Ethiopia (FDRE, 2005). Thus, while developing a sustainable business and financial plan for the KSNP is unquestionable, given the fact that KSNP was established very recently—with low tourist flow and income and little knowledge on the economic importance of the park resources—realizing this may take time and should be aimed as a long-term action.

Specific objective 3.1: Economics and financial flows of KSNP ecosystem better understood

The costs and benefits of ecosystem services are often misaligned: those who bear the short-term costs of preserving the ecosystem do not receive an appropriate share of the benefits and therefore have little incentive to preserve it, while those that benefit from the ecosystems often pay little or none of the costs. This misalignment of costs and benefits leads to natural resource degradation.

Although economic valuation has been conducted for most Ethiopian protected areas, including KSNP, in most of the protected areas this was done based on approximations and extrapolations from other similar protected areas as little information exist on the importance of the area in this

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regard. Thus, accurate estimation of the economic values of the park should be undertaken, using updated data.

Action 3.1.1: Review existing information on, carry-out new research and quantify the value of ecosystem goods and services of KSNP and identify the relevant beneficiaries

A first step in generating financing systems for KSNP, which could potentially finance the realignment of costs and services, is to estimate the value of the ecosystem, its biodiversity and the services that it provides. Ecosystem goods (*e.g.* forest products, grazing, water supply, and recreation) and ecosystem services (*e.g.* water provision, flood prevention, climate stabilization, and biodiversity maintenance) obtained from KSNP can be assessed using livelihood assessment and economic valuation methods. Although this was undertaken recently (Zayl, 2015), it seems to be less reliable as the valuation was carried out without access to adequate information on the importance of the area in this regard. Thus, the beneficiaries and the total values of the goods and services that they receive must also be identified and re-assessed. This will provide the foundation for subsequent activities that might secure appropriate payment.

Specific objective 3.2: The potential for developing functional Business Plan for KSNP investigated

Efforts to increase revenue generation will be internal, external or through innovative sustainable financing initiatives. Internally efforts will be made to increase government budget *allocation* by justifying the increased commitment to safeguard the total ecosystem value. Other internal mechanisms will include better use of funds and improved financial management systems. Nevertheless it is still extremely likely that core budget will be insufficient. Thus additional funding must be sought from a variety of sources and capacity increased to identify, secure and manage these funds.

Action 3.2.1: Undertake feasibility study on the possibilities to develop and implement Business Plan of KSNP

Currently, the economic values and beneficiaries are not clearly understood in the KSNP. Therefore, prior to planning for developing sustainable business plan of KSNP, a feasibility study exploring potential sources of funding, capacity of KSNP management and the presence of adequate information should be undertaken.

Action 3.2.2: Develop business plan for KSNP, provided that it is feasible to implement

The key elements of a protected area business plan includes articulation of the sustainable funding options for the sector with detailed elaboration of the funding situation, gaps and options; and a strategic framework for ensuring cost effectiveness through enhancing revenue generation and the cutting of costs. Formulation of a business plan for KSNP will therefore pull together the information and actions detailed elsewhere in this financing objective, and build these into a comprehensive road map to sustainable financing.

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Action 3.2.3: Improve capacity of KSNP management to identify, apply for and report funding opportunities

Additional funds could be raised externally by KSNP from a suite of potential donors, but staff currently has no/little capacity to carry out such fundraising activities. Thus a key action in this GMP should be to increase the fund raising capacity of KSNP management.

Action 3.2.4: Explore methods and opportunities of acquiring payment for KSNP ecosystem services

Although sustainable financing mechanisms for protected areas and payment for ecosystem services are beginning to be developed at the international level, these funding mechanisms have yet to be explored in Ethiopia. Potential funding opportunities might include payments for KSNP ecosystem services such as carbon sequestration, watershed protection and biodiversity/genetic conservation. Since payments for carbon sequestration are now online following the operation of the Kyoto Protocol and the establishment of the European Emissions Trading System (ETS), there may be potential for obtaining payments. Furthermore, considerable work has gone into developing watershed based negotiations for fundraising tie-ins for hydro-electricity, clean water supplies, beverages and beer sales in a number of countries globally. Such opportunities should be explored in the case of KSNP.

G. COMMUNITY OUTREACH PROGRAMME

Community Outreach Program Purpose

Programme Purpose: KSNP effectively managed through collaborative partnerships with stakeholders through an integrated conservation and development initiatives, modern communication and awareness raising strategies

Outreach Programme Strategy

One major reason for ineffectiveness of protected areas in achieving the primary goals for which they were set aside is that the “exclusion [of stakeholders, particularly local communities]” approach followed in their management. In the modern conservation era, however, involvement of local communities both in management and benefit sharing from PAs has received a growing attention. This shift in development thinking and practices in the 1970s that called for local peoples’ participation in decision-making processes was thought to operate within the framework of the concept of sustainable development which had its breakthrough during the ratification of the Convention on Biological Diversity (CBD), held in the Rio summit in 1992 (Chambers 1983). Thus, Outreach Programme of KSNP is designed to harmonize the need for conservation and the need for community development and aims to ensure that the park is managed collaboratively with its neighbours and other stakeholders in an integrated manner and synergistically with development and other initiatives outside its boundaries. The Outreach strategy provides a general statement of policy and principles that will guide the outreach activities of KSNP within this GMP. Adoption of this strategy is intended to provide additional support for the conservation of KSNP exceptional resources as well as facilitating a positive flow of benefits out of KSNP – including information, ideas, development initiatives, etc. Effective partnerships will increase understanding, dialogue and participatory management among local, national and international stakeholders. Partnerships must be built on mutual trust, communication and understanding, which requires new systems of communication and awareness raising education, improved information sharing and opportunities for discussion, debate and negotiation. Simultaneously KSNP will play its role to facilitate livelihood development, mitigate the costs of living in or near the park, and use best practice to ensure the equitable sharing of benefits, thus ensuring that integrated conservation and development management system will be in place.

This strategy is aligned with federal and regional legislation and policies, including the National Environmental Policy (1997), the National Rural Development Policy (2002), the National Biodiversity Conservation and Action Plan (2005), and Access to Genetic Resources and Community Knowledge and Community Rights Proclamation (2006) and Regulations (2007).

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The following guiding principles for programme implementation were formulated from policy, legislation and best field practice elsewhere.

Guiding Principles

- Mutual respect underpins the relationships between KSNP and all park users and partners
- Communication and dialogue are central to all KSNP relationships and partnerships
- Communities are positive partners in KSNP management
- Partnership priority is given to potentially disadvantaged and marginalised community groups (e.g. youth and women)
- Park-stakeholder partnerships are adaptive and dynamic and so are expectations and behaviours
- KSNP plays a development catalytic role in community development initiatives rather than a development implementer

Using the guiding principles, three 10-year objectives have been drawn up for the Programme to tackle the issues, challenges and opportunities identified by park stakeholders relevant to this programme. The objectives are:

- 1. Stakeholders' collaboration and support for KSNP management improved**
- 2. Equitable benefit-sharing and cost-reduction systems facilitated in park-associated communities**
- 3. Stakeholders' wider awareness of KSNP promoted and a sense of ownership and responsibility ensured**

A series of 10-year specific objectives and associated actions have been formulated for these management objectives, and are described below. In addition, a brief description of the relevant management issue or challenge is included, providing the justification for the actions. The 3-year action plan for the Outreach Programme, which lists the activities, input requirements, priority, responsibilities and timeframe for carrying out the actions are included in Section H.

Action 1.2.1: Improve awareness of KSNP legal framework in local communities of KSNP

In the area around the KSNP, the community members still have inadequate understanding of the rules and regulation and legal status of the park and also the laws and procedures that can be enacted to enhance its protection. Kebele park advisory committee meetings are a good forum for structured discussion on this topic, awareness raising and for information sharing and thus this issue will be regularly incorporated into meetings.

Objective 1: Stakeholders' collaboration and support for KSNP management improved

In the context of the traditional conservation approaches, national parks have been viewed as islands that operate without reference to the wider context, both locally and nationally. In contrast,

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modern approaches argue that conservation activities cannot operate and be successful in isolation of the surrounding environment. This holds true, particularly in PAs such as the KSNP where the major threats have been identified as habitat loss and over-exploitation of natural resources by park-associated communities. It is therefore critical that KSNP engage with local communities and facilitate community participation into park management and decision-making. This GMP recognises that local communities are positive partners in the future management of KSNP and this objectives aims to integrate KSNP management with the activities of local communities, development organisations, and government and non-government actors.

Specific objective 1.1: Functional park-community discussion forum established

Community consultations made during the planning process have identified poor park-local community relationship as a key issue to be addressed in the GMP. Reversing these attitudes may take time and must include improved dialogue. Therefore, formation of park-community forums is needed to give both sides the opportunity to raise concerns and issues and to start building the trust required for participatory management and decision-making.

Action 1.1.1 Review EWCA's BSC Plan and identifies potential members for Park-community forum

- a. Review current EWCA's BSC Plan and propose who should be considered from community to be included in the forum
- b. Hold meetings/discussions with relevant kebeles and present your proposal
- c. Once agreed with community, select members for the forum

Action 1.1.2: Train relevant KSNP staff and key community members involved in the park-community dialogue

Under this action, information on park-community partnerships, dialogues, successes and challenges will be gathered and shared with relevant park staff and communities. The capacity for both park staff and communities to engage in dialogue will then be assessed, while giving a particular emphasis on their capacity for negotiation and conflict management. Based on a capacity assessment relevant community/park training will be facilitated by KSNP management.

Action 1.1.3: Establish and maintain active forums for KSNP-community dialogue

Good communication between the KSNP management and government bodies at local, regional and federal level should be in place to obtain appropriate political support. However, this is poorly achieved currently. As part of this GMP, KSNP will encourage and facilitate the delegation of representatives by park-associated communities, including representatives from marginalised groups, to strengthen KSNP-community dialogue. Simultaneously KSNP will hold an internal workshop to establish a consensus on a working model for community involvement in KSNP. Initially the park and each community will meet to decide on a forum structure for grievance and problem solving,

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discuss problems and issues, and identify indicators to monitor the impact of forums. These forums will meet regularly and the overall effectiveness of KSNP-community forums developed will be monitored to assess their impact on park-community partnerships.

Specific objective 1.2: Strong partnership and communication mechanisms with relevant organisations established for KSNP

In order to foster the involvement and joint ownerships that ensure the long-term development and management of KSNP, creating strong park-stakeholders partnerships needed. This will also ensure that KSNP is a stakeholder in policy development and decision-making outside its boundaries. Thus, KSNP needs to create strong park-stakeholders partnerships to obtain the support of government institutions and other organisations operating in the conservation and development context in the area (*e.g.* NGOs, CBOs, academic institutions and research projects).

Action 1.2.1: Establish KSNP management committees

To enhance effective management of KSNP, relevant organisations must be involved in park management at both central and local levels. To achieve this, as per EWCA's current BSC plan, a KSNP Zonal and Woreda Steering Committees (KSNP-ZSC and -WSC) will be established. These committees will oversee KSNP management, ensure GMP implementation and provide policy guidance. This will ensure that senior staff from all institutions are fully involved in and informed of KSNP operations.

Action 1.2.2: Form functioning co-ordination with local government and implement regularly

KSNP will engage with local government partners on a regular basis to ensure coordination of activities, overall engagement and support. This engagement will occur at all levels – zone, woreda and kebele. An annual coordination meeting to present KSNP annual report and annual operations plan (AOP) for the following year will be held with all zonal and woreda authorities, judiciary and other relevant administrative bodies. Further, KSNP warden will meet quarterly with relevant zones and woredas to maintain coordination. An annual woreda-KSNP coordination meeting to discuss specific NRM issues (*e.g.* monitoring, enforcement, conflict management and specific problems/issues) will be held and if necessary specific working groups will be established to tackle NRM issues. At the kebele level, community scouts will be assigned to meet with each kebele monthly, having ensured that these scouts have been trained in community-park dialogue and conflict resolution (Action 1.1.1).

Action 1.2.3: Establish and improve communication between KSNP and NGO's that can or do collaborate with the park

KSNP recognises that communication must be maintained from all sides and that it is also responsible for maintaining contact and dialogue. Thus, the park will create internal guidelines for contact

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and collaboration with other institutions. These will include allocating points of contacts, opening individual files for all communication, and establishing regular reporting, feedback and budget planning mechanisms. Regular communication will be established with collaborators, and, if appropriate, formal meetings will be held.

Objective 2: Mechanisms established for equitable benefit- and cost-sharing in park-associated communities

Key challenges identified for KSNP are the high level of poverty of the park-associated communities, who are dependant on natural resources for their livelihoods. Globally, local communities are typically marginalised from the decision-making process governing use of natural resources and receive an inequitable share of ecosystem costs and benefits. To address these challenges, the Convention on Biological Diversity (CBD) has adopted the ecosystem approach. This approach recognises that because local people are both important beneficiaries of healthy ecosystems and a major threat to the maintenance of ecosystem health, local communities must be at the forefront of efforts to bring about the conservation and sustainable use of natural resources.

Within KSNP the local communities identified the lack of benefits that they receive from KSNP as a primary issue and indeed perceive the park to be reducing their livelihood opportunities. This perception is in addition to the costs incurred by the community due to the negative impacts posed onto them from wildlife, including crop-raiding and livestock depredation. Whilst not a development agency, KSNP must wherever possible play a role in addressing these fundamental issues by facilitating livelihood development, mitigating costs and ensuring the equitable sharing of benefits for park-associated communities. Three specific objectives are developed to help achieve this objective.

Specific objective 2.1: Livelihood development and equitable benefit-sharing mechanisms established in collaboration with partners

Currently, KSNP does not generate income as only few tourists have been visited the area. Consequently, there are insufficient funds to cover internal KSNP management costs, let alone extension work in communities. With little functional management system in most of the park, natural resources are being degraded through unsustainable use. KSNP must therefore, amongst other strategies, attempt to build partnerships with development actors and to facilitate conservation friendly livelihood development in and around the park in order to break this negative feedback loop. Further, other innovative methods to increase benefit flows and to generate revenue for community initiatives are required to tackle the inadequate benefit-sharing with park-associated communities. Even when initiatives will be in place, the equitable sharing of any benefits in an equitable manner is an enormous challenge. Marginalised groups within communities typically live closer to the subsistence level than wealthier and more central groups and are thus more dependent on natural resources than other sectors of society. However, being marginalised, they are unlikely to be represented within the larger society and are thus difficult to engage with. It is imperative to learn from

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current best practice amongst development practitioners and to ensure that such benefits that do flow from KSNP are shared equitably.

Action 2.1.1: Assess the potential of ecotourism as a mechanism to improve livelihoods of park-associated communities

KSNP currently has insignificant tourism flow and revenue. This is unsurprising given the young age since it is established and thus the little promotion and marketing works carried so far. Nonetheless, the park and the surrounding areas have a huge potential for ecotourism potential. Thus, ecotourism development in the area should be seen as urgent priority of action to benefit the local community.

Action 2.1.2: Establish Community Conservation Areas around KSNP

One mechanism of benefiting communities living around protected areas globally is by establishing community-managed protected areas in the buffer areas, including the “EmbbaBirkutan” forest. Such community-owned areas can serve as income generation for them through ecotourism activities, including controlled hunting of wildlife species. There are several intact potential areas around the KSNP that could be considered for such purposes. Such areas should be studied and designation as CCAs should be facilitated.

Specific Objective 2.2: Promote other conservation compatible small business development in park-associated communities, including sustainable use of NTFPs

Effective community development is based on partnerships where external actors enter into equal partnerships with the local communities. One means to achieve this is to give the communities access to use of some forms of NTFPs. Such opportunities do currently exist in the KSNP, including production of traditional handicrafts from doum tree, resin extraction and home-take grass cutting. Feasibilities and sustainability of such NTFPs use of communities in the KSNP should be investigated and implemented accordingly.

Action 2.2.1: Promote traditional handicraft making from Doum palm tree as community income

Prior to considering allowing local community to use doum tree for handicraft making, its current distribution, abundance & amount of extraction of Doum-palm tree within in and around the KSNP should be understood. Then, recommendations should be provided on method of extraction, frequency per year, time of extraction & No. of people involve in extraction. Further, quality of the production and marketing strategies for the products should be facilitated by the KSNP, together with other relevant government and NGO actors.

Action 2.2.2: Examine the feasibility of adopting cut-and take-away method as a sustainable grass use

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Current grass use (grazing and thatching) is in unsustainable way. In order to make the use sustainable and improve communities' benefit from it, amount, frequency and location of harvesting should be identified and regulated.

Action 2.2.3: Promote sustainable resin extraction as contribution to community income

Resin extraction in/around KSNP currently forms one of the significant means of income for local communities. This should be promoted to enhance the mutual sustainability and development of resin-bearing trees and economic income of the locals. As such, understanding the current distribution, abundance and amount and method of extraction of resin bearing tree species within and around the KSNP should be studied. Then, recommendations should be provided on method of extraction, frequency per year, time of extraction and no. of people involve in extraction and use.

Specific objective 2.3: Alternative and sustainable sources of energy and construction use facilitated and promoted

Reducing resource use within KSNP requires enhanced resource management and adoption of alternative livelihoods whenever possible, as well as reducing reliance on natural resources by introducing appropriate alternative energy options. This is not only relevant to the communities living in and around the park, but also to KSNP management as the park's energy needs increase. KSNP must be a model of best practice in all conservation-related activities, including sustainable energy use.

Action 2.231: Promote alternative and energy-efficient fuel sources and building materials

Park-associated communities are dependent on park resources both for fuel wood and building materials. KSNP will coordinate a park working group (led by the SNRM and EM Programmes) to identify alternative options for fuel wood and building materials (*e.g.* indigenous woodlots, promoting community and household nurseries and woodlots of fast growing exotic trees) and to create a park policy for fuel wood and building material provision for park residents and developments. Fuel-efficient stoves will help to reduce park residents' fuel wood requirements. Local community members typically struggle to transport these stoves and to seal them properly using cement. The park will facilitate the promotion, distribution and the proper use of these stoves as a means of reducing reliance on KSNP natural resources.

Action 2.3.2: Promote awareness of alternative energy sources and energy saving methods

With its secondary purpose of exhibiting best practise in conservation, KSNP is obligated to play a role in demonstrating conservation-related practices wherever possible. To demonstrate alternative energy sources and energy saving methods the park must partner with experienced organisations to ensure that these messages are incorporated in the environmental education programmes.

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Specific objective 2.4: Human-wildlife conflict in/around KSNP understood and mitigated

Local communities living in and around the KSNP have expressed that there have been serious human-wildlife conflicts, particularly due to crop-raiding of Elephants and warthogs and livestock depredation of carnivores such as Hyena, Leopard and warthog are among the prevalent species which responsible of creating HWC. Most of the impacts are typically incurred by the poorest group of society who live on the outskirts of villages closest to the sources of impact (Thirgood *et al.* 2005). A valuable strategy in improving the welfare of park-associated communities, which can have as much effect as increasing benefits in improving their overall budget balance, is to reduce such costs. This, in turn, requires adequate understanding and knowledge on types, extent, spatio-temporal patterns and cost of HWC.

Action 2.4.1: Collect information on types, extent, specific areas and cost of HWC

Central to tackling HWC is the collection of good data on where HWC is occurring, its type and scale and estimate its economic costs. This is, however, often a source of conflict as neither side trusts the other to be responsible for accurate data collection. Thus the areas and severity of HWC will be identified, local task forces that represent all stakeholders formed and then data collection protocols, response and data feedback mechanisms agreed. Relevant training for data collection will be given, followed by regular analysis and evaluation.

Action 2.4.2: Devise and implement HWC mitigation strategies

At specific hotspot sites of HWC are occurring will be identified, mitigation strategies will be implemented. Relevant mitigation solutions that are known to be effective and applicable to local context will then be piloted, agreement for their implementation negotiated with the affected communities and monitored for their effectiveness.

Objective 3: Stakeholders ‘awareness of KSNP promoted and a sense of ownership and responsibility ensured

KSNP suffers from a lack of recognition of its significance as a biodiversity hotspot, of its critical ecosystem services of regional socio-economic importance, its tourist potential and potential World Heritage Site listing. Wider national and international awareness of KSNP will significantly increase support for conservation and management activities by creating a sense of ownership and responsibility among all stakeholders (international, national, and local). This is especially important to increase the Ethiopian constituency of support for KSNP locally and nationally. Moreover, increased recognition will strengthen political support and fundraising efforts nationally and internationally.

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Specific objective 3.1: KSNP publicity campaign systems developed and implemented

Action 3.1.1: Develop communication strategies to promote KSNPGMP

Upon ratification, the GMP strategy, its contents and the processes to be adopted during implementation must be communicated with all relevant stakeholders. These include KSNP staff, local communities, local government, other government and non-governmental partners, all of whom were consulted in GMP development. This communications strategy will form the basis for dialogue on GMP implementation. The philosophies, specific contents and implementation plans for the GMP will be conveyed to all KSNP staff. An innovative communications strategy targeting local communities in and around the park will be developed to convey as much of the GMP to these communities as possible. Market days provide an opportunity where people gather and visual displays and stands will maximise their potential. Other relevant stakeholders will be targeted with the distribution of copies of the GMP where relevant, or with either posters or pamphlets.

Action 3.1.2: Design and implement publicity campaign to improve public and staff recognition and support for KSNP

KSNP will engage with partners and other stakeholders with publicity experience to create a publicity campaign to improve understanding of socio-economic and natural services provided by KSNP, its biodiversity importance and its potential as a tourism site. The campaign will use graphic presentations and other innovative techniques to disseminate its messages, such as publishing articles on (semi)popular scientific journals and magazines (e.g. Selamta).

Action 3.1.3: Develop and maintain KSNP website

KSNP has no website in its own domain name. A website will be developed and maintained as a publicity tool for a wide range of audiences, including tourists, conservationists, researchers, and donors. A broad range of easily understood information about the park and its management will be provided as well as images from KSNP, news items, publications, and links to partner projects, tour companies and other relevant information on the world wide web.

Specific objective 3.2: Environmental education programme established in/around KSNP

The consultative meeting held with the local community representatives and local administrations revealed that no/little awareness raising campaigns have been made by the KSNP. Thus, the need for designing and implementation of environmental education programme for KSNP is a matter of urgency, as it helps to improve understanding, support for KSNP, to share information and ultimately to produce responsible action. Environmental education will also encourage people to understand the rationale for KSNP and to take more active and responsible roles in how they interact with KSNP, its management and its resources.

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Action 3.2.1: Strengthen currently existing environmental education programme

KSNP currently has a limited environmental programme in and around the park. This programme need to be evaluated and a three year strategy developed to strengthen environmental education as a tool for furthering conservation initiatives and support for park management.

Action 3.2.2: Establish and strengthen new nature clubs in local schools and higher education institutions

In addition to strengthening existing clubs, new clubs should be established in the surrounding schools and universities/colleges. The activities and impacts of these clubs should be mentored continuously, and supports will be provided, for example, by providing manuals for club establishment and management, educational materials, financial sources and in developing action plans.

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H. 3-YEAR ACTION PLANS

This GMP should guide the management of the KSNP over the next 10 years, by laying out the vision for KSNP and the strategies by which that vision might be achieved. In addition to providing this long-term vision and strategy, this GMP must also be directly applicable to the day-to-day management needs of KSNP and the people who are primarily responsible for its implementation. These 3-year action plans have therefore been designed to provide further detailed activities that need to be accomplished as part of the overall identified action. This structuring should help facilitate understanding and implementation of both park managers and other stakeholders. Each 3-year action plan also clearly lays out park roles and responsibilities for implementing each action and identifies potential partners that might be involved. This GMP is also ambitious and its implementation is beyond the current capacity of the park or its partners. Input required for implementation can include technical advice, human and/or financial capacity, data, and/or equipment and the level of external support necessary for implementation of each action has been ranked (none, some, most, all). A prioritisation process has also been undertaken to facilitate GMP implementation within the confines of limited resources and a suggested timeline to guide implementation of each action over the next 3 years.

Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
Objective 1: Adverse impacts of human-induced threats to KSNP’s PECs and their KEAs reduced through active management																		
1.1: Threats due to illegal and unsustainable natural resource use reduced and regulated in partnership with other programmes	Action 1.1.1: Ensure any natural resource use is based on ecological prescriptions of park zonation scheme	Technical advice, data	Some	High	EM, OR, PO	EWCA, MIKE, MU, AU, AU, TRC												
	a. Develop guidelines for ecological prescriptions of each proposed park zone based on distribution of and threats to PECs/KEAs.																	
	b. Revise currently proposed zonation scheme annually based on most recent assessment.																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
	Action 1.1.2: Ecological information input provided to support actions in other programmes that will reduce key threats to PECS and KEAs	Technical advice, data	Some	High	EM, OR, PO	EWCA, MIKE, MU, AU, AU												
	a. Hold meetings with other Programmes to discuss needs, identify information gaps, and develop plan/timetable to fulfill park management requirements																	
	b. Develop protocols and collect data as per monitoring plan under Action 2.1.1 and plan/timetable to fulfill EMMP and other programme requirements																	
	c. Facilitate research on human-associated threats as per research priorities under Action 2.3.3 and discussions with other programmes																	
	d. Consult other Programmes regularly to check where ecological input is required																	
	e. Provide input into protocols for ranger-based monitoring (RBETM) and train ranger/scout-monitors as necessary																	
1.2: Cultivation, settlement and mining in the KSNP planned and controlled where necessary halted	Action 1.2.1: Develop and implement management plan for cultivation control in the park	Technical advice, data	High	High	EM, OR, PO	EWCA, Regional gov't												
	a.. Map past and present extent of cultivation land																	
	b. Undertake a detailed socio-economic survey focusing on who came from where and when?																	
	c. Identifying and register legal vs illegal landholders																	
	d. Form a taskforce (composing people across different federal and regional relevant sectors and levels)																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
	e. Develop action plan for cultivation control by provide land replacement outside the park for rightful people (i.e. legal landholders) and/or monetary compensation																	
	f. Collect baseline ecological data before cultivation stop, and then after every year																	
	g. Implement the action plan for cultivation control by provide land replacement outside the park for rightful people (i.e. legal landholders) and/or monetary compensation																	
	"																	
	h. Strengthen law enforcement																	
	Action 1.2.2: Develop a detailed resettlement plan for Tekeze village	Technical advice, data	High	High	EM, OR, PO	EWCA, Regional gov't												
	a. Form a taskforce who will deal with and develop management options for settlement control																	
	b. Undertake (or obtain secondary data on) socio-economic assessment																	
	c. Define the status of the inhabitants as being a past (before park establishment) or a recent (after park establishment), and whether families have second houses or plots outside the park.																	
	d. Develop and present recommendation on how to treat past and recent settlements for resettlement and other compensation mechanisms																	
	e. Assess and provide resettlement options to decision makers																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
	f. Implement resettlement programme																	
	Action 1.2.3: Develop and implement management actions for gold mining control in the park	Technical advice, data	High	High	EM, OR, PO	EWCA, Regional gov't												
	a. Map and quantify extent of gold mining																	
	b. Assess the socio-economic and ecological impacts of gold mining																	
	c. Investigate on who the users and where they are from(are they local or non-locals)																	
	d. Develop illegal mining controlling action plan in collaboration with relevant stakeholders																	
	e. Implement mining controlling actions																	
	f. Strengthen scout patrolling in hotspot areas																	
1.3: Fire extent, frequency and intensity managed	Action 1.3.1: Develop and implement fire management plan	Technical advice	Some	Med	EM	EWCA, MU, AU, AU												
	a. Review other models for fire management in similar (savannaland) protected areas																	
	b. Promote topic as research priority for KSNP and facilitate research projects to understand the relationship between fire and ecosystem function, specifically related to the PECs in KSNP (e.g. <i>grasses</i> , <i>Boswellia</i> and woody plant regeneration)																	
	c. Identify and map hotspot fire occurrence areas																	
	d Develop and implement fire management plan for priority areas																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
	e. Expand fire management to all areas in KSNP as human and financial capacity allows																	
	Action 1.2.3: Develop and implement management actions for gold mining control in the park	Technical advice	Some	Med	EM	EWCA, MU, AU, AU												
	a. Collect spatial (GPS) data of mining sites																	
	b. Create spatial distributional map of mining and extent of area affected																	
	c. Assess the socio-economic status of people engaged in mining																	
	d. Assess the economic and ecological impacts of mining																	
	e. Develop and implement impact mitigation measures and																	
	Action 1.3.2: Strengthen infrastructure, services, and human capacity for fire monitoring and control	Technical advice, human and financial capacity	Most	Med	PW, PO	EWCA, Regional gov't												
	a. Investigate options for monitoring fire using remote sensing and develop protocols/systems for data acquisition, management (e.g. database), and analysis																	
	b. Acquire available remote sensing data and calibrate with ground monitoring in the park																	
	c. Include fire surveillance in ranger-based monitoring plan and activities																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
	d. Undertake socio-economic survey on the use of fire in the KSNP																	
	e. Investigate and devise honey gathering methods that do not use fire																	
	f. Disseminate alternative honey gathering and farming methods through training programme																	
	g. Introduce comprehensive ban on fire use in park except with explicit permission e.g. fo honey gathering) from KSNP manage-ment																	
	h. Develop regulation /enforcement sys-tem/penalty system for illegal fires with user groups and fire management commit-tees in communities																	
	h. Explore the possibility of fire manage-ment committees in kebeles around fire sensitive areas																	
	j. Develop fire control methods and train fire management committees (park staff and communities)																	
	k. Train KSNP and community fire com-mittees in control methods																	
	l. Investigate requirement/ feasibility of firebreaks or other actions to mitigate effect of fire in sensitive areas																	
1.4: Unregulated and illegal NTFPs (e.g. graz-ing, resin/gum, fuelwood and charcoal) uses con-trolled and their effects on park’s ERVs reduced, where necessary halted	Action 1.4.1: Regulate livestock grazing in the KSNP and mitigate its impact on park’s PECs and their KEAs	Technical advice, data	Some	High	EM, OR, PO	EWCA, Regional gov’t, local comm.												
	a. Identify historical land use and user groups																	
	b. Identify current land use and user groups																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
	c.. Assess the rational for allowing seasonal and regulated uses for grazing by local indigenous community																	
	d. Collate lessons from other protected areas related to regulated grazing in protected areas																	
	e. Draw agreements on when, where and how to access grazing																	
	f. Monitor obedience of bylaws by the community																	
	g. Tighten scout paterolling to avoid illegal users																	
	Action 1.4.2: Regulate extraction of wild plant products (gum resin/frankincense and food) from Boswellia and of Hypheneae and Adonesia trees) and reduce the impacts on their population structure	Technical advice, data	Some	Low	EM, OR, PO	EWCA, Regional gov't												
	a. Assess socio-economic and ecological impacts of gum frankcense collection from Boswellia																	
	b. Review current knowledge on the effects gum resin/frankcense collection and collection method on Boswellia																	
	c. Develop and implement management actions required to mitigate the threat of resin collection activities to the species																	
	d. Liaise with Mekelle and Adigrat/Aksum universities and facilitate a research on the possibilities of domestication and easy propagation of Boswellia in the park surrounding areas																	
	e. Investigate options, if any and possible, to allow regulated resin extraction																	
	f. Facilitate a research on the type and degree of use of <i>Hypheneae thebica</i> and <i>Adonesia digitata</i> tress by local communities																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
	g. Develop a regulation for limited traditional uses of <i>Hyphenea thebica</i> and <i>Adonesia digitata</i> tress by indigenous (Kunama) community																	
	Action 1.4.3: Regulate fuelwood collection and halt charcoal production in the park	Technical advice, data	Some	Low	EM, OR, PO	EWCA, Regional gov't												
	a. Assess the extent of dependency of local community on the park for fuelwood demand																	
	b. Conduct awareness raising campaign on the ecological impacts and consequences of illegal fuelwood collection and charcoal making																	
	c. Develop regulated fuelwood collection for domestic use where necessary																	
	d. Ban fuelwood and charcoal marketing																	
	e. Strengthen scout patrolling activities																	
	f. Form strong collaboration with local and regional security forces																	
1.5: Healthy wildlife (animal and plant) populations maintained and threats to population viability mitigated	Action 1.5.1: Halt Elephant poaching in collaboration with stakeholders	Technical advice, human and financial capacity	High	High	EM, PO, OR	EWCA, Regional gov't, MIKE, Defense force												
	a. Form strong collaborations with relevant partners (Eritrean wildlife conservation authorities, Ethiopian defense force and local community) to monitor elephant poaching																	
	b. Include elephant poaching monitoring in ranger-based monitoring (RBM) plan of the park																	
	c. Lobby with MIKE for technical and financial support																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
	d. Identify hotspot poaching sites and ivory trafficking routes and concentrate monitoring and patrolling efforts to there accordingly																	
	e. Increase the judiciary process and system																	
	f. Conduct awareness creation of local communities on the impacts and consequences of elephant poaching.																	
	Action 1.5.2: Reduce illegal human hunting on Roan Antelope and other ungulates	Technical advice, data	Some	Med	EM, OR, PO	EWCA, MU, AU, AU												
	a. Assess the extent of illegal hunting of Roan antelope																	
	b. Include Roan antelope hunting monitoring in ranger-based monitoring (RBM) plan of the park																	
	c. Identify hotspot hunting sites and concentrate monitoring and patrolling efforts to there accordingly																	
	d. Conduct awareness creation of local communities on the impacts and consequences of elephant poaching.																	
	Action 1.5.3: Assess the actual and potential threats domestic/feral dogs pose to wildlife in the KSNP	Technical advice, data	Some	Low	EM, OR, PO	EWCA, Vet research institutions												
	a. Undertake a preliminary assessment on the spatial and temporal distribution and abundance of free roaming dogs in the park																	
	b. Assess the potential/actual extent of threats posed by dogs to wildlife																	
	c.. Determine if management intervention is required in the short-term (within upcoming 3 years).																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
	d. If the preliminary assessment reveals that dogs actually pose threats to wildlife in the park, formulate a local dog control policy of the KSNP in line with Ethiopian wildlife laws																	
	e. Hold workshop between park and other stakeholders to agree on dog control policy																	
	e. Obtain endorsement for dog control policy from relevant government body																	
	f. Conduct awareness creation of local communities on the dog control policy																	
	g. Procure any equipment needed and provide training for implementation of dog control policy																	
	h. Implement the policy																	
	Action 1.5.4: Develop and implement wildlife disease management system and action plan	Technical advice, human and financial capacity, data	High	Low	EM	EWCA, Vet research institutions												
	a. Collate and review previous reports of on the incidences of wildlife disease in the park																	
	b. Assess capacity gaps for disease surveillance, diagnosis, and disease control																	
	c. Fill capacity gaps through training and/or partnering with veterinary institutions in the region and Ethiopia to monitor disease incidence, particularly livestock, and undertake disease diagnostics																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
	d. Develop standard post-mortem data collection protocols as part of disease surveillance, disease diagnosis, and preventative/reactive methods for managing outbreaks																	
	e. Ensure any disease detection or management activities are built into Health and Safety regulations for KSNP																	
	Action 1.5.5: Develop strategies to ensure health population structure of <i>Boswellia papyrifera</i>	Technical advice, human and financial capacity	Some	Med	EM	EWCA, MU, AU, AU												
	a. Assess the impacts of gum harvesting, fire and grazing on the regeneration and population structure of <i>B. papyrifera</i>																	
	b. Examine other ecological factors (e.g. wind due to clearance of co-occurring trees, insect attack, termite, substrate, etc) that cause damage to <i>B. papyrifera</i> trees in park																	
	c. Based on the findings, develop and implement strategies that would ensure health population of <i>Boswellia papyrifera</i> in the park																	
	d. Explore the possibilities to domesticate the species outside the park																	
	Action 1.5.6: Develop strategies to ensure health population structure of <i>Boswellia papyrefera</i>	Technical advice, data	High	High	EM	EWCA, MU, AU, AU												
	a. Review current knowledge on the effects of fire, grazing, rein collection and chopping branch-lets for animal fodder																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
	b. Liaise with Mekelle and Adigrat/Aksum universities and facilitate a research on natural regeneration status and factors affecting regeneration of Boswellian (e.g. fire, improper resin tapping, clearing and de-branching by local farmers and trampling and browsing by cattle)																	
	c. Provide recommendations on management actions needed to mitigate these threats to the species																	
	d. Liaise with Mekelle and Adigrat/Aksum universities and facilitate a research on the possibilities of domestication and easy propagation of Boswellia in the park surrounding areas																	
	e. Awareness raising on the causes and consequences of human-induced threats to Boswellia																	
	f. Restrict intensive livestock grazing/browsing in Boswellia dominated sites																	
1.6: Invasive (alien/indigenous) species managed to mitigate negative impacts on ecosystem health	Action 1.6.1: Train all park staff in identification of alien/native invasive species	Technical advice, data	Most	Low	EM	EWCA												
	a. Survey, inventory and map all alien and potentially invasive species in KSNP, focusing initially in the Hareenna forest																	
	b. Draw up list of alien and invasive species with pictures, descriptions, and distributions																	
	c. Provide lists to all staff, as well communities, and ensure they can reliably identify known alien and invasive species																	
	d. Update the list as required by undertaking alien and invasive species surveys annually																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
	Action 1.6.2: Develop and implement strategy for invasive species control in KSNP	Technical advice, human and financial capacity	All	Low	EM	EWCA, MU, AU, AU												
	a. Assess current knowledge and available literature on alien and invasive species control in Ethiopia and elsewhere																	
	b. Evaluate and designate appropriate control measures for species identified in KSNP, based on potential threat to ecosystem posed by each species																	
	c. Develop policies and protocols for alien and invasive species control and designate responsible personnel																	
	d. Conduct training on alien and invasive species control																	
	e. Conduct pilot studies to assess feasibility and effectiveness of protocols for alien and invasive species control																	
	f. Revise protocols if necessary																	
	g. Undertake control measures, monitor as per monitoring plan, and manage adaptively																	
1.7: Ecosystem health re-established through restoration/rehabilitation where necessary	Action 1.7.1: Undertake ecosystem and habitat restoration at prioritized sites that are heavily degraded due to gold mining	Technical advice, human and financial capacity	Some	Med	EM	EWCA, MU, AU, AU												
	a. Assess current knowledge and available literature on habitat restoration at areas damaged from quarrying/mining sites in Ethiopia and elsewhere																	
	b. Determine priority areas for habitat restoration and mitigation of associated environmental impacts																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
	c. Develop policy and protocol for habitat restoration where necessary.																	
	d. Conduct pilot studies to assess feasibility and effectiveness of protocols for habitat restoration																	
	e. Revise protocols if necessary																	
	f. Implement the rehabilitation strategy and monitor the outcomes																	
	g. Monitor the outcome of management intervention made																	
Objective 2: Management-orientated monitoring and research of Principal Ecosystem Components and their Key Ecological Attributes and Threats to them carried out																		
2.1: KSNP Principal Ecosystem Components and their Key Ecological Attributes and threats to them monitored and feed back into management action provided	Action 2.1.1: Develop and implement protocols for collecting data on PECs, KEAs, and threats as per monitoring plan and priority setting	Technical advice, human and financial capacity	Most	High	EM, PO	All re-search/ monitoring partners												
	a. Develop monitoring protocols for priority monitoring activities																	
	b. Hire field assistants from among local communities and train as necessary in monitoring protocols																	
	c. Develop databases for data storage, management, and analysis																	
	d. Acquire necessary equipment and materials including field equipment, transport, etc																	
	e. Develop monitoring schedule as per monitoring plan and implement priority monitoring activities outlined in monitoring plan																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
	f. Carry out baseline assessment of extent of alien/indigenous invasion in heavy grazing areas																	
	g. Carry out baseline assessment of extent of tree and shrub cutting in the park																	
	h. Carryout baseline assessment of extent of human wildlife conflict from crop raiding or predation																	
	i. Review monitoring data and priorities annually based on data collected/analysed																	
	k. Review new scientific literature on monitoring protocols and adapt for KSNP as necessary																	
	l. Update monitoring plan accordingly and train personnel as necessary in new techniques and procedures																	
	Action 2.1.2: Assess and prioritise threats to PECs and KEAs annually base on monitoring data and research findings and inform management actions in this and other programmes	Human capacity, data	High	High	EM	EWCA, MIKE, MU, AU, AU												
	a. Create database for threat analysis process/results, including results of GMP analysis																	
	b. Review literature and data from Bale or other relevant areas																	
	c. Review status of PECs and KEAs based on monitoring data and research																	
	d. Prioritise (or re-prioritise) threats based on best available knowledge																	
	Action 2.1.3: Develop and implement ranger-based monitoring (RBM) plan	Technical advice, human and finan-	Most	Med	PO, EM	EWCA												

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
		cial capac- ity																
	a. Investigate options for ranger based monitoring based on systems in other parks (e.g. Bale Mnt NP)																	
	b. Develop protocols for RBM in KSNP																	
	c. Train Rangers/scouts in data collection protocols and field techniques (GPS, binoculars, etc)																	
	d. Develop databases for data storage, management, and analysis																	
	e. Implement RBM and regularly evaluate data collection and data reliability																	
	Action 2.1.4: Climate change monitoring system established and functional	Technical advice	Some	High	EM, PO	EWCA												
	a. Procure basic meteorological instruments (e.g. rain gauge, thermometer, etc)																	
	b. Select suitable sites for installation and install accordingly																	
	c. Develop standard weather recording datasheet																	
	d. Assign responsible people who will undertake daily record of weather data at each station																	
	e. Develop computerized database and transfer data from datasheet to softcopy																	
	f. Develop reports annually on weather pattern in the area																	
	2.2: Basic and management-oriented researches of Principal Ecosystem	Action 2.2.1: Promote and facilitate research by national and international institutions and persons	Technical advice	Some	High	EM	EWCA											

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
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							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
Components and their Key Ecological Attributes and Threats to them, as well of other ecological components, carried out	a. Liaise with EWCA regarding regulations for undertaking research in the park and draft detailed regulations including permit requirements, data sharing, dissemination of results, and park-researcher collaboration																	
	b. Liaise with Mekelle, Aksum and Adwa Universities, especially MSc programmes, and discuss research needs and opportunities in KSNP based on prioritised research list																	
	c. Identify KSNP staff who might be able to give talks in the relevant departments, advertise widely																	
	d. Ensure KSNP publicity material posted in relevant departments																	
	e. Explore and liaise with other potential international universities that has research experiences/affiliations with Ethiopian wildlife and discuss research needs and opportunities based on research list																	
	f. Liaise with other research organisations working in Tigray or in the country conducting relevant research and develop portfolios for different areas of work																	
	g. Develop MoU of research collaborations with relevant organizations																	
	h. Distribute prioritised research list and foster partnerships wherever possible																	
	i. Facilitate permits, logistics, and funding applications for external researchers wherever possible																	
	j. Build/expand research facilities in the park, including office space and reference library that can be accessed by external researchers																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Ecological Management Programme 3-year Action Plan																		
	Action 2.2.2: Develop functional research guideline and administration system	Technical advice	Some	High	EM	EWCA												
	a. Adopt EWCA’s scientific research administration manual for KSNP																	
	b. Develop database of research activities, accordingly																	
	c. Undertake research registration and administration according to the procedures outlined in the manual																	
	d. Develop annual reports on research activities, including their conservation implications																	
	Action 2.2.3: Enhance understanding of the KSNP ecosystem	Technical advice, data	Some	High	EM	EWCA, Universities												
	a. Review research and monitoring data on PECs and KEAs to assess new knowledge and discuss with experts																	
	b. Hold workshop with experts to re-assess PECs and KEAs as appropriate components representative of the whole ecosystem																	
	c. Revise PECs and KEAs as necessary, as well as monitoring plan if required																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Community Outreach Programme 3-year Action Plan																		
Objective 1: Stakeholders’ collaboration and support for KSNP management improve																		
1.1: Functional park-community discussion forum established	Action 1.1.1 Review EWCA's BSC Plan and identify potential members for Park-community forum	Human and financial capacity	Some	High	EWCA PO	RG, LG,FZS, KfW, GIZ, BEPs, EWCP												
	a. Review current EWCA's BSC Plan and propose who should be considered from community to be included in the forum																	
	b. Hold meetings/discussions with relevant kebeles and present your proposal																	
	c. Once agreed with community, select members for the forum																	
	Action 1.1.2: Train relevant KSNP staff and key community members involved in the park-community dialogue	All	Some	High	TF PO LGA	RG, LG,FZS, KfW, GIZ, BEPs, EWCP												
	a. Information on park-community partnerships, dialogues, successes and challenges will be gathered and shared with relevant park staff and communities.																	
	b. Assess the capacity for both park staff and communities to engage in dialogue																	
	c. Based on a capacity assessment relevant community/park training will be facilitated by KSNP management.																	
	Action 1.1.3: Establish and maintain active forums for KSNP-community dialogue	All	Some	Med	EWCA RG, LGA	RG, LG,FZS, KfW, GIZ, BEPs, EWCP												
	a. Hold internal discussion, meeting and establish Good communication between the KSNP management and government bodies (at local, regional and federal level) to agree and decide on a forum structure and identify indicators to monitor the impact of forums.																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Community Outreach Programme 3-year Action Plan																		
	b. Select community representative from each community around the park to strengthen community dialogue and establish permanent and regular platform/forum.																	
	c. Organize forums regularly as agreed and monitor the overall effectiveness of KSNP-community forums to assess their impact on park-community partnerships																	
1.2: Strong partnership and communication mechanisms with relevant organisations established for KSNP	Action 1.2.1: Establish KSNP management committees	All	Some	Med	EWCA RG, LGA	RG, LG,FZS, KfW, GIZ, BEPs, EWCP												
	a. Establish the KSNP steering Committee who will oversee the General management plan implementation and provide guidance and follow up																	
	Action 1.2.2: Form functioning co-ordination with local government and implement regularly																	
	a. An annual coordination meeting to discuss on annual operations plan (AOP) and report with all zonal and woreda authorities, judiciary and other relevant administrative bodies.																	
	b. KSNP warden will meet quarterly with relevant zones and woredas officials to maintain coordination.																	
	c. An annual woreda-KSNP coordination meeting to discuss specific NRM issues (e.g. monitoring, enforcement, conflict management and specific problems/issues) .																	
	d. At the kebele level, community scouts will be assigned to meet with each kebele monthly,																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Community Outreach Programme 3-year Action Plan																		
	e. Provide training for wildlife scouts in community-park dialogue and conflict resolution																	
	Action 1.2.3: Establish and improve communication between KSNP and NGO's that can or do collaborate with the park	All	Most	Highest	EWCA RG/LGA TF/PO	RG, LG,FZS, KfW, GIZ, BEPs, EWCP												
	a. Establish Regular communication/meeting with conservation partners (NGO’s) to discuss on the progress of the park management																	
Objective 2: Mechanisms establishedfor equitable benefit- and cost-sharing in park-associated communities																		
2.1: Livelihood development and equitable benefit-sharing mechanisms established in collaboration with partners	Action 2.1.1: Assess the potential of ecotourism as a mechanism to improve livelihoods of park-associated communities	All	Most	Highest	EWCA TF/ PO	RG, LG,FZS, KfW, GIZ, BEPs, EWCP												
	b. Assess the ecotourism potential of the KSNP and the surrounding communities to improve the park associated communities																	
	Action 2.1.2. Establish Community Conservation Areas around KSNP	All	Most	Highest	EWCA RG/ LGA TF/ PO	RG, LG,FZS, KfW, GIZ, BEPs, EWCP												
	a. Assess the Resources, scio-economic and governance dynamics of and potential of natural areas outside the park to establish community conservancies of other types of PA which will s serve as Buffer zone for the park																	
	b. Discussion with the concept of buffer zone with the community																	
	c. Establishes buffer zone and mapping																	
2.2: Promote other conservation compatible small business development in park-associated communi-	2.2.1. Promote traditional handicraft making from Doum palm tree as community income	All	Most	Highest		RG, LG,FZS,												
	a. Assess current distribution, abundance & amount of extraction of				LEA PO	KfW, GIZ, BEPs, EWCP												

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Community Outreach Programme 3-year Action Plan																		
ties, including sustainable use of NTFPs	Doum-palm tree within in and around the KSNP																	
	b. Determine methods of extraction of Doum-palm tree extraction frequency & No. of people involve in extraction.																	
	c. quality of the production and marketing strategies for the products should be facilitated by the KSNP, together with other relevant government and NGO actors.																	
	Action2.2.2 Examine the feasibility of adopting cut-and take-away method as a sustainable grass use																	
	a. Assess cut and carry system of grasses and determine frequency, locations of harvest in the park																	
	b. Identify actual and potential users of the grasses from the park	All	Most	Highest	CBO LEA/ PO	RG, LG,FZS, KfW, GIZ, BEPs, EWCP												
	Action 2.2.3. Promote sustainable resin extraction as contribution to community income																	
	a. Promote Resin extraction in/around KSNP as means of income for local communities and to enhance the mutual sustainability and development of resign-bearing trees																	
	b. Assess the current distribution, abundance and amount and method of extraction of resin bearing tree species within and around the KSNP																	
	c. Determine methods of extraction, frequency per year, time of extraction and no. of people involve in extraction and use																	
2.3: Alternative and sus-	Action 2.231: Promote alternative and energy-	All	Most	Highest	LEA/ PO	RG, LG,FZS,												

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
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							1	2	3	4	1	2	3	4	1	2	3	4
Community Outreach Programme 3-year Action Plan																		
tainable sources of energy and construction use facilitated and promoted	efficient fuel sources and building materials				CBO	KfW, GIZ, BEPs, EWCP												
	a. identify alternative options for fuel wood and building materials (e.g. indigenous woodlots, promoting community and household nurseries and woodlots of fast growing exotic trees)																	
	b. Create a park policy for fuel wood and building material provision for local communities around the park																	
	c.Promote and aware community members on the importance of Fuel-efficient stoves which will help to reduce fuel wood requirements																	
	Action 2.3.2: Promote awareness of alternative energy sources and energy saving methods	All	Most	Highest	LEA/ PO CBO	RG, LG,FZS, KfW, GIZ, BEPs, EWCP												
	a.demonstrate alternative energy sources and energy saving methods																	
2.4: Human-wildlife conflict in/around KSNP understood and mitigated	Action 2.4.1: Collect information on types, extent, specific areas and cost of HWC																	
	a. Assess and determine the tyeeps and impacts of HWC in KSNP																	
	b.Provide training on fighting HWC to wild-life scouts and communities around the park																	
	Action 2.4.2: Devise and implement HWC mitigation strategies																	
	a.Develop HWC mitigation strategy with the collaboration of local community and relevant stakeholders																	
	b.Implement the developed and endorsed HWC strategy with full participation of the local community																	
Objective 3: Stakeholders’ awareness of KSNP promoted and a sense of ownership and responsibility ensured																		

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Community Outreach Programme 3-year Action Plan																		
3.1: KSNP publicity campaign systems developed and implemented	Action 3.1.1: Develop communication strategies to promote KSNPGMP																	
	a. Communicate with all relevant stakeholder s the implementation of this GMP																	
	b. An innovative communications strategy targeting local communities in and around the park will be developed to convey as much of the GMP to these communities as possible																	
	Action 3.1.2: Design and implement publicity campaign to improve public and staff recognition and support for KSNP																	
	a. Organize public campaign around KSNP to upgrade the understanding of socio economic and natural services provided by KSNP																	
	b. Prepare visyuaal display and priniting materials for public mobilization program																	
	Action 3.1.3: Develop and maintain KSNP website																	
	a. A website will be developed and maintained as a publicity tool for a wide range of audiences, including tourists, conservationists, researchers, and donors.																	
3.2: Environmental education programme established in/around KSNP	Action 3.2.1: Strengthen currently existing environmental education programme																	
	a. Evaluate the exisiting environmental education program																	
	b. Develop a three year environmental education strategy for KSNP																	
	Action 3.2.2: Establish and strengthen new nature clubs in local schools and higher education institutions																	
	a. Strengthening the existing nature club around the KSNP																	
	b. Establish new nature clubs in the surrounding schools and universities/colleges.																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Community Outreach Programme 3-year Action Plan																		
	c. The activities and impacts of the school and universities nature clubs monitored and supported (by providing manuals for club , lectures)																	

Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Tourism Provision and Management Programme 3-Year Action Plan																		
Objective 1: Tourism Opportunities in KSNP developed and provided in Partnership with Key Stakeholder																		
1.1: Types of tourism products in KSNP identified and described	Action 1.1.1: Identify and describe natural tourism assets of KSNP Activity	Technical advice	None	High	EWCA PO /ETO	FZS, KfW												
	a. Identifying, describing and mapping all attractions.																	
	b. Identify game viewing sites and map home range/spatial distribution of each key species.																	
	c. scenic viewpoints and birding routes and sites described and mapped																	
	Action 1.1.2: Identify and describe cultural and historical tourism assets of KSNP and its surrounding areas	Technical, financial, human	Most/all	High	EWCA PO / ETO	FZS, KfW												
	a. conduct assessment of the various traditional and cultural and historical attractions																	
	b. Describe the timing, season and/or relevance of the cultural and traditional/historical attractions to visitors.																	
1.2: KSNP tourism promotion and marketing strategy developed and implemented, while linking with plans of relevant tourism	Action 1.2.1: Identify potential tourist demand of KSNP and define and implement targeted marketing																	
	a. Periodically collect tourist data by origins and type of visitor																	
	b. Carry out detail tourism market inventory/demand for KSNP																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
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							1	2	3	4	1	2	3	4	1	2	3	4
Tourism Provision and Management Programme 3-Year Action Plan																		
providing partners	c. Design appropriate promotion and marketing strategies (e.g. web site, public media, etc) and implement accordingly. .																	
	d. Develop Basic visitor information materials such as brochures, maps																	
	e. Promote information via websites,																	
	f. Develop marketing brand for KSNP and used in all marketing and promotion																	
	Action 1.2.2: Establish networks and liaise with relevant local, regional and national tourism service providers for coordinated marketing and promotion work	Technical, financial, human capacity	Most/all	High	EWCA PO/ETO	FZS, KfW												
	a. I identify possible tourism partners at all level																	
	b. Establish networkers/linkages and collaborations with available tourism service providers																	
	Action 1.2.3: Develop and implement achievable 5-year marketing plan to work with private sector operators, Government, partners, donors, tourism agents and other actors																	
	a. Conduct assessment to gather relevant information and data to develop the marketing plan strategy of KSNP																	
	b. Develop the marketing strategic plan and adopt with relevant stakeholders																	
	c. Implement the adopted marketing strategic plan																	
1.3: Basic Tourism infrastructures, facilities and services developed and maintained in KSNP in collaboration with partners	Action 1.3.1: Assess and prioritize sites suitable for building Eco-loges and provide recommendations for lease out	Technical, financial, human capacity	Most/all	Medium/High	EWCA PO ETO	FZS, KfW												
	a. Examine and refined the identified eco-Lodges and accommodation sites																	
	b. Decide how to lease out Eco lodges and accommodation sites for the possible private sector																	
	Action 1.3.2: Develop and implement lease concession procedures, standards and agreements for private and community stakeholders																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Tourism Provision and Management Programme 3-Year Action Plan																		
	a. Conduct (EWCA) carefully planned and well-promoted tender processes for the development of Campsites, Guesthouses / Community Lodges, Wild-life Tourism Lodges in the park																	
	b. Develop and implement (EWCA) licensing and operating standards which both guide and regulate KSNP tourism																	
	Action 1.3.3: Assess current status of existing and future needs of road-networks in the park and improve their accessibility																	
	a. Identify and design all routes leading to the different tourism products of the park																	
	b. Maintain the existing roads/routes																	
	c. Develop new internal roads heading to the different tourist attraction sites																	
	d. Identify and develop viewpoints/picnic sites along the routes/roads at suitable sites, where tourists will have a brief stop,																	
	Action 1.3.4: Build KSNP visitors’ information/interpretation centre at park entrance gates																	
	a. Identify appropriate sites for park reentrance and information center																	
	b. Design get entrance and information center																	
	Action 1.3.5: Plan and produce interpretation materials																	
	a. Develop and launch the official park websites, whilst links between KSNP website and other relevant websites, e.g.EWCA, MoCT, Tigray region etc																	
	b. Produce Promotion materials like guidebook, flyers, all containing park regulations,																	
	c. Make available Information and promotional material on cultural sites and traditional/historical resources																	
	d. Design and Develop signposts and erected or displayed at appropriate locations in and outside the park																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Tourism Provision and Management Programme 3-Year Action Plan																		
Objective 2: Capacity developed for effective and adaptive management of tourism activities in KSNP																		
2.1: KSNP tourism department capacity is developed to deliver and manage effective tourism services	Action 2.1.1: Assess human capacity required for KSNP tourism management and recruit accordingly																	
	e. Assess and identify the existing gap interims of tourism expertise																	
	f. Recruited the required tourism experts for the KSNP																	
	Action 2.1.2: Ensure all KSNP tourism staff received related training on tourism awareness, customer care and handling																	
	a. Assess and identify gaps of staff in terms of knowledge and staff capacity in understanding tourists, the tourism industry and tourism management, and tourism service provision and management.																	
	b. Organize and provide training courses on tourism development, marketing and promotion for all staff																	
2.2: Tourism provision experiences monitored and evaluated, so that appropriate measure taken to mitigate the negative impacts and to improve service provision	Action 2.2.1: Develop and implement tourism administration and information systems for easy retrieval, interpretation and reporting of tourism data	Technical	None	Medium	EWCA PO ETO	FZS, KfW												
	a. As a basis for efficient and adaptive tourism management, revenue collection, tourist management, visitor evaluation and satisfaction surveys, regulation enforcement systems and tourist movement monitoring will be developed and implemented.																	
	b. This information will be stored and managed in a computerized system and bi-annual reports disseminated to relevant stakeholders.																	
	Action 2.2.2: Design and establish systems for monitoring and mitigating the environmental and cultural impacts of tourism facilities and activities	Technical, financial	Low	Medium	EWCA PO/ ETO	FZS, KfW												
	a. Develop a guide line for the development of tourism infrastructures to mitigate impacts on the exceptional resources values of the park																	
	b. Ensure an auditing system is in place to review the environmental, social and cultural effects of all proposed development project																	
	c. Develop and implement a Visitors Code of Conduct to minimize both environmental and socio-cultural impacts of tourism:																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Tourism Provision and Management Programme 3-Year Action Plan																		
	Action 2.2.3: Establish adaptive management system to link visitor experience to management action	Technical, financial	Low	Medium	EWCA PO/ ETO	FZS, KfW												
	a. Develop standard format for the routine collection of information (feedback and) from the incoming tourists																	
	b. Conduct tourist satisfaction survey																	
	c. Incorporate visitors feedbacks and comment in the development tourism in the park																	
3.1: Involvement of local communities in the KSNP tourism development and management facilitated and realized	Action 3.1.1: Facilitate and provide awareness raising education for the prioritized communities in/around KSNP	Technical, financial	Some	Medium	EWCA PO/ ETO	FZS, KfW, UNV												
	a. Provide tourism awareness creation education and skill development training for the local communities in/around the KSNP.																	
	a. 'Tourism Awareness' campaign will be developed for prioritised communities to ensure that they are fully aware of the positive and negative impacts of tourism development in the area.																	
	Action 3.1.2: Facilitate and provide tourism-relevant skills development training for community members in prioritized communities	Technical advice, human and finances	All	High	EWCA PO / ETO	FZS, KfW, UNV												
	a. A range of training and skills development will be provided for the community members																	
	b. A prototype agreement, compatible with NRM agreements, the legal framework, KSNP and local government must be drawn up together with these relevant communities.																	
	c. Undertake Experience sharing visits to and from other community enterprises in the region and the country																	
	Action 3.1.3: Assist communities in setting up and implementing tourism management, governance and benefit-sharing structures	Technical, financial	Some	Low/Med	EWCA TO /ETO	FZS, KfW, UNV												
	a. Investigate the possible sources of conflict that may arise among the community in benefit sharing and responsibilities																	
	b. Prioritized and interested communities will be facilitated to set up Community Tourism Development Committees (CTDCs) with the capacity to govern and																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Tourism Provision and Management Programme 3-Year Action Plan																		
	manage tourism concessions and benefit sharing mechanisms.																	
3.2: Diverse tourism-related income generation opportunities created and equitably and fairly shared among the KSNP-associated local communities	Action 3.2.1: Work with local communities to explore and exploit the potential for marketing cultural and traditional handicrafts	Technical, financial	Low	Medium	PO /ETO	FZS, KfW, UNV												
	a. Assess the possible additional advantage of economic opportunities from tourism activities for the local community in the area																	
	b. identify potential local cultural/traditional tourism handicrafts made by the local; community																	
	c. Establishing handicraft producers and sellers (Souvenir producers and sellers) associations.																	
	Action 3.2.2: Work with local communities to explore the potential for marketing cultural and traditional foods and ceremonies	Technical, financial	Some	Medium	EWCA PO /ETO	FZS, KfW, UNV												
	a. Assesses and identify tourism products like traditional /cultural dancing and songs, traditional food and drinks																	
	b. Assess and Identify the local communities' mode of life as tourism product including farming, transportation, religious ceremonies are of interest to tourists.																	
	c. Organized communities in a form of association to deliver such traditional tourism products by type for tourist																	
	Action 3.2.3: Work with CTDCs to develop tourism opportunities through concessions where CBT Cultural/village tourism is possible																	
	a. Identify and Develop community-based ecotourism that benefit local communities. (Emba-Durkutan area,																	
	b. develop cultural and ethnic tourism product,(Kuna-ma village)																	
	c. organize in association the local Communities living along and around Tacazze river as community-based boating and fishing safari associations																	

Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
							Year 1				Year 2				Year 3			
					Park	Partners												

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							1	2	3	4	1	2	3	4	1	2	3	4
Park Operations Programme 3-year Action Plan																		
	Objective 1: Effective resource protection system strengthened for KSNP through infrastructure development and equipment procurement																	
1.1: Park infrastructure developed and equipment procured	Action 1.1.1: Relocate Park Headquarters and build Sub-headquarters	Technical advice	High	High	PO, EM	EWCA, EMEPA, partners												
	a. Construct a new headquarters office at Adighoshu town																	
	b. Facilitate the use of the current HQs at Humera as a sub HQ																	
	c. Build and equip sub-headquarters at Adebay and Sheraro																	
	Action 1.1.2: Construct accommodation for senior staff and scouts at park HQs	Technical advice, data	High	High	PO, EM	EWCA, EMEPA, partners												
	a. Undertake housing need assessment																	
	b. Develop construction plan (design/type, site selection, timeframe and cost) for senior staff residence																	
	c. Conduct prioritisation exercise on build sequence taking into account resource management needs and staffing levels																	
	d. Obtain endorsement and secure funding for the construction																	
	e. Facilitate timely construction of the buildings																	
	f. ensure all the necessary basic facilities are fulfilled																	
	Action 1.1.3: Construct new and rehabilitate existing outposts and furnish them with basic facilities	Technical advice, data	High	High	PO, EM	EWCA, EMEPA, partners												
	a. Assess and prioritize the identified potential sites for new outpost building																	
	b. Build and equip new outposts as per the priority assessment																	
	c. Renovate existing outpost buildings																	
	d. Provide all basic equipments and facilities for the outposts																	
	Action 1.1.4 Maintain existing and plan and construct new management road-network	Technical advice, data	High	High	PO, EM, OR	EWCA, EMEPA, partners												
	a. Maintain existing track/road networks																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Park Operations Programme 3-year Action Plan																		
	b. Design and build new road networks																	
	Action 1.1.5: Improve and maintain signposting	Technical advice, data	Moderate	High	PO, OR, TM	EWCA ,EMEPA, partners												
	a. Design professionally high quality signposts																	
	b. Place the signposts wherever the park boundary crosses roads and in other relevant sites																	
	Action 1.1.6: Procure and maintain sufficient field and office equipment, vehicles and communications systems	Technical advice	High	High	PO, Procurement dep't	EWCA, EMEPA, partners												
	a. Provide scouts with uniforms, boots, raingear, and rucksacks																	
	b. Procure technical equipment for field patrols (Binoculars, GPS, compass, first aid kits, (spray guns, handcuffs after investigation of feasibility)																	
	c. Investigate requirements for firearm procurement and procure as necessary																	
	d. Equip HQ offices with computers, photocopies, scanner, and digital camera																	
	e. Equip the sub-HQ with power, computer, printer and digital camera																	
	f. Install HF radios at HQ, sub HQ and the outposts as required																	
	g. Design VHF network and determine location of repeater installation																	
	h. Install VHF base stations and handsets in line with network design																	
	i. Provide cell phones for each outpost wherever possible																	
	j. Install internet access at HQ and sub HQ																	
1.2: Environmental impacts of park infrastructure development	Action 1.2.1: Develop and implement EIA guideline and procedures for KSNP, in collaboration with the Ecological monitoring programme	Technical advice, data	Low	High	PO, EM	EWCA, Universities, partners												

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Park Operations Programme 3-year Action Plan																		
on ecosystem health minimized through restoration/rehabilitation of affected areas	a. Assign responsibility for EIAs to staff member in Ecology Department																	
	b. Obtain federal and regional EIA guidelines																	
	c. Draw up EIA guidelines for KSNP																	
	d. Ensure KSNP Environmental impact guidelines address runoff from settlements and agricultural practices																	
	e. Carry out regular spot checks on all KSNP facilities, including tourist concessions																	
	f. Assess and retroactively mitigate the environmental impact of existing park development, including																	
	Action 1.2.2: Facilitate the assessment of and retroactively mitigate the environmental impact of existing and new park infrastructures, including buildings and roads	Technical advice, data	None	High	EM, PO	EWCA, Universities, partners												
	a. Carry out EIA on all existing park infrastructure and activities																	
	b. Carry out EIA on non-park managed structures such as telecom towers and liaise with appropriate agencies																	
	c. Plan and implement any appropriate mitigating measures																	
d. Monitor the outcome of the measures taken																		
1.3: Effective resource protection plan developed and operational	Action 1.3.1: Develop and implement operational patrolling system	Technical advice, human and financial capacity	High	High	PO, PCW, SNRM	EWCA, EMEPA												
	a. Prioritize areas for resource protection and level of protection required																	
	b. Develop realistic patrolling plan with of staff available																	
	c. Liaise patrolling on status of community resource protection systems																	
	d. Design and implement feedback system for patrolling equipment needs																	
	e. Develop ranger based monitoring system and incorporate into patrol plan																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Park Operations Programme 3-year Action Plan																		
	f. Integrate reporting, interpretation and adaptive management into park management																	
	g. Develop guidelines on law enforcement procedures within KSNP																	
	h. Investigate feasibility of incorporating kebele in patrolling plan																	
	i. Train staff on guidelines and procedures for law enforcement, park rules and regulations etc.																	
	j. Equip scouts as per resource protection plan and equipment needs assessment																	
	k. Implement patrolling system																	
	l. Revise patrolling plan according to change in scout and effectiveness of system																	
	Action 1.3.2: Obtain support from local law enforcement agencies (administrators, community elders, police and judiciary) for resource protection	Technical advice, data	None	High	EM, PO, OR	EMEPA												
	a. Hold workshops to aware local stakeholders in each woreda, including administration, communities, police and judiciary of all resource protection operations, modes of activity, legal and technical issue																	
	b. Develop full agreement and understanding of the prosecution system and procedures																	
	c. Focal point of contacts for discussion of resource protection issues between KSNP management and these stakeholders must be established for efficient communication and cooperation																	
	d. Undertake ongoing discussions and appropriate training																	
	e. Develop and maintain a database for following up the results of actions and prosecutions																	
	Action 1.3.3: Strengthen the participation of local level law enforcement agencies’ (kebele and woreda levels) in resource protection	Technical advice, data	Moderate	High	EM, PO	EWCA, EMEPA partners												
	a. Develop and sign MoU with the local LE agencies																	
	b. Hold regular quarterly meetings																	
	c. Plan and implement any appropriate collaborative measures																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Park Operations Programme 3-year Action Plan																		
	d. Undertake M&E of the effectiveness of collaborative law enforcement activities																	
	Action 1.3.4: Avoid illegal settlement, cultivation/irrigation and gold mining practices in the core conservation area of the KSNP	Technical advice, data	None	High	EM, PO													
	a. Obtain information on the spatio-temporal distribution of human activities from Ecological department																	
	b. Develop patrolling plan to hotspot areas																	
	c. Control these illegal activities																	
	Action 1.3.5: Avoid illegal wildlife poaching/hunting in the park	Technical advice, data	Low	High	EM, PO	EWCA, EMEPA												
	a. Incorporate poaching in RBM plan																	
	b. Record details of wildlife mortality cases as per the RBM protocol																	
	c. Liaise with government LE agencies such as judiciary, police and local government on control and monitoring of wildlife product extraction																	
	d. Undertake patrolling activities focusing on suspected areas																	
	e. Undertake sporadic inspection of suspectees houses wherever necessary																	
	Action 1.3.6: Collaborate with the Ecological Management Programme and implement fire management plan	Technical advice, data	None	High	EM, PO	EWCA, Universities, partners												
	a. Obtain maps of hotspot fire occurrence areas from EM department																	
	b Undertake extensive surveillance patrolling to hotspot areas in KSNP																	
	c. Make sure scouts are equipped with fire-fighting equipment's																	
	d. Control fire incidences as soon as possible																	
	e. In case of heavy fire incidences, report to park warden for further supports and actions																	
	Action 1.3.7: Take actions to control wild ungulate depredation by domestic dogs	Human capacity	None	High	EM, PO													
	a. Train scouts on the local dog control policy																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Park Operations Programme 3-year Action Plan																		
	b. Take actions accordingly, destroying roaming dogs as per the provisions stated in the policy																	
	Action 1.3.8: Regulate livestock grazing in the KSNP to mitigate its negative impacts on KSNP PECs and their KEAs	Human capacity	None	High	EM, OR/SNR U&M, PO													
	a. Liaise with Ecological monitoring and community experts and conduct participatory research to collect baseline and ongoing data on livestock ownership, herd sizes, daily/seasonal movement patterns and grazing pressure in KSNP																	
	b. Obtain information from community outreach department on the terms and conditions of grazing uses stated in the SNRM&U programme																	
	c. Educate and/or confiscate illegal users in accordance with the local bylaws or national wildlife laws																	
	Action 1.3.9: Stop unregulated small scale timber, charcoal and NTFPs extraction	Human capacity	Low	Moderate	EM, PO, SNRU&M	EWCA, EMEPA												
	a. Compile information on and map location/extent of small scale commercial timber, resin and charcoal extraction in KSNP																	
	b. Engage with communities and LE agencies to discuss laws concerning NTFPs extraction and park regulations																	
	c. Undertake LE activities																	
Objective 2: Effective and efficient human, financial and equipment management and administration systems established for KSNP																		
2.1: Effective management structures, systems and capacity established	Action 2.1.1: Review and revise park management systems and staffing structure, in light of GMP implementation	Technical advice, data	None	High	EM, OR, PO	EWCA, partners												
	a. Review staffing structures required to implement the GMP																	
	b. Assess current capacity level																	
	c. Assess future capacity needs to implement GMP																	
	a. Ensure future staffing levels are included in staffing structure																	
	b. Prepare job descriptions for any new posts																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Park Operations Programme 3-year Action Plan																		
	c. Ensure new post requests are included in annual operations and budgeting planning																	
	d. Follow up budget and staffing requests																	
	Action 2.1.2: Increase and maintain staffing levels as required																	
	a. Advert and recruit appropriate new staff																	
	b. Provide orientation and necessary equipments																	
	c. Periodically evaluate their performances and provide necessary guidance																	
	Action 2.1.3: Facilitate short term and long term training for KSNP staff	Technical advice, data	None	High	EM, OR, PO	EWCA, Universities, partners												
	a. Undertake staff training need assessment																	
	b. Design Short and long term training for the staff on advanced analysis of data, intelligence reports and modern wildlife conservation technologies																	
	c. Ascertain timing and application procedures for training requests to EWCA/partner																	
	d. Prepare and submit requests to partners for training opportunities																	
	e. Investigate and list opportunities for obtaining funding for training																	
	f. Training the rangers/experts on how to collect, process and disseminate information and intelligence reports																	
	Action 2.1.4: Introduce strategies to strengthen staff morale including internal competitive reward system for good service	Technical advice, data	None	High	EM, OR, PO	EWCA												
	a. Facilitate management committee to draw up guidelines for competition and award system																	
	b. Review EWCA's BSC for the procedures to select of model employees																	
	c. Implement award system																	
	d. Hold quarterly meetings between management and staff																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Park Operations Programme 3-year Action Plan																		
	e. Provide infrastructure for tea/cafeteria facilities at the HQs																	
	Action 2.1.5: Improve and maintain good employment benefits such as housing, uniforms and medical insurance provision	Technical advice, data	None	High	EM, OR, PO	EWCA												
	a. Draw up annual uniform requirements for all staff																	
	b. Provide uniforms and field equipment to all staff as per requirements and Action 1.1.6																	
	c. Draw up guidelines on housing allocation and quality based on management position																	
	d. Assess existing staff housing infrastructure																	
	Action 2.1.6: Implement government health and safety standards	Technical advice, data	None	High	EM, OR, PO	EWCA												
	a. Investigate current government health and safety standards																	
	b. Develop KSNP health and safety policy and regulations																	
	c. Develop fire prevention and control procedures																	
	d. Develop first aid provision and procedures																	
	e. Develop accident reporting procedures																	
	f. Develop training scheme for Health and Safety																	
	g. Train staff in Health and Safety policy, regulations and procedures accordingly																	
2.2: Effective and secure administrative systems operational	Action 2.2.1: Ensure park regulations and policies are up-to-date, understood by park users and functional	Technical advice, data	None	High	EM, OR, PO	EWCA												
	a. Ensure staff are aware of all regulations, codes of conducts, polices etc																	
	b. Ensure relevant items are included in park user information and publicity materials including website																	
	c. Amend existing and draft new bylaws with local communities on sustainable natural resources use																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
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							1	2	3	4	1	2	3	4	1	2	3	4
Park Operations Programme 3-year Action Plan																		
	d. Review all regulations and policies, recommend changes, and submit to EWCA's Management Authority																	
	Action 2.2.2: Improve equipment care and maintenance	Technical advice, data	None	High	EM, OR, PO	EWCA												
	a. Develop care protocols for each type of equipment																	
	b. Train storekeeper and equipment users on equipment care and maintenance																	
	c. Check and inventories equipment condition and presence regularly by including in work plans																	
	Action 2.2.3: Improve and maintain efficient electronic and paper filing system	Human capacity	None	High	EM, OR, PO													
	a. Review current administrative, report and record keeping system																	
	b. Obtain expert advice and design a new system including filing system, job descriptions, work plans and protocols																	
	c. Assess capacity needs to operate system and train appropriately																	
	d. Implement new system and ensure included in job descriptions and work plans																	
	Action 2.2.4: Improve and maintain financial management system	Technical advice	High	High	EM, OR, PO	EWCA, EMEPA												
	a. Train all relevant staff in financial management systems including budgeting, financial planning, reconciliations and reporting as per government system																	
	b. Draw up and review job descriptions and work plans to meet needs of financial management system																	
	c. Assess capacity needs to operate system and train appropriately																	
	d. Implement new system and ensure included in job descriptions and work plans																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
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							1	2	3	4	1	2	3	4	1	2	3	4
Park Operations Programme 3-year Action Plan																		
2.3: Collaborative and adaptive planning and review system operational	Action 2.3.1: Implement GMP monitoring and evaluation plan	Technical advice, data	None	High	EM, OR, PO	EMEPA, EWCA, partners												
	a. Hold KSNP management meeting to review GMP monitoring and evaluation plan																	
	b. Develop methodology for collecting information for indicator verification, assign responsibility and embed in monthly task planning and job descriptions																	
	c. Hold management meeting to report activity and action implementation progress																	
	d. Produce progress report annually, that includes analysis of achievements and obstacles																	
	e. Carry out annual METT assessment of KSNP																	
	Action 2.3.2: Improve as annual and quarterly operational planning and budgeting	Human capacity	None	High	PW	EWCA												
	a. Set up planning meetings with complete management team for quarterly and annual activity planning																	
	b. Assign responsibility to a staff member for each developed activity, during quarterly and annual planning																	
	c. Ensure budgeting is in line with activities																	
	d. Refer to GMP 3-year Action Plan when drawing up annual work plans																	
	e. Liaise with partners on allocation of responsibilities for planned actions annually																	
	f. Establish and maintain contact with planning office in Tigray Region with responsibility for budget defense																	
	g. Communicate improved park planning system to line manager in Tigray Region																	
	Action 2.3.3: Develop next 3-year Action Plan for 10-year GMP	Human capacity	None	High	PW													
	a. Liaise with partners on involvement in next cycle of action planning																	

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Park Operations Programme 3-year Action Plan																		
	b. Review problems and issues for KSNP																	
	c. Evaluate 10 year objectives and sub objective in each management programme for continued relevance																	
	d. Adjust or develop 10-year objective and targets as required																	
	e. Evaluate current 3- year action plan for completion and continued relevance																	
	f. Develop new actions and activities as required																	
Objective 3: Potential for the development and implementation of sustainable financial plan for KSNP investigated																		
3.1: Economics and financial flows of the KSNP ecosystem better understood	Action 3.1.1: Review existing information on, carry-out new research and quantify the value of ecosystem goods and services of KSNP and identify the relevant beneficiaries	Technical advice, data	None	High	EM, OR, PO	EWCA, re-research/ monitor-ing partners												
	a. Review existing data and identify info gap and quantify the national and international beneficiaries of KSNP ecosystem goods and services such as water, carbon sequestration etc																	
	b. Identify national beneficiaries of ecosystem goods and services, such as water, NTFPs, tourism ventures																	
	c. Carry out institutional and stakeholder assessment of local beneficiaries of ecosystem goods and services in Ecosystem																	
	d. Assign staff member to collaborate or co-manage research dealing with ecosystem services and conservation economics																	
	e. Mentor and train assigned staff in conservation economics and financing techniques																	
3.2: The potential for developing Functional Business Plan for KSNP investigated	Action 3.2.1: Undertake feasibility study on the possibilities to develop and implement Business Plan of KSNP	Technical advice, data	None	High	EM, OR, PO	EWCA												
	a. Based on findings of specific objective 3.1 above, undertake feasibility study of developing sustainable business plan																	
	Action 3.2.2: Develop and implement business plan for KSNP	Technical advice, data	None	High	EM, OR, PO	EWCA												

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
Park Operations Programme 3-year Action Plan																		
	a. Decide on feasibility of developing the plan and the planning process																	
	b. Secure financial and technical resources																	
	c. Review business plans for other protected areas and liaise with concurrent initiatives																	
	d. Facilitate the development of business plan																	
	Action 3.2.3: Improve capacity of KSNP to identify, apply for and report funding opportunities	Technical advice, data	None	High	EM, OR, PO	EWCA research/ monitoring partners												
	a. Work with partners to establish small grant scheme for KSNP projects																	
	b. Arrange proposal, report, paper, use of log frame writing etc. workshop with partners																	
	c. Work with partners to identify potential Embassy or Small Grant Funds																	
	Action 3.2.4: Explore and capitalise on methods of acquiring payment for KSNP ecosystem services		None	High	EM, OR, PO	EWCA, Re-searchers												
	a. Investigate potential payments mechanisms for carbon sequestration in the KSNP forest																	
	b. Investigate feasibility of obtaining payments to KSNP for water provision																	
	c. Investigate feasibility of other mechanisms for KSNP ecosystem services payments																	

Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Pa rk	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
SUSTAINABLE NATURAL RESOURCE USE AND THREAT MANAGEMENT PROGRAMME 3-YEARS ACTION PLAN																		
Objective 1: Sustainable Natural Resource use system inside KSNP planned and implemented through active involvement of local community and relevant stakeholders																		

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Pa rk	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
SUSTAINABLE NATURAL RESOURCE USE AND THREAT MANAGEMENT PROGRAMME 3-YEARS ACTION PLAN																		
1.1: Potential Types of Natural Resources Used by local communities’ in KSNP assessed , mapped, and current users and use levels determined	Action 1.1.1: Carry out resource inventory, mapping & assess potential NRU business Options	Technical advice, human and financial capacity	High	High	EM	Regional OARD (NR division and LR division)												
	a. Inventory, map and evaluate the capability of Forage and fodder resources found inside and/or on the vicinity of the NP	>>	>>	>>	EM	Lo-cal/Regiona l livestock division												
	b. Inventory, map and estimate the capability of Gum and Resin bring species’ resources found inside and around the KSNP	>>	>>	>>	Par k EM	Region-al/local NR division												
	c. Measure the Carbon sequestrations potential of the park’s vegetation	>>	>>	>>	EM	EW-CA/Partners												
	d. Inventory, map and estimate resources used for artifact crafting materials found inside and around the Park	>>	>>	>>	Par k tourism	Region-al/local /mining/NR division												
	e. Assess suitable areas and resources for traditional & modern Honey production inside & around the NP	>>	Medium	>>	Par k EM	Regional livestock division												
	f. Assess the capability of constructing ponds for Fish development on the side of inlet and outlets of Tekeze River to the KSNP	>>	high	medium	Par k EM	Agriculture office livestock division												
	g. Inventory, mapping and capability of dry Fuel wood resources found inside the KSNP	>>	>>	>>	Par k EM	NR division												
	h. Inventory, mapping and capability of Forest seed resources found inside the KSNP	>>	>>	>>	Par k EM	NR division												
	i. Assess and Map the Marble mineral and surface stone potential inside and /or on the vicinity of the park	>>	>>	>>	Par k EM	Region-al/Mining & EWCA												

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe												
					Park	Partners	Year 1				Year 2				Year 3				
							1	2	3	4	1	2	3	4	1	2	3	4	
SUSTAINABLE NATURAL RESOURCE USE AND THREAT MANAGEMENT PROGRAMME 3-YEARS ACTION PLAN																			
	j. Assess potential of other successive improved varieties of animal husbandry technologies (Diary & animal Fattening)of the surrounding	>>	>>	High	Community	Regional livestock division													
	k. Assess the feasibility of introducing Bio-fuel technologies and raw materials availability in the surrounding community villages	>>	>>	>>	Community	Woredas offices, partners													
	Action 1.1.2: Identify and develop utilization & management package plans of each business options for resources user groups that improve NRs status for harvesting and/or production and community’s livelihood in an environmentally sustainable way	Technical advice, human and financial capacity	High	High	EM	Regional OARD (NR division and LR division)													
	a. : Formulate development , utilization & management (DUM) package for Forage and fodder resources	>>	>>	>>	EM	Local/Regional livestock division													
	b. formulate DUM package for Gum & Resin bring three species especially for Boswellia papyrefera & Acacia Senegal sps.	>>	>>	>>	Park EM	Regional/local NR division													
	c. Create DUM package for Carbon sequestrations and Carbon budgeting Scheme																		
	d. Create DUM package for artifact crafting materials (Doum palm, African Ebony, precious stones and for others)	>>	>>	>>	EM	EW-CA/Partners													
	e. Create Package for traditional and modern Honey development , production & management scheme	>>	>>	>>	Park tourism	Regional/local /mining/NR division													
	f. Create DUM package of Fishing	>>	Medium	>>	Park EM	Regional livestock division													
	g. formulate DUM packages for dry Fuel wood resources found inside and around the NP	>>	>>	>>	Park EM	NR division													
	h. Develop packages for utilization for Forest seed resources found inside and around the park	>>	>>	>>	Park EM	NR division													

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
SUSTAINABLE NATURAL RESOURCE USE AND THREAT MANAGEMENT PROGRAMME 3-YEARS ACTION PLAN																		
	i. Develop utilization packages of Marble mineral and surface stone inside and on the vicinity of the park	>>	>>	>>	Park EM	Regional/Mining & EWCA												
	j. formulate DUM scheme for improved varieties of animal husbandry technologies (Diary & animal Fattening) that go with the fodder & forage packages	>>	>>	high	Community	Regional livestock division												
	k. formulate development and utilization scheme for Bio-fuel technologies that go with the resource availability and other formulated utilization packages	>>	>>	>>	Community	Woredas offices, partners												
1.2: Awareness -raised and Capacities established for the implementation of SNRUM systems of KSNP	Action 1.2.1: Carry out stakeholder analysis and assessment of human, institutional and legal capacity levels for negotiation and implementation and strengthen their knowledge base and skill set for participatory SNRUM in KSNP	Technical advice, human and financial capacity	Medium	Medium	Park community, EM , tourism	EWCA, Regional OARD , Mineral mining office, land Admn ...)												
	a. Conduct a stakeholder and institutional analysis of potential NRM partners, know with whom you should work and assess relevant capacity needs	>>	>>	>>	>>	>>							..			.		
	b. Assess and identify legal gaps and capacity level of relevant stakeholders and the local community’s on NRU that need to be negotiated and strengthened participation with	>>	>>	>>	>>	>>												
	Action 1.2.2: Raised communities and stakeholder awareness	Technical advice, human and financial capacity	high	high	Park community, EM , tourism	EWCA, Regional OARD , Mineral mining office, land Admn ...)												
	a. Carry out Awareness creation workshops on each identified livelihood improvement business options of NRUs for	>>				EM , CO	EWCA, regional OARD &											

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Pa rk	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
SUSTAINABLE NATURAL RESOURCE USE AND THREAT MANAGEMENT PROGRAMME 3-YEARS ACTION PLAN																		
					M MU NIT Y	OMMWS												
	b. Stakeholders, Local Communities and KSNP admn. Workshop at regional level	>>	>>	>>	>>	>>												
	c. Communities and local administration workshop at woreda level	>>	>>	>>	>>	>>												
	d. Communities and local administration workshop at kebeles level	>>	>>	>>	>>	>>												
	e. Annual beneficiaries’ community forums	>>	>>	>>	>>	>>												
	Action 1.2.3: Establish resource user/management groups (CBOs) to ensure sustainable natural resource use and equitable access, as per priority setting	Technical advice,	Medium	Medium	co mm uni- ty	EWCA, regional OARD & cooperative												
	Action 1.2.3.1. organize the local community into each identified NRU business options	>>	>>	>>	>>	>>												
	a. Organize the community into Fodder and Forage Supplier Association at each adjacent kebeles	>>	>>	>>	>>	>>												
	b. Animal Fattening association	>>	>>	>>	>>	>>												
	c. Dairy farming Association	>>	>>	>>	>>	>>												
	d. Frankincense and Gum arabic associations	>>	>>	>>	>>	>>												
	e. African Blackwood and other Artifact Crafting Association	>>	>>	>>	>>	>>												
	f. Doum palm association	>>	>>	>>	>>	>>												
	g. Marble associations	>>	>>	>>	>>	>>												
	h. Dry wood supplier association	>>	>>	>>	>>	>>												

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Pa rk	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
SUSTAINABLE NATURAL RESOURCE USE AND THREAT MANAGEMENT PROGRAMME 3-YEARS ACTION PLAN																		
	i. Forest seed supplier association	>>	>>	>>	>>	>>												
	j. Carbon bank association	>>	>>	>>	>>	>>												
	k. Fishery development association	>>	>>	>>	>>	>>												
	l. Bio-fuel production association	>>	>>	>>	>>	>>												
	Action 1.2.4: Ensure legal recognition of community-based NRUM group/institutions with regional and national authorities	Technical advice, human and financial capacity	Medium	medium	Par k ad mn, EM and Le- gal af- fair	EWCA ,& Regional legal affairs and technical advisors of each re- source subject mater												
	Action 1.2.5: Draw up resource use agreements, and negotiate with the concerned beneficiary communities on each NRU business options	>>	>>	>>	>>	>>												
	Action 1.2.6: Develop and implement methods to legalise NRM agreements between resource management groups and park management	>>	>>	>>	>>	>>												
	a. Develop and ratify specific bye-laws for each NRUs that will be used as supportive laws to set out utilization level of NRs thresholds between user groups and KSNP/EWCA	>>	>>	>>	>>	>>												
	b. Outlined and signed MOUs of joint management of NRUs with concerned government institutions and EWCA/KSNP	>>	>>	>>	>>	>>												
	c. Consider and amend others related institutions’ legal issues implementation for the NRU inside the park with respect to the NP’s statutory	>>	>>	>>	>>	>>												
	Action 1.2.7: Provide capacity building trainings for CBOs	Technical advice, human and financial capacity	high	high	Par k co mm uni- ty, EM	Regional OARD , Mineral mining office, land Admn ...)												

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
SUSTAINABLE NATURAL RESOURCE USE AND THREAT MANAGEMENT PROGRAMME 3-YEARS ACTION PLAN																		
					, tru-ism													
	a. Integrate and built institutional capacity of the park staff and respected stakeholders on the generalist approaches of the subject matter of the NR utilization and management	>>	>>	>>	>>	>>												
	b. Train the Beneficiaries community’s/CBOs on each DUM Packages of NRU business options	>>	>>	>>	>>	>>												
1.3: Implementation of collaborative sustainable natural resource use and management in the KSNP realized and the livelihoods of the community improved	Action 1.3.1: Identify the use levels and sustainable limits, set criterion and allocate the NRS with Resource management groups	Technical advice, human and financial capacity	high	high	Park community, EM, tru-ism	EWCA, Regional OARD & others...)												
	a. Insure the NRs utilization sustainable limits are outlined in each DUM packages of NRU businesses and or on parks Zonation scheme and implement accordingly, otherwise set the limit	>>	>>	>>	>>	>>												
	b. : Set Criterion of the NRs use level and local communities’ user groups are the right users	>>	>>	>>	>>	>>												
	c. Allocate the NRs per the criterion to the user Associations in fair and equity fashion	>>	>>	>>	>>	>>												
	Action 1.3.2: Search for options for initial capital (seed money) for investment to NRUs and input supplies	Technical advice, human and financial capacity	high	high	Park community, EM, tru-ism	EWCA, Regional OARD & others...)												
	a. Contribution from association members	>>	>>	>>	>>	>>												

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Park	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
SUSTAINABLE NATURAL RESOURCE USE AND THREAT MANAGEMENT PROGRAMME 3-YEARS ACTION PLAN																		
	b. Searching for loans from the saving and credit enterprises or agencies	>>	>>	>>	>>	>>												
	c. Attracting the international community’s (partners) through introduction of the KSNP GMP	>>	>>	>>	>>	>>												
	d. Through expert developing proposals	>>	>>	>>	>>	>>												
	Action 1.3.3: Carry out Collaborative and Adaptive Implementation of SNUM and improve the livelihoods of the community	Technical advice, human and financial capacity	high	high	Park community, EM, tourism	Regional OARD , Mineral mining office, land Admn ...)												
	Action 1.3.4: Create the market linkage for the commodities’ products of the communities created from NRUs	Technical advice, human and financial capacity	high	high	Park community, EM, tourism	Regional OARD , Mineral mining office, Marketing ...)												
Objective 2: KSNP freed from impacts of permanent irrigation investment, Settlement, Agriculture and SNRUM implementation through banned, regulated and adaptive management system																		
2.1: KSNP freed from the impacts of permanent irrigation investment, Settlement and Agriculture	Action 2.1.1: Create awareness and build consensus on all stakeholders for the permanent irrigation investment, Settlement, and Agriculture banning adoption	Technical advice, political decision	high	High	EM	Regional, Federal and EWCA higher officials												
	a. create awareness of the targeted community and the high level government officials on the importance of settlers relocation and banning of agriculture and irrigation practices inside the park	>>	>>	>>	>>	>>												
	b. Built consensus and gain the political support for the adoption of the relocation and displacement of the settlers and agriculture land outside	>>	>>	>>	>>	>>												

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Pa rk	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
SUSTAINABLE NATURAL RESOURCE USE AND THREAT MANAGEMENT PROGRAMME 3-YEARS ACTION PLAN																		
	the park																	
	c. Carry out Series stakeholder and communities’ workshops	>>	>>	>>	>>	>>												
	d. Undergo small circle officials and intellectuals meetings	>>	>>	>>	>>	>>												
	e. Workout with mass medias and experience sharing	>>	>>	>>	>>	>>												
	f. Carryout officials and communities site visit and articulate the importance of the agenda	>>	>>	>>	>>	>>												
	Action 2.1.2: Form taskforces to qualify and estimate the irrigation investment, Settlement, and Agriculture land properties’ of the beneficiaries	Technical advice,	high	high	Par k/E M	EWCA, federal/regional /woreda												
	a. Form integrated taskforce from different disciplines (from the community representative, agronomy and irrigation experts from agriculture office, surveyor from land administration, federal, regional and woredas government representative.....)	>>	>>	>>	>>	>>												
	b. Assess, register and insure farmers who have legal agriculture land inside the park from the kebeles of Adigoshu, Kunama Adigoshu, May keyih, Adi-Aser, and Adi-tsetser (Each woredas’ land administration offices has to certify the land holding size given during resettlement and the farmer’s legality)	>>	>>	>>	>>	>>												
	c. Measure and caliber the size of Agriculture land which has been cultivated by the registered farmers inside the park	>>	>>	>>	>>	>>												
	d. formulate and decide on how to measure the irrigation investment land & its perennial/fruit crops according to the compensation estimation regulation and measure each crop	>>	>>	>>	>>	>>												
	e. Estimate the 10 years cost of land preparation, growth and fruits of perennial crops per each investors asset	>>	>>	>>	>>	>>												
	f. Insure, count and qualify the HHs and their houses with accompanying properties who are settled inside the park through Tekeze village and Adi –Aser kebeles.	>>	>>	>>	>>	>>												
	Action 2.1.3: Motivate and develop resource mobilization and compensations payment scheme for the irrigation and settlement and substitution land for the Agriculture beneficiaries’ property	Technical advice,	high	high	par k	Regional, Federal and EWCA												

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Pa rk	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
SUSTAINABLE NATURAL RESOURCE USE AND THREAT MANAGEMENT PROGRAMME 3-YEARS ACTION PLAN																		
						higher officials												
	a. Make and decide through the regional/local administration bodies to Search for an option of arable land outside the park and on land size to be given with for the substitution land for land. (Final option)	>>	>>	>>	>>	>>												
	b. Assess and suit to Collect the farmers’ farm from the shore area of Tekeze to the Adigoshu kebeles side/main road side/ in order to allocate the farmers 2ha/hh land size in collective manner and freed the coast / river side areas from cultivation (Temporal Option)	>>	>>	>>	>>	>>												
	c. prepare and present the compensation payment level for both irrigation investors and settlers properties to the federal and regional officials	>>	>>	>>	>>	>>												
	d. : motivate, Plan and lobby the high level regional, federal officials and MoFED to adopt the compensation payment Money and have budgeted	>>	>>	>>	>>	>>												
	e. Develop resource mobilization events and motivate the stakeholders and partners to facilitate and search for the compensation options	>>	>>	>>	>>	>>												
		Technical advice,	high	high	Par k/ M E /C O M M I T E E	Regional, Federal and EWCA												
	Action 2.1.4: Implement as per detailed relocation and banning plans developed																	
	a. Insure the Adoption relocation process and budgeting of the compensation money	>>	>>	>>	>>	>>												
	b. : Plan the relocation and form implementations task forces	>>	>>	>>	>>	>>												
	c. facilitate, update and follow the implementation of the relocation and payment of compensation process	>>	>>	>>	>>	>>												
d. Receive and manage the park’s areas that are freed from agriculture, irrigation and settlement from the regional/woredas officers	>>	>>	>>	>>	>>													
2.2: Park zonation scheme developed and implemented, and so that negative impacts of SNRUM and Tourism development planned,	Action 2.2.1: Understand the existing phenomenon of KSNP, develop and implement a zonation plan to secure both the Conservation Zone (CZ) & SNRM Zones	Technical advice,	high	high	Par k/ M E /to uri	Woredas, community, and EWCA												

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe															
					Pa rk	Partners	Year 1				Year 2				Year 3							
							1	2	3	4	1	2	3	4	1	2	3	4				
SUSTAINABLE NATURAL RESOURCE USE AND THREAT MANAGEMENT PROGRAMME 3-YEARS ACTION PLAN																						
controlled and adapted					sm																	
	a. Understand and identify the current condition of the park’s principal ecosystem components, the location of biodiversity rich areas, human induced threats, roads, tourism facilities, cultural values and the attracting NRUs	>>	>>	>>	>>	>>																
	b. Consider, amend and designate the real feature of the proposed zonation scheme of this GMP through collaborations of the stakeholders on the physical ground	>>	>>	>>	>>	>>																
	c. : Amend, Adopt and implement the allowed and prohibited rules of the Core/wilderness, limited development, service and community use zones of the park’s zonation scheme	>>	>>	>>	>>	>>																
	Action 2.2.2: Develop livestock grazing protection mechanism and integrated bye-law that specifies livestock charging value’s benefit sharing	>>	>>	>>	>>	>>																
	a. Develop and amend the existing illegal livestock grazing penalty and benefit sharing mechanism and gain the approval from the Authority	>>	>>	>>	>>	>>																
	Action 2.2.3: Develop and implement a joint community and KSNP natural resource control and protection system	>>	>>	>>	>>	>>																
	a. Identify a management group subcommittee that will be responsible for control and protection activities.	>>	>>	>>	>>	>>																
	b. Implement and ensures resource use control, resource protection and enforcement of agreements by resource management groups	>>	>>	>>	>>	>>																
	Action 2.2.4: plan and implement the Rehabilitation and Restoration of the degraded and uprooted irrigation and settlement areas	>>	>>	>>	>>	>>																
	a. Carry out Restocking and management of Boswellia papyrefera, Acacia senegal, doum palm, African Blackwood and the site based forage and fodder species	>>	>>	>>	>>	>>																
	b. Carry out Recovering and/or Restocking of Agriculture areas, irrigation lands, settlement and minin/ quarry areas	>>	>>	>>	>>	>>																
2.3: Plan and implement a joint ME system for SNRUTMP	Action 2.3.1: Monitor the implementation of the EIA document for each NRUs package interventions	>>	>>	>>	>>	>>																
	a. insure the development of EIA document and its implementation for each NRUs interventions’ inside the park	>>	>>	>>	>>	>>																
	Action 2.3.2: Outlined joint roles and responsibilities of beneficiary’s actions to be monitored	>>	>>	>>	>>	>>																
	a. Develop and implement scheduled ME plan for each NRU interventions	>>	>>	>>	>>	>>																
	Actions 2.3.3: Monitor and evaluate potential impact and achieve-	>>	>>	>>	>>	>>																

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Specific Objectives	3-Year Management Actions/ Activities	Input required	Level of external support	Priority	Responsibility		Timeframe											
					Pa rk	Partners	Year 1				Year 2				Year 3			
							1	2	3	4	1	2	3	4	1	2	3	4
SUSTAINABLE NATURAL RESOURCE USE AND THREAT MANAGEMENT PROGRAMME 3-YEARS ACTION PLAN																		
	ments of the success indicators																	
	a. Create and monitor the sustainable indicators of NRU	>>	>>	>>	>>	>>												
	b. Communities benefited from NRUs options of the KSNP (Nos.)	>>	>>	>>	>>	>>												
	c. Communities participated in supporting NP management (Nos.)	>>	>>	>>	>>	>>												
	d. Areas freed from agricultural practices (ha)	>>	>>	>>	>>	>>												
	e. Areas freed of livestock grazing (%)	>>	>>	>>	>>	>>												
	f. Incidence of poaching minimized(%)	>>	>>	>>	>>	>>												
	g. Illegal mineral mining controlled (%)	>>	>>	>>	>>	>>												
	h. Rehabilitated forest stand of Boswellia papyrefera, Acacia senegal, African Blackwood and Doum palm(ha or # of seedling planted and saplings)	>>	>>	>>	>>	>>												
	i. Restocked area of mining quarries to its natural vegetation and features (ha)	>>	>>	>>	>>	>>												
j. Other ..	>>	>>	>>	>>	>>													

I. APPENDICES

Appendix 1: Monitoring and Evaluation

KSNP Status, Threats and GMP Implementation

Objectives of Monitoring and Evaluation

Monitoring and evaluating the GMP implementation and associated impacts, is a key aspect of assessing whether the GMP has been used and whether it has achieved its stated purposes and objectives. Monitoring and evaluation are also a key component of future adaptive management; so that the overall benefits from GMP implementation are maximised and any negative impacts are mitigated, through the adjustment of 3-Year Action Plans.

A multi-tiered framework has been developed to enable monitoring and evaluation to be carried out at several different levels: from Park Purpose, through Programme Purposes and Objectives, to Actions and Activities. This draws on best practice elsewhere and is integrated with the GEF Protected Area Systems Project that is commencing implementation in Ethiopia in 2007. Monitoring and evaluation (M&E) is therefore an integral activity for all GMP components.

- The M&E framework has a number of objectives:
- Provide stakeholders and partners with information to measure progress
- Determine whether expected impacts have been achieved
- Provide timely feedback in order to ensure that problems are identified early in implementation and that appropriate actions are taken
- Assess the GMP's effectiveness in meeting the park purpose and thus conserving biological diversity and ecological systems
- Evaluate the benefits accruing to communities and other beneficiaries
- Appraise the underlying causes of GMP outcomes, whether positive or negative
- Track the level and quality of community consultation and participation in KSNP activities

KSNP Park Purpose Monitoring Plan

Monitoring progress in achieving the Park Purpose and thus at the ultimate impact or outcome level, relies heavily on implementing KSNP Ecological Monitoring Plan. This Ecological Monitoring plan focuses on determining the status of KSNP Priority Ecosystem Components, the components of KSNP ecosystem that have been prioritised and together should represent the unique biodiversity and ecological processes in the whole ecosystem. Indicators and Means of Verification have been drawn up by technical experts and detailed methods determined. Periodic evaluation of monitoring data needs to be embedded in adaptive management systems and embedding such a system is an integral part of the Ecological Management and the Park Operations Programme.

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Appendix Table 1.1: KSNP Ecological Monitoring Plan Framework

KEAs	Indicator of change	Method of measurement	Collection frequency	Potential partners*	Already being collected?	Priority
PEC: Acacia-Commiphora Woodland						
Extent	Area/extent size	Remote sensing, ground truthing	Every 3 years	KSNP, Universities	some	Very high
Woody plant density and population structure	Number (overall and age and DBH size classes)	Transect/quadrat	Every 3 years	KSNP, Universities	No	Very high
Species richness and composition	Number of species	Transect/quadrat	Every 3 years	KSNP, Universities	No	High
PEC: Combretum-Terminalia Woodland						
Extent	Area/extent size	Remote sensing, ground truthing	Every 3 years	KSNP, Universities	No	Very high
Woody plant density and population structure	Number (overall and age and DBH size classes)	Transect/quadrat	Every 3 years	KSNP, Universities	No	Very high
Species richness and composition	Number of species	Transect/quadrat	Every 3 years	KSNP, Universities	No	High
PEC: Riverine Woodland						
Tree density and structure	number (overall and age/DBH size classes) per ha	Transect/quadrat	Every 3 years	KSNP, Universities	No	High
Canopy Cover	% ground covered by tree/bush canopy	Transect/quadrat, Remote sensing, ground truthing	Every 3 years	KSNP, Universities	No	High
Species richness	number of species	Transect/quadrat	Every 3 years	KSNP, Universities	No	Low
PEC: Hydrological System						
Flow Rate	Water yield	Gauge stations (measure height and flow rate of Tekeze and Dogagum rivers)	Monthly	kSNP	No	Very high
Water Quality	Sediment load at different levels	Filters, visibility (secchi disk)	Monthly	KSNP	No	High
	Salinity, DO concentration, temperature	Conductivity, DO meter, Thermometer	Monthly	KSNP	No	High
	Ph Levels	PH meter	Monthly	KSNP	No	High
PEC: Elephant						
Population Size and structure	Population estimates, sex-age ratios	Line transects	Annually	KSNP, Universities	Some	Very high
Extent of Suitable Habitat	Habitat mapping	Remote sensing, ground truthing	Every 3 years	KSNP, Universities	No	High
Spatial and temporal movement pattern	Spatial mapping	Satellite collar, home range mapping	Every 3 years	KSNP, Universities	No	Very high
PEC: Roan Antelope						
Habitat Suitability	Habitat mapping	Remote sensing, ground truthing	Every 3 years	KSNP, Universities	No	Low

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KEAs	Indicator of change	Method of measurement	Collection frequency	Potential partners*	Already being collected?	Priority
Population Size and demography	Population estimates, sex-age ratios	Line transects	Annually	KSNP, Universities	Some	Very high
PEC: <i>Boswellia papyrifera</i>						
Population density, structure and regeneration status	number (overall and age/DBH size classes) per ha	Transect/quadrat	Every 3 years	KSNP, Universities	No	Very high
Distribution	Habitat mapping	GIS, ground trutiing	Every 3 years	KSNP, Universities	No	High

ii. GMP Impact Monitoring and Evaluation Plan: Threats to KSNP PECs and their KEAs

Monitoring the impact of the GMP implementation, including impacts at the outcome level, can be achieved by both assessing the potential positive and negative impacts of the achievement of objectives and specific objectives and by monitoring changes in the severity of the identified threats, which will be reduced through the implementation of management actions in the GMP. A framework for monitoring the severity and impact of threats was drawn up as part the Ecological Monitoring plan and is outlined below.

Appendix Table 1.2: Monitoring framework for the threats to KSNP Principal Ecosystem Components and their Key Ecological Attributes

Threat	Indicator of change	Method of measurement	Collection frequency	Potential partners	Already being collected?	Priority
Uncontrolled fire	Incidence levels	RBM	Ad hoc	KSNP, Univeristies	No	High
	Extent of burned area	Remote sensing	Seasonally	KSNP, Universities	No	High
Crop cultivation	Extent of rain-fed cultivated land	Remote sensing	Annually	KSN, Universities	No	Very high
Irrigation	Extent of irrigated cultivated land	Remote sensing	Annually	KSN, Universities	No	Very high
Gold mining	Number of quarrying sites	Transects	Seasonally	KSNP	Some	Very high
	Number of mining pits	Transects	Seasonally	KSNP	Some	Very high
Dogs as predators	Dog numbers	RBM	Ad hoc	KSNP	No	Low
		Transects	Quarterly	KSNP	No	Low
		Household structured interviews	Every 3 years	KSNP	No	Low
	Incidence of predation reports	Reports – RBM, communities	Ad hoc	Local communities, RBM	No	High
Expanding settlement	Number of settlements (villages) and houses	RBM	Ad hoc	KSNP, local govern-ments	Some	Very high
		Household interviews	Every 3 years	KSNP	Yes	Low

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Threat	Indicator of change	Method of measurement	Collection frequency	Potential partners	Already being collected?	Priority
Livestock over-grazing	Livestock numbers	Dung count plots	Monthly	RMG	No	Low
		Point counts, line transects	Seasonally	KSNP	Some	Very high
		Household structured interviews	Annually	KSNP	Some	High
		Within park road count/circuit transect	Quarterly	KSNP	Yes	High
		RBM	Ad hoc	KSNP	No	High
Wildlife poaching (for ivory and bushmeat)	Number and age/sex	RBM	Ad hoc	KSNP	Some	Very high
		Interviews	Annually	KSNP	No	High
Tree cutting for construction	Forest cover/extent	Remote sensing	Every 3 years	KSNP, Universities	Yes	Very high
	Number of stumps	RBM	Ad hoc	FZS, RBM	No	High
		Transects	Seasonally	KSNP, Universities		
	Market sales	Interviews and watches	Monthly/Annually	KSNP	No	High
Alien/indigenous invasive species	Incidence/	Community interviews	Annually	KSNP, Universities	No	High
Tree cutting for charcoal	Number of charcoal burning pits	RBM, Transect	Biannually	KSNP	No	Low
	Household fuel use	Household structured interviews	Monthly/Annually	KSNP	No	High
	Market sales	Interviews and watches	Monthly/Annually	KSNP	No	High
Extraction of NTFPs	Fuelwood: Number of donkey/human loads out of park	Point counts (at posts/checkpoints/markets), RBM	Monthly	KSNP, RBM	No	Low
	Fuelwood: Household fuel use	Household structured interviews	Monthly/Annually	KSNP	No	High
	Fuelwood: Market sales	Interviews and watches	Monthly/Annually	KSNP	No	High
	Honey gathering: Number of signs	RBM	Ad hoc	KSNP	No	Low
	Resin gum: Number of fresh vs old Boswellia trees tapped	Transects	Biannually	KSNP, Universities	No	Very high
	Hypahea harvest: Number of incidences	RBM, Transect	Annually	KSNP, RBM	No	Low
Disease	Surveillance	Reports – RBM	Ad hoc	KSSNP, Institutes	No	Medium
		Interviews	Every 5 years	KSNP	Some	Low

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iii. GMP Impact Monitoring and Evaluation Plan: Ecological Management and Monitoring Programme

In addition, the framework outlined below will provide easily assessable indicators for measuring the impact of plan implementation. A table has been drawn up for each management programme setting out the monitoring framework, with a set of indicators for easily measuring these impacts and potential sources of information. The potential positive impacts (and related indicators) resulting from the implementation of each programme's management specific objectives will be shown in Black and, where appropriate, the potential negative impacts (and related indicators) will be shown in Grey. KSNP management will have the responsibility for establishing a practical work plan for routine measurement of these indicators, following the initial collection of baseline data. This database will provide the foundation for subsequent adaptive management through the adjustment of the rolling three-year Action Plans according to lessons learnt.

A number of underlying assumptions and risks for the successful implementation of GMP implementation are:

Availability of sufficient and appropriate financial, human and technical resources,

The stability of Ethiopia and the local area

Continuing political support at all levels nationally

KSNP partners continue to be willing to collaborate and support KSNP

Government Ministries and agencies have the capacity and willingness to support KSNP management and partners

Park-associated communities are willing and able to engage with KSNP management

Specific and SMART targets for objective impact indicators will be developed as part of Annual Operation Plans, in line with capacity and financial resource availability. Specific outputs and their indicators will also be developed during Annual Operational Planning.

Appendix Table 1.3: Ecological Management Programme Impact Monitoring Plan

Specific objective	Potential Impact (Positive and Negative)	Indicator	Source of Information
1.1: Data on the current extent and patterns of settlement, cultivation and mining in the KSNP collected and provided to other programmes to plan, control and/or halt their expansion and impacts	<ul style="list-style-type: none"> Baseline data and improved understanding of the current extent and patterns of settlement, cultivation and mining in the KSNP Information on the current extent and distribution of settlement, cultivation and mining provided to other programmes to plan, control and/or halt their expansion and impacts 	<ul style="list-style-type: none"> Number of studies and datasets collected; Mapped location and sizes (number/cover) of settlement, cultivation and mining Number of reports produced and provided to other programmes 	EMP
1.2: Fire extent, frequency and intensity managed	Status of the relevant (particularly Acacia-Commiphora and Combretum-Terminalia woodlands) PECs is maintained or enhanced	% unburnt areas of each vegetation type	EMP reports
	Reduced incidence of fire	Fire frequency and extent?	EMP reports
	Vegetation structure and regeneration affected if fire is a critical component of ecology	Structure and regeneration of indicator species, including Boswellia	EMP reports
1.3: Data on unregulated and illegal NTFPs (e.g. grazing, resin/gum, fuelwood and charcoal) uses gathered and their effects on park's ERVs determined and information provided to other programmes	Spatio-temporal distribution and number of livestock in the KSNP understood	Established database, Field survey reports	EMP reports
	Extent of fuel wood collection understood	Data on extent of fuel wood collection and marketing	EMP reports
	The degree of charcoal production and marketing understood	Reports of charcoal production and marketing	EMP reports

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Specific objective	Potential Impact (Positive and Negative)	Indicator	Source of Information
	Baseline data on resin gum collection	Data on the extent of resin gum collection	EMP reports
	Information provided to other programmes	Information provided to and used by other programmes	EMP reports
Specific objective 1.4: Specific threats to health of ecosystems and key wild animal and plant species' populations of KSNP monitored and feedback provided into application of appropriate management interventions	Improved knowledge on specific threats to health of ecosystems and key wild animal and plant species' populations	Population size, structure and distribution of relevant species	EMP reports
	Extent and impacts of wildlife poaching in the park determined	Study report	EMP reports
	Better understanding on the actual and potential impacts of ungulate predation by domestic dogs	Assessment reports	RBM reports
	Impacts of current unsustainable resin harvesting determined and developed strategies that ensure health population structure of <i>Boswellia papyrifera</i>	Research report	EMP reports
	Data on species checklist and current abundance or distribution of invasive species	Field survey reports	EMP reports
1.5: Ecosystem health re-established through restoration/rehabilitation of habitat degraded due to mining and park infrastructure development	Ecosystem health rehabilitated at sites that are heavily degraded due to gold mining through restoration/rehabilitation	<ul style="list-style-type: none"> Number of quarrying sites and pits rehabilitated Extent of enhanced vegetation cover 	EMP reports
	Environmental impact of existing park development, including quarries, building and roads assessed and mitigated	<ul style="list-style-type: none"> Impact assessment report Extent of rehabilitated area 	Field report
	Expansion of invasive plant species controlled and its negative impacts on ecosystem health mitigated	Extent of area freed from invasive species	Field report
2.1: KSNP Principal Ecosystem Components and their Key Ecological Attributes and threats to them monitored and feed back into management action provided	Improved monitoring of the PECs	Protocols developed, Monitoring Database set up and maintained	Ecology Department reports
	Annually prioritized threats to PECs and KEAs	Prioritized threat database	Ecology Department reports
	Ranger-based monitoring (RBM) plan developed and implemented	RBM plan document, RBM database	Ecology Department reports
	Climate change monitoring system established and functional		Ecology Department reports
	Improved management of KSNP	METT score	Annual METT assessment
2.2: Basic and management-oriented researches of Principal Ecosystem Components and their Key Ecological Attributes and Threats to them, as well of other ecological components, carried out	Increased support for KSNP	Improved information in published/unpublished materials	Published/unpublished materials
	Management decisions based on improved information	Justification for key management actions	KSNP reports
	Promoted research by national and international institutions and persons	Number of collaborative research agreements	Ecological department reports
	Developed functional research guideline and administration system	Research guideline; established admin system	Ecological department reports

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Table App1.4: sustainable natural resources uses and Threats Management Programme Impact Monitoring Plan

Objective		Potential Impact (Positive and Negative)	Indicator	Source of Information
1. Sustainable Natural Resource use system inside KSNP planned and implemented through active involvement of local community and relevant stakeholders	Specific objective 1.1: Potential Types of Natural Resources Used by local communities in KSNP assessed and mapped, and current users and use levels determined	Potential types of NRUs options identified, inventoried, mapped	Hectares and Population density of Boswellia papyrifera, Acacia Senegal, African black wood and Doum palm three species	Natural resource department, KSNP, Region, EWCA
			Condition and amount of palatable fodder and forage species in hectares and	Agriculture, research institution, KSNP and EWCA
			Feasibility and potential areas of Marble minerals and availability of other surface stones in m ³	Regional Mining beauro and KSNP, EWCA
			Other unidentified NRUs option artifact bearing materials type and amount	Regional office, KSNP and EWCA community report
	Specific Objective 1.2: Awareness raised and stakeholders institutional Capacities' established for the implementation of SNRUM systems	Awareness created	Number of stakeholders	KSNP and Regional offices 'report
			Number of local community	KSNP and Regional offices 'report
		Communities' NRU user groups created	Number of Organised user groups in fodder and forage, honey, fish, crocodile and fuel wood and forest seeds NRU options and	KSNP and Regional offices 'report
			Number of Organised user groups in improved variety of animal husbandry and bio-fuel technologies	KSNP and Regional offices 'report
			Number of Organised user groups in mineral mining, precious stone artifacts, sand and surface stone NRU options	KSNP and Regional offices 'report
		Agreed implementation concessions and procedures	# of MOU, Bylaws and other agreements developed and signed documents b	EWCA, KSNP and Regional offices 'report
		Trainings	# of trained stakeholder's experts and staffs	KSNP and Regional offices 'report
	Specific Objective 1.3: Implementation of collaborative sustainable natural resource use and management in the KSNP realized and the livelihoods of the community improved	Communities gain high economic returns and livelihood improved	# of members improved communities' livelihood	Regional office, KSNP and EWCA community report
			Extent of continuity and sustainability status	Regional office, KSNP and EWCA community report
		Inputs and capital gained for the GMP implementation	Amount of inputs/capital gained	EWCA, Regional offices, KSNP and other partners
		NRUs products market linkage created	Extent of market linkage created and types and amounts of commodity marketed	Regional office, KSNP and EWCA community report
			Continuity of commodities of NRU exchanges and sustainability of use assurance	Regional office, KSNP and EWCA community report
Objective 2: KSNP freed from the impacts of permanent irrigation investment, Settlement, Agriculture and SNRUM implementation through banned, regulated and adaptive management system extent	Specific Objective 2.1: KSNP freed from the impacts of permanent irrigation investment, Settlement and Agriculture	Human induced threats and degradation of the NR halted/minimised	Continuity and Extent of healthy fodder and forage coverage of the NP	EM
			Continuity and Extent of healthy Population size, of Boswellia papyrifera, Doum palm and African black wood stand the NP	KSNP, EWCA and Regional/district offices report
			Condition and amount of palatable fodder and forage species in hectares and	Regional office, KSNP and EWCA community report
			Extent of healthy Population size, structure and distribution of fish and crocodile species of the NP	EM
			Regeneration status of the species	EMP report
			Continuity and connectivity of the ecological functioning of the vegetations and corridors created and maintained	KSNP, EWCA and Regional/district offices report

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Table App1.5: Tourism Provision and Management Programme Impact Monitoring Plan

Specific Objective	Potential Impact (Positive and Negative)	Indicator	Source of Information
1.1: Types of tourism products in KSNP identified and described, mapped	Greater awareness and support of KSNP: locally, nationally and internationally	Donations /projects Budget from Government Visitors to the park	No of projects Budget Visitors survey
	Increased visitors to KSNP	# of visitors (national, international, students	Park office tourist accounts and records
	Increased infrastructure	No of tourist infrastructures	Park Office accounts and records. Concession agreements
	Increased visitors and length of stay	# of visitors and # of days visiting	Tourism department accounts and records
	Increased range of tourism opportunities for visitors (diversification)	# of different activities undertaken by visitors	Park records Visitor use and satisfaction surveys
1.2: KSNP tourism promotion and marketing strategy developed and implemented, while linking with plans of relevant tourism providing partners	Improved and planned promotion and marketing effort	Strategic document Visitors no increased	report
	Tourism partners involved in marketing and promotion of KSNP	Partners involved Tourist number	Targeted inspections by EWCA and KSNP staff Visitors accounts and records by the park
	Enhanced responsiveness of KSNP to tourism needs and trends	Visitor satisfaction of park facilities and accommodation	Visitor use and satisfaction surveys
	Increased cost of managing and mitigating effects of tourism renders cost/benefit analysis negative	Costs of managing and mitigating effects of tourism	Cost/benefit analysis
1.3: Basic Tourism infrastructures, facilities and services developed and maintained in KSNP in collaboration with partners	Increased visitors to KSNP	# of visitors	Park Office accounts and records.
	Increased infrastructure	No. and type of tourism infrastructures and services	Tourism department accounts and records. Concession agreements and usage records
	Fair and transparent access to lease concessions by private investors	Lease concession procedures published	EWCA, KSNP records, Concession agreements
	Increased visitors and length of stay	# of visitors and # of days visiting	Park office records
	Increased range of tourism opportunities for visitors (diversification)	# of different activities undertaken by visitors	Park office records Visitor use and satisfaction surveys
	Increased negative environmental impact from visitors	Status of PECs and EIAs Visitor satisfaction and feedback	KSNP monitoring plan and EIAs Visitor surveys
	Increased pollution and waste at tourism sites	Quantity of pollution and waste at sites	EIAs and targeted inspections by KSNP staff
2.1: KSNP tourism department capacity is developed to deliver and manage effective tourism services	Improved quality of tourism provision in KSNP	Level of knowledge or tourism needs among park staff Visitor evaluation and feedback	Staff knowledge, attitude and practices surveys Visitor use and satisfaction surveys
	Tourism facilities and presence are having a minimal impact on KSNP environment	Evidence of pollution or litter around facilities, water use and effective use of water and fuelwood	Targeted inspections by KSNP staff and self-evaluations by concessionaires Visitor use and satisfaction surveys
	Enhanced responsiveness of KSNP to tourism needs and trends	Visitor satisfaction of park facilities and accommodation	Visitor use and satisfaction surveys
	Increased cost of managing and mitigating effects of tourism renders cost/benefit analysis negative	Costs of managing and mitigating effects of tourism	Cost/benefit analysis
2.2: Tourism provision experiences monitored and evaluated, so that appropriate measure taken to mitigate the negative impacts and to improve service provision	Negative Impacts of tourism activity identified Appropriate mitigation measure taken	Negative impacts of tourism activity	Monitoring and evaluation report
3.1: Involvement of local communities in the KSNP tourism development and management facilitated and realized	Ownership feeling of local community developed	Conservation support from the community	Meeting and report
	Tourism activity alone couldn't satisfy the needs of local community	Community member getting benefits versus not	Community benefit Survey
	More communities engage with tourism activities	Willingness of community groups to develop realistic tourism opportunities # successful tourism-related ventures Capacity and skills of community members	Survey of community attitudes Community skill survey

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Specific Objective	Potential Impact (Positive and Negative)	Indicator	Source of Information
	Improved benefit flow from tourism to local communities	# of successful tourism-related ventures Financial figures	Park office reports Community income Accounts of community tourism facilities
3.2: Diverse tourism-related income generation opportunities created and equitably and fairly shared among the KSNP-associated local communities	Tourism business opportunities created	Number of tourism business opportunities	Park office record
	Revenue generated by the community increased	In come of community	Park office record

TableApp1.6: Park Operations Programme Impact Monitoring Plan

Specific Objective	Potential	Indicator	Source of Information
	Impact (Positive and Negative)		
1.1: Park infrastructure developed and equipment procured	Reduced likelihood of illegal activities taking place in KSNP	Illegal incidents, extent of agricultural, settlement, timber extraction and use	Ranger based monitoring, Ecological Monitoring Plan, Park records
	Improved office, outpost and operational facilities for park	#, effectiveness and location of scout patrols	Departmental records
	Staff morale improved with access to good equipment to carry out duties	Attitudes of staff	Staff surveys
1.2: Environmental impacts of park infrastructure development on ecosystem health minimized through restoration/rehabilitation of affected areas	Proper waste and pollution management systems throughout the Park	Evidence of functioning systems	Site Specific EIAs
	Reduced environmental impact from road construction	Evidence from sites	Road and quarry EIAs
1.3: Effective resource protection plan developed and operational	Reduction in # illegal activities taking place in KSNP	Illegal incidents, extent of agricultural, settlement, timber extraction and use, poaching	Ranger based monitoring, EMP reports, Park records
	Increased management control in KSNP	# and location of scout patrols	Park records, RBM, patrolling reports
	Law enforcement efforts of other KSNP stakeholders enhanced	Establishment of information sharing and collaboration mechanisms with local communities, police and judiciary	Departmental Records
	Improved status of PECs and their KEAs	As per EMP	EMP reports
	Deterioration in relations with park-associated communities	Community attitudes	Surveys
		Incidence of complaints to park	Park records
2.1: Appropriate management structures, systems and capacity established	Improved management effectiveness	METT scores	Annual METT report
	KSNP have capacity to implement GMP	Performance against 3-Year Action Plan (finance permitting)	KSNP annual reports
	Improved staff capacity	Performance against department annual operation plan activity targets and 3-Year Action Plan	Training reports, KSNP management records
	Improved staff morale and safety	Requests for transfer	Personnel records
		Performance against department annual operation plan activity targets and 3-Year Action Plan	Self-evaluation
		Incidence of work accidents	KSNP management records

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Specific Objective	Potential	Indicator	Source of Information
	Impact (Positive and Negative)		
2.2: Effective and secure administrative systems operational	Improved management effectiveness	METT scores	Annual METT report
	Budgets fully used	Budget return rates	Financial records
	Equipment efficiently used and maintained, with lower replacement rates	Equipment lifespan	Equipment records
2.3: Collaborative and adaptive planning and review system operational	Monitoring and evaluation of management effectiveness and GMP implementation takes place and thus management is adaptive	Next 3-year Action plan and annual operations plans produced in timely fashion and taking into account progress in GMP implementation	3-Year Action Plan,
			GMP implementation reports
3.1: Economics and financial flows of KSNP ecosystem better understood	Political support increases locally, nationally, regionally?	No. and type of press reports	Collation of press reports
		Frequency of KSNP on government agendas?	
	Potential external income sources are identified	Value and consumers of services	Consultant's report
3.2: The potential for developing Functional Business Plan for KSNP investigated	KSNP budget for park management and community development increases	Budget and expenditure	KSNP accounts
	Improved use of budget	Donations	
	Management cost-effectiveness and budgets improve	# outputs for expenditure	
	Revenue generation increased through innovative internal and external financing mechanisms	METT scores, budget and expenditure	METT reports KSNP accounts

Table App1.7: Community Outreach Programme Impact Monitoring Plan

Specific Objective	Potential Impact (Positive and Negative)	Indicator	Source of Information
1.1: Functional park-community discussion forum established	Community issues discussed and handled by the park staff	Number of community meeting	Minutes of KSNP Community Forum and management meetings
	Improvement in community-park relationship	Community attitudes towards/opinions of KSNP	Community surveys
	Improved communication between communities	Strategic and action plans of KSNP take into account community	Meetings minutes Zonal, local government, tourism etc. plans
1.2: Strong partnership and communication mechanisms with relevant organizations established	Partners plan are discussed		
	Improvement and close collaboration with partners	Inputs of partners in the management of KSNP	EWCA monitoring and evaluation Park office records
	Improved communication between stakeholders	Strategic and action plans of stakeholders take into account KSNP priorities and management	Meetings minutes
2.1: Livelihood development and equitable benefit-sharing mechanisms established in collaboration with partners	Community perceptions and cooperation improves	Attitudes towards/opinions of KSNP	Surveys
	Less advantaged community groups gaining equitable access to resources	Increased park-driven/related projects in associated communities # of recipients and distribution of financial benefits	Park and projects records Community based Management organisations records
	Community Development Fund (CDF) assisting with conservation-positive development initiatives	Existence of CDF and scale of operation	Park and CDF reports
2.2: Promote other conservation compatible small business development in park-associated communities, including sustainable use of NTFPs	Park-associated communities have increased livelihood options	# alternative livelihoods adopted	Livelihoods survey
	Increase in conservation-positive development initiatives at HH level	Scale of benefit flow and average (range) household income, taking into	Income survey

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Specific Objective	Potential Impact (Positive and Negative)	Indicator	Source of Information
		account population growth rate and inflation	
	Increased immigration into areas surrounding KSNP	Trends in population growth and immigration in Park-adjacent areas	Direct observation, land use mapping, census records
2.3: Alternative and sustainable sources of energy and construction use facilitated and promoted	Decreased use of KSNP natural resources for energy use by all park users and park associated businesses and communities	Use of fuelwood Types of energy use in KSNP	Survey Electricity bills, records
2.4: Human-wildlife conflict in/around KSNP understood and mitigated	Increased understanding and dialogue on HWC in area	Body of information on HWC	RBM and HWC records and summary reports
	Improved relations between communities and park	Attitude of communities and KSNP to HWC	Community and staff survey
	Reduced costs associated with HWC for park-associated communities	Type, incidence and scale of HWC	RBM reports and joint HWC records
	Increased negative attitude to park if HWC mitigation unsuccessful	Community perception of park	HWC surveys, meeting minutes , Community KAP surveys
3.1: KSNP publicity campaign systems developed and implemented	The park conservation issues very well known	Number of public campaign	Park report
	The park get public acceptance for conservation	Support delivered from the public	Park report
3.2: Environmental education programme established in/around KSNP	Conservation awareness improved /school, and among public	Level of awareness and knowledge (in School and youth)	Surveys
	Increased awareness of KSNP rules/regulations and management methods	Attitudes towards /opinions of KSNP	Park records
	Reduced conflict with surrounding communities	Incidences of rule violation within KSNP	Park records

iv. Monitoring GMP Action Completion

Monitoring of the implementation of the 3-Year Action Plans will be done twice yearly, by comparing progress on implementing Annual Operations Plans with the 3-Year Action Plans. Tables will be drawn up listing each activity and status of implementation, as per the example table below. KSNP management will be responsible for drawing up and completing these tables as part of their regular planning.

Table App1.8:Example - Park Operations Programme Action/Activity Implementation Monitoring

Action/Activity	Completion status on 1.7.17	Tasks undertaken	Comments

Appendix 2: KSNP GMP Planning Team

Table App2.1: KSNP Planning Team of GMP

Se.No	Name	Position and office	EWCA meeting/ workshop Dec 2017/18	August 2018 Vali- dation Workshop	Working Groups meeting				
					PO	T	EM	SNR U	OR
1	H.E Ato Kumera Wakjira	Director General EWCA		1					
2	H.E Ambassador Mesfin Chernet	Chairman of EFDR HPR for Culture Tourism and communication affair standing committee		1					
3	H.E Amare Tesfaye	EFDR HPR for Culture Tourism and communication affair standing committee Member		1					
4	H.E Seferaw G/selasy	EFDR HPR for Culture Tourism and communication affair standing committee member		1					
5	H.E Ato Dawit Hailu	Tigray Region Bureau of Culture and tourism Head		1					
6	Ato Brhane Hagos	Tigray Region Bureau Agriculture and natural resources dubiety head		1					
7	Ato Brhane Meresa	Tigray Region Bureau Agriculture and natural resources	1	1	1	1	1	1	
8	Ato Girmay brhatu	Tigray Region Bureau		1					
9	Ato Tekeste Tekleslasie	Tigray Region Bureau		1					
10	Ato Mikal	Tigray Region Bureau	1	1					
11	Ato Kindihlifti Tadesse	Tigray Region Bureau	1	1					
12	Ato Selemone Berhe	Tigray Region Bureau	1	1					
13	Ato Abraha Berihu	Tigray Region Bureau		1					
14	Ato Tekleweni Kidane	Tigray Region Bureau		1					
15	Ato Abadi Mahari	Mekelle University		1					
16	Ato Zerihun Degene	PHEEL Manager		1					
17	Ato Kahsay Aregay	Axum University		1					
18	Keflom Abadi	Tigray region bureau		1					
19	Ato Asayhege tarekegn	Adwa		1					
20	Ato Mehari Hailu	Kafta-Humera	1	1					
21	Ato Gezahegn danew	Kafta-Humera	1	1					
22	Ato G/gyorgis Haile	Kafta-Humera	1	1					
23	Ato Kiros G/hiwot	Kafta-Humera	1	1					
24	Ato Kahes Arfayne	Kafta-Humera	1	1					
25	Ato Abrhale G/Tadik	Kafta-Humera	1	1					
26	Ato Tadik W/kiros	Kafta-Humera	1	1					
27	Ato Kindu Fekadu	Kafta-Humera	1	1					
28	Ato Tewelde Teka	Kafta-Humera	1	1					
29	Ato Mesganaw Yenehun	Kafta-Humera	1	1					
30	Ato Amanal Abreha	Zone	1	1					

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Se.No	Name	Position and office	EWCA meeting/ workshop Dec 2017/18	August 2018 Vali- dation Workshop	Working Groups meeting				
					PO	T	EM	SNR U	OR
31	Ato Teshome Kidane	Zone	1	1					
32	Ato Tesfay Yebyo	Zone	1	1					
33	Ato W/giorgis Gerima	Zone	1	1					
34	Ato Nakachew Berelew	EWCA	1	1					
35	Ato Jilaludin Demses	EWCA	1	1					
36	Ato Endale Tafa	EWCA	1	1					
37	Ato Hylay G/egziabher	EWCA	1	1					
38	Ato Asheber Woyesa	EWCA	1	1					
39	Ato Endaweke	EWCA	1	1					
40	Ato Daniel worku	EWCA	1	1		1			
41	Ato Behailu Mekonnen	EWCA	1	1					
42	Ato Addisu Asefa	EWCA	1	1					
43	Ato Arega Mekonnen	EWCA Project coordinator	1	1	1	1	1	1	1
44	Ato Haily G/Egziabher	Wildlife Trafficking Directorate Director	1	1					
45	Ato Girma Timer	Wildlife Protected Areas development and Protec- tion Directorate Director	1	1					
46	Ato Samuel Demeke	Planning Director	1	1				x	
47	Ato Argawi Habtu	Tahtay Adyabo	1	1					
48	Ato Desnet Berhe	Tahtay Adyabo	1	1					
49	Ato Abrehely Tareke	Tahtay Adyabo	1	1					
50	Ato Mulualem G/mikahel	Tahtay Adyabo	1	1					
51	Ato Zenebe Tesfay	Tahtay Adyabo inspector		1					
52	Ato Yared T/mariam	Tahtay Adyabo	1	1					
53	Ato Hftey Abreha	Tahtay Adyabo	1						
54	Ato Tekle W/gergis	Freselem /community	1						
55	Ato Shishay Siyum	Freselem /community	1						
56	Ato Wezam Tajebe	Freselem /community	1						
57	Ato Silas G/mariam	Mayweni/Community	1						
58	Ato Fisiha W/mariam	Mayweni/Community	1						
59	Ato Tewelde Zemikal	Mayweni/Community		1					
60	Ato K/Mekonene Ambaye	Adigoshu/community		1					
61	Ato K/Haftu Atalay	Whdet community		1					
62	Ato Zenebe Gebre	Adigoshu/community		1					
63	Ato M/Sahil Tesfay	Adigoshu/community		1					
64	Ato Tekeba Legese	Adigoshu/community		1					
65	Ato Selemun Walu	Adigoshu/community		1					
66	Ato Keni Albebe	Adigoshu/community		1					
67	Ato Hans Albebe	Adigoshu/community		1					
68	Ato Feki Agebe	Adigoshu/community		1					
69	Ato Shokele Abesele	Hiletcoca/community		1					
70	Ato Tekele Abesele	Hiletcoca/community		1					
71	Ato Mulualem G/wahid	Adebay community	1	1					

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Se.No	Name	Position and office	EWCA meeting/ workshop Dec 2017/18	August 2018 Vali- dation Workshop	Working Groups meeting				
					PO	T	EM	SNR U	OR
72	Ato Kahsay G/krstos	Adebay community		1					
73	Ato Demekech Reda	Adigoshu community		1					
74	Ato Gedamu Brhane	Maykeyih community		1					
75	Ato Yirga Azay	Adebay community		1					
76	Ato Geresea G/mariam	Maykeyih community		1					
77	Ato K/Abay Weldemariam	Maykeyih community		1					
78	Ato Zerom Mehari	Wolkayt/com		1					
79	Ato Afworki Kenfe	Wolkayt/com		1					
80	Ato Milke meret G/Egzer	Wolkayt/com		1					
81	Ato Shewines Shambel	Wolkayt/com							
82	Ato Kahsaye G/Tensai	EWCA	1						
83	Ato Gebremeskel Gizawu	EWCA	1	1	1	1	1	1	1
84	Ato Mezgebe seyume	EWCA							
85	Ato Abiy Getahun	EWCA	1		1	1	1	1	1
86	Ato Shimels t/TSAdik	EWCA							
87	Ato Kinfe Welay	EWCA				1	1	1	1
88	Ato Goush ??	?				1	1	1	1
89	Ato Zrerihun Zewde	EWCA	1						
90	Ato Getnet Yigzawu	EWCA		1					
91									
92									

Table App2.2. EWCA Core Planning Team Composition:

Name	Position/ Organisation
Girma Timer	Director of Protected Areas
Dr Fanuel Kebede	Director, Research and Monitoring Directorate
Arega Mekonnen	EWCA Project Expert/SDPASE project
Kahssaye G/Tensai	Director of community partnership directorate
Samuel Demeke	Director, Planning Preparation and follow up Directorate

Table App2.3: Site Core Planning Team

Name	Position/ Organisation
Gebermeskel Gizawu	KSNP Chief Warden
Teshale	
Addisu Asefa	FZS KSNP Project Manager
Shimels	
Zenebe Arefine	EWCA PADPD Director
Kinfe Welay	National Park Coordination Directorate Expert
Berhane Meresa	
Goush ??	

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Technical Working Groups Composition

Ecological Monitoring and Management Program

Table App2.4: Site Core Planning Team

Name	Organization	Position	Role
Addisu Asefa	EWCA	Ecologist	TWG chairperson
Zenebe Arefine	KSNP	Ecologist	Member
Kinfe Welay	EWCA	GIS specialist	Member
Gebremeskel Gizaw	EWCA	Ecologist	Member
Berhane Meresa	Tigray region Wildlife dep't	Wildlife expert	Member
Goush ??	Humera woreda	Wildlife expert	Member

Sustainable natural resources uses and threats Management

Table App2.5: Site Core Planning Team

Name	Organization	Position	Role
Gebermeskel Gizawu	EWCA	Ecologist	TWG chairperson
Zenebe Arefine	KSNP	Ecologist	Member
Kinfe Welay	EWCA	GIS specialist	Member
Gebremeskel Gizaw	EWCA	Ecologist	Member
Berhane Meresa	Tigray region Wildlife dep't	Wildlife expert	Member
Goush ??	Humera woreda	Wildlife expert	Member

Tourism Provision Management –

Table App2.6: Site Core Planning Team

Name	Organization	Position	Role
Rezenom Almawu	EWCA	Ecologist	TWG chairperson
Addisu Asefa	EWCA	Ecologist	Member
Gebermeskel Gizawu			
Daniel worku			
Zenebe Arefine	KSNP	Ecologist	Member
Kinfe Welay	EWCA	GIS specialist	Member
Berhane Meresa	Tigray region Wildlife dep't	Wildlife expert	Member
Goush ??	Humera woreda	Wildlife expert	Member
Girma Timer			

Park Operations –

Table App2.7: Site Core Planning Team

Name	Organization	Position	Role
Addisu Asefa	EWCA	Ecologist	TWG chairperson
Zenebe Arefine	KSNP	Ecologist	Member
Kinfe Welay	EWCA	GIS specialist	Member
Gebremeskel Gizaw	EWCA	Ecologist	Member
Berhane Meresa	Tigray region Wildlife dep't	Wildlife expert	Member
Goush ??	Humera woreda	Wildlife expert	Member

Community Outreach –

Table App2.8: Site Core Planning Team

Name	Organization	Position	Role
Abiy Getahun	EWCA	Ecologist	TWG chairperson
Zenebe Arefine	KSNP	Ecologist	Member
Gebremeskel Gizaw	EWCA	Ecologist	Member
Berhane Meresa	Tigray region Wildlife dep't	Wildlife expert	Member

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Kinfe Welay	EWCA	GIS specialist	Member
Goush ??	Humera woreda	Wildlife expert	Member

Validation workshop

The validation workshop of Kafta-Shiraro National park management plan was carried in August 27-30/2018 at Kafata Shiraro town. Participants were from House of People's representative, Prime Minister's office, Federal Ministry of Culture and Tourism, Ethiopian Wildlife Conservation Authority (EWCA), Ethiopian Tourism Organization(ETO), Tigray Environment, Forest and Climate change Bureau, Tigray Culture and Tourism Bureau, Tigray Forest and Wildlife Enterprise (OFWE), Kafta-Sheraro and..... Zones administrations, high court, peace and security office, Agriculture office, Tourism and culture office, weredas administrators, high court and Axum, Adigrat and Mekelle Universities.

All the GMP programmes were presented, discussed in detail and approved (endorsed) on Augusts 30, 2018

APPENDIX 3: Stalkholders Consultation

As part of participatory planning process, consultations were carried out at local levels in each kebele surrounding the park. First Meeting were carried out at region, zonal woereda levele (at Mekele, Kafta humera, Tahtay Adyabo. Adebay and Wolkayt) in which 11 Government institutions and 50-150 members of the 11 kebeles bordering the park boundaries participated.

All the five draft programmes were presented and discussed in detail. Important inputs were obtained and incorporated into each programme of the management plan.

	Institution consulted	Participant numbers	Remarks
1	Tigray Regional Agriculture and Natural Resources bureau	6	Note: At each of the 3 woreda levels the following representative attended;
2	Tigray Regional Culture and Tourism bureau	5	
3	North-Western Zone	5	
4	Western Zone	5	Woreda administration, Agriculture and Natural resource Development Offices, Environmental protection Land Administration Utilization , Peace and security, Justice, Culture and tourism, Women and children affairs, Cooperative promotion agency, Woreda police, Woreda court president Woreda kebele team members , Tigray Environment and Forest
5	Zone Tourism Office	2	
6	Zone Agriculture and Natural resources department	2	
7	Kafta Humara Woreda Administration	12	
8	Adibay-Tehtaya Woreda Administration	31 (cabinet)	
9	Adibay-Tehtaya Woreda Agriculture natural resources office	4	
10	Adibay-Tehtaya Woreda Finance office	2	
11	Sitit humara town administration	12	
13	Humera town Education Office	1	
14	Humera woreda Agriculture natural Resources Office	4	
15	Private companies(Hotels, agriculture investor, ,)	10	Up to 60 participants from each kebele (administrators, managers, development agents, elders, and women) took part in the discussion.
16	Small scale enterprise (crafts men, Boat owners, fast food makers(dairy products, cooked food,)	10	
17	Humera Health Office	2	
18	11 Rural kebeles Administration/ communities	50-150	
19	Axum town culture and tourism office	2	
20	Humera TVT	2	
21	Axum University	5	
22	Mekele University	6	
23	ETO		
24	Ethiopian airlines(Mekele, Humera, Addis Ababa)		

Appendix 4: KSNP Research Priorities

Table App5.1: Research priorities for KSNP

Abundance/distribution and regeneration status of the threatened African Black-wood <i>Dalbergia melanoxylon</i>
Economic and ecological impacts of gum/incense collection on abundance and regeneration of <i>Boswellia papyrifera</i>
Species inventory and diversity, composition and community types of KSNP vegetation
What are the causes of fire outbreak and why, if deliberate, why people catch fire, and its impacts on the ecosystem (e.g. soil physical and chemical properties) and vegetation regeneration and composition of woody plants
Complete avian species inventory and study of bird diversity and composition across different habitat types
Ethnobotanical studies including medicinal plant use and other traditional uses by indigenous community/kunama people
Quantifying the economic value of ecosystem goods and services provided and identify the relevant beneficiaries
Ecological and Economic impacts of gold mining
Reproduction success/juvenile survival, impact of dog/wild carnivore predation on kudu and Roan antelope and other ungulates
Elephant habitat Suitability, ranging/movement patterns
Undertake compete inventories of herps, and fish in Tekeze
Undertake inventories of invertebrates particularly butterflies, ants, spiders and dung beetles
Association with and current use of kunama people of Doum Palm tree (<i>Hyphiana thebica</i>) for food (tela, wot, genfo, handicraft, feeding plate and for ornamental) and its implications for conservation of the species
Examine why Elephants and kudus are more associated with military camps.
Effects of livestock grazing on herbaceous vegetation composition, including expansion of indigenous invasive species, and on regeneration of tree species
Effects of livestock grazing/browsing and fodder collection on regeneration and population of <i>Boswellia</i> tree
<i>Boswellia</i> disappeared from yemen, genetic and germination/tissue culture started but needs further studies
Conduct study on grass species composition in the KSNP
Seed bank availabilities in the Dry Evergreen Montane woodland and other vegetation types
Conduct studies on fish in the Tekeze river, including species inventory, distribution, extent of current off-take, fishing method used and impact of current fishing on their abundances and population structure
Impact of Elephant browsing activities on woody plants structure
Extent of use of <i>Adonesia digitata</i> by Kunama for carrying utensils and its impact on the tree
Examine extent of Leopard poaching by local people for hide and skin

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