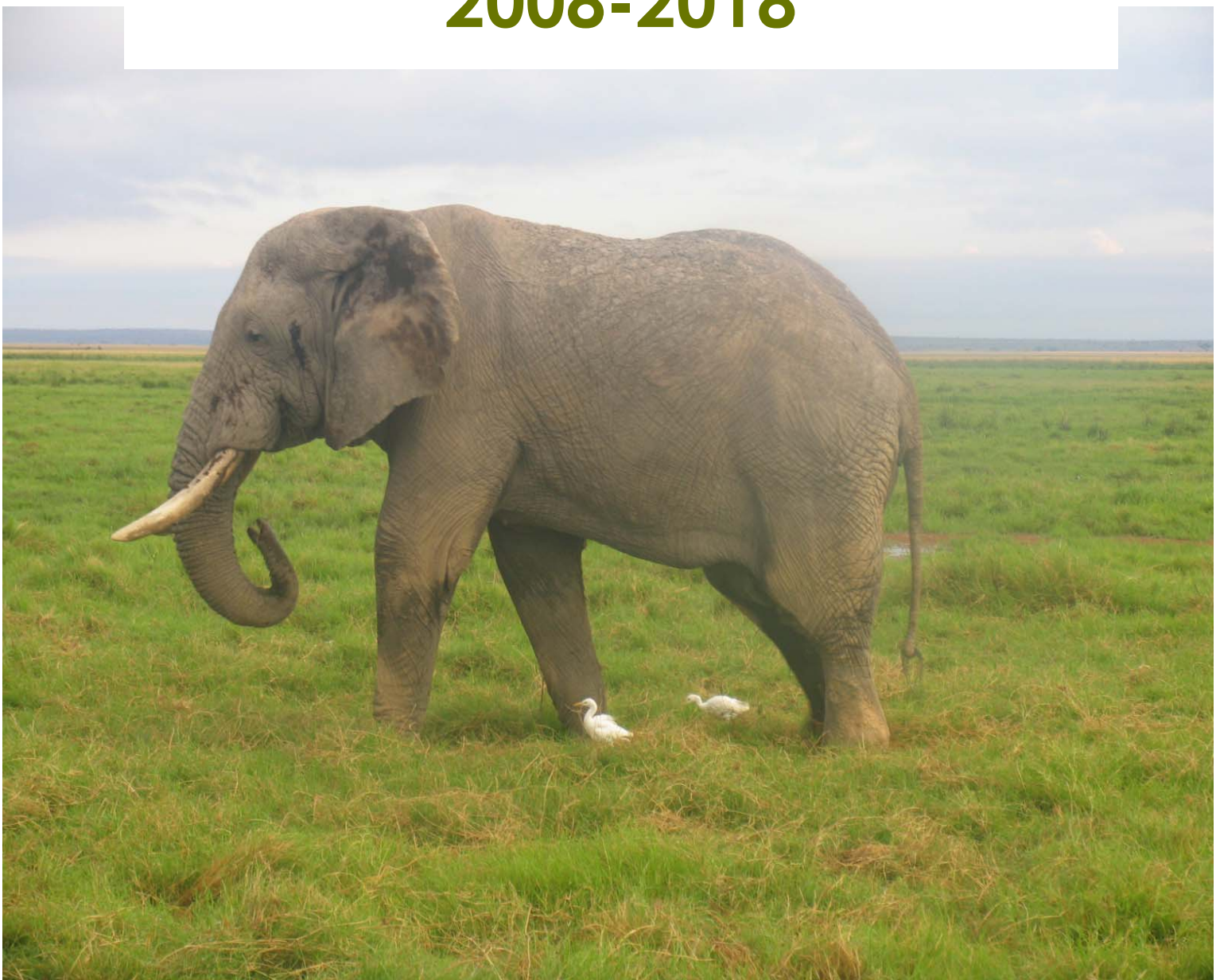
KENYA WILDLIFE SERVICE

AMBOSELI TSAVO GROUP RANCHES CONSERVATION ASSOCIATION

Amboseli Ecosystem Management Plan, 2008-2018



Amboseli Ecosystem Management Plan, 2008-2018

Planning carried out by

Amboseli Ecosystem Stakeholders and
KWS Biodiversity Planning, Assessment & Compliance Department

In accordance with the

KWS Protected Areas Planning Framework

Approval Page

The Board of Trustees and the management of the Kenya Wildlife Service, and the Amboseli/Tsavo Group Ranches Conservation Association have approved the implementation of this management plan for the Amboseli Ecosystem.

On behalf of the **KENYA WILDLIFE SERVICE**

Mr Julius Kipng'etich
Director

Date: **10.12.09**

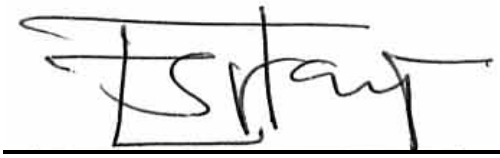
Mr. David Mwiraria
Chairman, BOT

Date: **10.12.09**

On behalf of the **AMBOSELI/ TSAVO GROUP RANCHES CONSERVATION ASSOCIATION**

Mr. Henry Ole Kanai
Chairman-ATGRCA

Date: **10.12.09**



Mr. Jonathan T. Lekanaiya
Secretary-ATGRCA

Date: **10.12.09**

Acknowledgement

KENYA WILDLIFE SERVICE	This Management Plan was prepared by Amboseli Ecosystem stakeholders through a participatory planning process. KWS provided leadership to the process and additional financial support to facilitate planning activities
AMBOSELI TSAVO GROUP RANCHES CONSERVATION ASSOCIATION	Amboseli Tsavo Group Ranches Conservation Association (ATGRCA), through their executive, provided vital linkage between the core planning team and the land owners.
AFRICAN WILDLIFE FOUNDATION	African Wildlife Foundation provided the bulk of financial resources for the preparation of this plan through the Kilimanjaro Heartland office based in Namanga.
ACC AFRICAN CONSERVATION CENTRE	African Conservation Centre (ACC) provided critical ecological information through the Amboseli Ecological Research and Conservation Project and additional financial support.
AMBOSELI TRUST FOR ELEPHANTS	Amboseli Trust for Elephants (ATE) provided extensive information on human-wildlife interactions in the ecosystem and contributed funds for the planning process.
S F S The School for Field Studies	School for Field Studies (SFS) provided additional ecological information on areas outside the Amboseli National Park (ANP).

Foreword

This management plan identifies the course Amboseli Ecosystem stakeholders intend to follow in the next 10 years to ensure that wildlife continue to thrive and contribute sustainably to the enhancement of community livelihoods in Amboseli. The plan outlines specific management programs and action plans that if implemented, wildlife conservation values and quality of life of people in the area will be improved significantly.

The Amboseli ecosystem is a globally important pastoral/wildlife ecosystem that is internationally recognized as a UNESCO Biosphere Reserve because of the ecosystem's significance as an example of a conservation area that fulfills the three functions of conservation, research and development. However, the ecosystem is facing two serious management and environmental challenges that could change the structure and function of the ecosystem if immediate and appropriate targeted interventions are not implemented.

First, rapid changes in land tenure systems from common to private ownership, coupled with rising population, has resulted in diminishing wildlife range as settlements expand and choke wildlife migratory routes and dispersal areas.

Second, in light of the apparent global climate change, pastoral livelihoods are threatened by prolonged and unpredictable droughts which take a huge toll on both livestock and wildlife. In light of this environmental uncertainty a diverse range of innovative strategies and institutions to minimize this unpredictability and risk are needed.

This plan has addressed these challenges through a robust habitat improvement programme which prescribes measures that will see livestock pastures increasing in quality thereby increasing the livestock carrying capacity of the range. In addition, to mitigate against droughts wrought by climate change, the plan has a livestock improvement programme that aims at breeding livestock that have drought tolerant traits and yield high quality livestock products. In addition, this plan will completely change the conservation landscape at Amboseli through creation of wildlife conservancies that will be wildlife refuges, tourist destinations, and dry season livestock grazing areas cushioning the local community from drought linked livestock loss. Further, land for conservation will be secured in the long-term and traditional livestock keeping will be maintained in the wake of changing land tenure systems in the ecosystem.

We at KWS have long acknowledged that Amboseli National Park can not support the current wildlife population levels without the wildlife dispersal areas offered by the community land. The ecological limitation of the Park therefore calls for an integrated and adaptive ecosystem management approach to sustain wildlife and habitat diversity. Consequently, KWS will continue to offer its unwavering support to the vibrant pioneer Community-Based Conservation model established in Amboseli ecosystem more than three decades ago to ensure that ecosystem integrity is maintained.

The plan has been developed in line with the KWS Protected Areas Planning Framework (PAPF) whose key pillar is stakeholder participation in all aspects of the management planning process. Amboseli stakeholders steered the planning process through a Core Planning Team; provided funding support to facilitate planning activities; and availed vital ecological as well as sociological information on which this plan is founded. I would therefore like to take this opportunity to thank all the stakeholders who put their energy and resources in ensuring that the Amboseli Ecosystem Management Plan was a success. We look forward to working with you during the implementation phase of this plan.

Mr. Julius Kipng'etich
Director, KWS
November 2008

Executive Summary

This 10-year (2008-2018) management plan for the Amboseli Ecosystem (AE) has been developed through a collaborative effort involving a wide array of stakeholders including Kenya Wildlife Service (KWS), Amboseli/Tsavo Group Ranches Conservation Association (ATGRCA), African Wildlife Foundation (AWF), African Conservation Centre (ACC), Amboseli Trust for Elephants (ATE) and the Oloitokitok/Kajiado District administration (see Annex 1). Several expert studies aimed at shedding light on management issues pertaining to the ecology of the ecosystem, infrastructure development and maintenance, leases relating to community facilities, transboundary collaboration, and tourism development, were also carried out.

The previous management plan for the AE covered the period 1991-1996. The plan mainly focused on the management of the Amboseli National Park, but it also recognized the dependence of the park on the larger dispersal area. The plan implementation strategy, however, failed to put in place a sustainable resource management structure to secure the ecological integrity of the park and critical wildlife dispersal areas. As a result, the Amboseli National Park and the wider Amboseli Ecosystem have continued to face many threats, both internal and external. The aim of the current management plan is therefore to define the principles and strategies for creating, implementing and managing a sustainable future for the Amboseli Ecosystem by addressing wildlife conservation and management issues in the entire ecosystem. However, despite the plan being strategic in its approach to management issues in the ecosystem, it is also designed to be a practical management tool to support Amboseli managers, in the wildlife sector, in carrying out their duties.

The management plan is divided into five main sections i.e. **plan foundations, AE zonation scheme, five management programmes, and plan monitoring**. The main bulk of the plan consists of the five management programmes namely:

- **Ecological Management Programme**
- **Tourism Development and Management Programme**
- **Community Partnership and Education Programme**
- **Security Programme**
- **Ecosystem Operations Programme**

Each programme contains management objectives that set out the goals that AE management aims to achieve, and a set of specific management actions to achieve these goals. And in order to facilitate plan implementation, management programmes have been aligned with the KWS organizational structure.

In addition, each of the management programmes has a 3-year Activity Plan, which breaks down the individual management actions into day-to-day management activities that will be implemented in the first three years of the plan period.

Amboseli Ecosystem Purpose Statement

The purpose of the Amboseli Ecosystem is:

To maintain AE's ecosystem diversity and resilience, conserve the ecosystem's threatened species and habitats, and especially the charismatic elephants and expansive swamps, and promote sustainable development of the ecosystem for the benefit of the present and future generations

The purpose statement is based on the Exceptional Resource Values (ERVs) for the Amboseli Ecosystem which describe the ecosystem's key natural resources and other features that offer outstanding benefits to local, national and international stakeholders. Amboseli Ecosystem Exceptional Resource Values are shown in the table below.

Amboseli Ecosystem Exceptional Resource Values

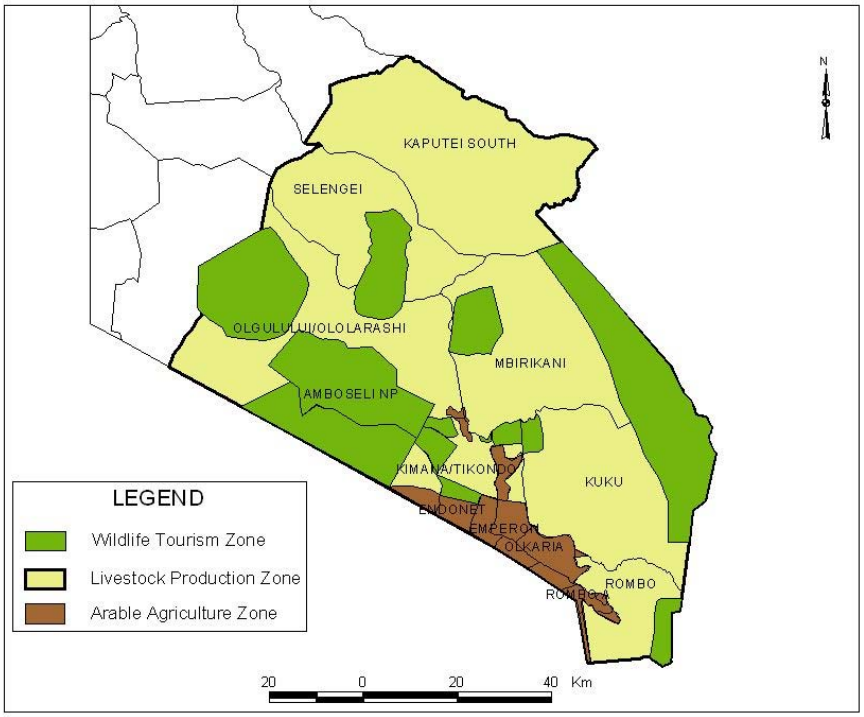
Category	*Exceptional Resource Value*
Biodiversity	▸ Amboseli ecosystem swamps (Water resources)
	▸ Habitat diversity
	▸ Landscape diversity
	▸ Amboseli elephants
	▸ Array of ungulates
	▸ Rich birdlife
	▸ Diverse carnivores
Scenic	▸ Mount Kilimanjaro
Cultural	▸ Authentic Maasai culture
	▸ Rich history
	▸ Cultural sites of local importance
	▸ Historical sites
Social	▸ Long term research programs
	▸ Traditional pastoralism
	▸ Amboseli as a Biosphere Reserve
	▸ Community wildlife conservation initiatives

The major threats to the ERVs and viability of Amboseli ecosystem which formed the basis for the planning and management guiding principles adopted in this management plan include farming, settlement, land subdivision and unplanned tourism development that are affecting interactions within the ecosystem and also interactions of the ecosystem with other adjoining ecosystems.

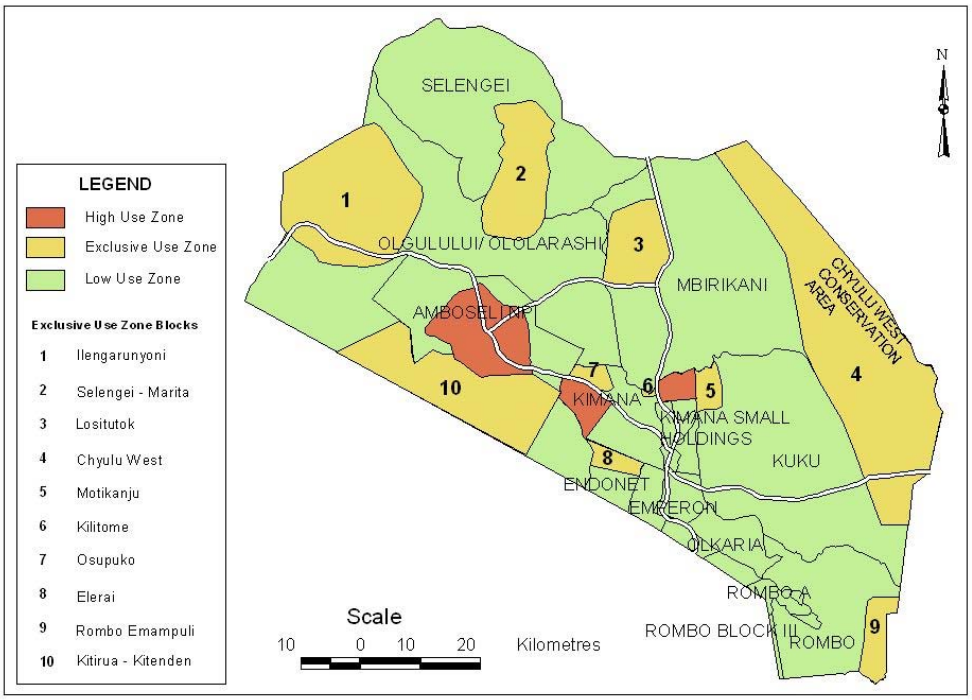
AE Zonation

The overall goal of zoning in the Amboseli ecosystem is to separate conflicting land uses while at the same time providing a conducive environment for investment in other land use options that are socially and economically acceptable to land users. Inside the Park, zoning aims at providing areas that are excellent for wildlife viewing and areas that can provide solitude. Outside the park, zoning aims at separating conflicting land uses such as agriculture and conservation. It also aims at providing adequate space for pastoralism-tourism land use mix in areas that are not suitable for arable agriculture. To achieve these aims, the ecosystem is divided into three broad land use zones and three visitor use zones (see the maps below).

AE Land Use Zones



AE Visitor Use Zones



Land Use Zones

The ecosystem has been divided into three broad zones i.e. arable agriculture, livestock production, and wildlife tourism, based on environmental and socio-economic considerations (see table below).

AE Land Use Zones

Land Use Zone	*Land Use Objective*	*Zone Description*
Wildlife tourism	Wildlife conservation and tourism	Includes Amboseli National Park and the existing and proposed community wildlife concession areas
Livestock production	Livestock production through pastoralism	Includes all the area in the ecosystem that is neither under agriculture or conservation land uses
Arable agriculture	Agricultural production through rain fed and irrigated agriculture	Includes all the irrigation schemes and the arable strip of land at the foot slope of Kilimanjaro

Visitor Use Zones

The High Use Zone (HUZ)

The High Use Zone (HUZ) caters for large volumes of tourists in a naturally scenic though substantially human altered environment. Tourism in this Zone is closely linked to motorized transportation on viewing roads. Tourism infrastructure is highly developed with high densities of viewing roads and tourist beds. Tourism activities in this zone are mainly based on wildlife viewing as the zone coincides with the sections of the ecosystem that have high wildlife concentrations all year round, and hence highly suitable for wildlife viewing from vehicles.

This zone has three separate sub-zones, one in Amboseli National Park and the other two in the subdivided Kimana Group Ranch.

Exclusive Use Zone (EUZ)

This zone comprises the existing and proposed community wildlife conservation areas. The zone covers land primarily set aside for wildlife-tourism. This zone ensures that land in community lands is reserved for exclusive wildlife-tourism use which ensures that viable corridors and wildlife dispersal areas are maintained. However, mechanisms need to be put in place to ensure that wildlife-based tourism zoned land is used exclusively for this purpose otherwise the value of the land gained from this status will be eroded threatening support from private sector investors and tour/safari operators.

Low Use Zone (LUZ)

The Low Use Zone covers the rest of the ecosystem that is neither HUZ nor EUZ. In the park, this zone lies in the western (Kitirua area and the seasonal Lake Amboseli), the northern, and eastern sections of the park. This zone is characterised by a very low density of viewing roads and is devoid of tourist accommodation facilities. It however gives the discerning naturalist an opportunity to enjoy the panoramic landscape from vantage viewing points such as Kitirua and Imerishari hills. The level of infrastructure development will remain as at present and no further developments will be allowed. Outside the Park, the LUZ covers all the land that has not been set aside as either wildlife sanctuary, conservancy or concession area. Most of this zone is under pastoralism and agriculture, but it can still be used to support special tourist niches such as cultural tourism.

Ecological Management Programme

The ecological management programme will help in formulating guidelines for managing the changes that may hinder the future viability of the ecosystem as a key wildlife conservation area. It must be realized that the ecosystem can only be sustained if the aspirations of the local community are considered. In order to guide the managers within the AE to achieve a sustainable balance between conservation and development, the ecological programme will provide technical assistance, and generate and disseminate relevant planning and management information to ensure that sound management interventions are designed and implemented.

Four objectives have been developed to realise the ecological management programme. These focus on threats to AE's critical wildlife habitats, AE's threatened large mammals (covering conservation targets: Elephant, large carnivores and Black rhino), ecological monitoring, and dissemination of research information. Among the key management actions that will be implemented under the ecology programme is the implementation of a land evaluation study to assess the ecosystem's suitability for various land uses. The information generated from this study will be used to inform a comprehensive land use planning process that is proposed in this plan.

Tourism Development and Management Programme

The tourism development and management programme sets out objectives and actions that AE management will implement to maintain Amboseli as a leading tourism destination in the country. In implementing these actions and related activities AE management hopes to realize sustainable tourism development in the ecosystem by increasing the socio-economic benefits that accrue to the stakeholders and ensuring that negative tourism impacts are mitigated The objectives of the Tourism programme focus on minimizing adverse impacts of tourism, enhancing equity in sharing benefits accruing from tourism, enhancing visitor satisfaction by improving and diversifying the tourism product, and marketing the tourism resources in the AE. Key actions to be implemented under this programme include measures to control and regulate infrastructure development in the ecosystem to avert blockage of wildlife corridors and overcrowding by tourist facilities, and establishment of a Visitor Center to increase visitor appreciation of the ecosystem values.

Community Partnership & Education Programme

Three things stand out as key in conservation of wildlife in community owned land in Amboseli ecosystem i.e. increasing community participation in decision making to create an environment for sound land use planning; creating economic incentives for conserving wildlife; and reducing the cost of living with wildlife through implementing prudent measures to manage the escalating human-wildlife conflict.

The aim of the Community Partnership and Education Programme is therefore to push for sustainable conservation of community land. In particular, the programme has six objectives that seek to address issues of land use planning, human-wildlife conflicts (HWC), environmental education, livestock improvement and increasing benefits accruing from natural resource management and use. Key management actions that will be implemented under this programme include supporting establishment of community wildlife conservation areas in the group ranches to safeguard wildlife corridors, rehabilitating and maintaining wildlife barriers, expanding the conflict consolation scheme to cover the entire ecosystem, improving livestock breeds, and establishing a Maasai Cultural Museum in Mbirikani Group ranch.

Security Programme

Traditionally, AE has not had serious security threats. AE management is however on the alert to ensure that bush meat poaching does not escalate and trophy poaching remains insignificant in the ecosystem. The low security threats notwithstanding, the safety of wildlife, visitors and property remains an important management issue. To enhance security in the wildlife-tourism sector, KWS has adopted several strategies some of which have involved expanding the intelligence network and anti-poaching operations to ensure that wildlife crime is prevented.

Collaboration with the local communities, local security agents and Tanzanian wildlife authorities in intelligence gathering has been very helpful in bringing down wildlife crime. Involvement of Game Scouts in wildlife security, through the Amboseli Game Scouts Association, has complemented KWS security work immensely leading to improved wildlife security in the AE. These stakeholder collaborations will be strengthened through the Security programme.

The Security Programme will be implemented through three objectives that focus on enhancing security operations for the protection of AE's wildlife resources, improving the effectiveness of resource protection, and enhancing security of visitors, staff, revenue and KWS assets. The key management actions include deploying adequate security staff to the AE, and equipping and training the security staff.

Ecosystem Operations Programme

The Ecosystem Operations Programme is geared towards improving service delivery by KWS staff and conservation partners within and outside Amboseli National Park. The AE management challenges can only be achieved through a rationalized process that promotes active engagement and partnership between KWS, landowners and other key stakeholders in the ecosystem. The programme targets the stakeholders, AE staff, and management infrastructure.

The management objectives designed to address operational challenges in the AE focus on strengthening institutional collaborations, improving AE Staff welfare and performance, and enhancing AE Management infrastructure. Key management actions that will be implemented under this programme include establishment of Amboseli Ecosystem Trust to facilitate implementation of the plan, rehabilitation of the Amboseli water supply system, and collaboration with AE stakeholders to connect key AE facilities to the Loitokitok-Kimana mains electricity grid, and construction and rehabilitation of residential and non-residential buildings.

Plan Monitoring

The plan monitoring section provides guidance for the assessment of the potential impacts resulting from the implementation of each of the five management programmes. The plan monitoring framework sets out the desired positive impact of each programme's objectives, as well as any potential negative impacts that may possibly occur. The framework also includes easily measurable and quantifiable indicators for assessing these impacts, and potential sources of the information needed.

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Acronyms

ABR	Amboseli Biosphere Reserve
ACC	African Conservation Centre
AE	Amboseli Ecosystem
AERP	Amboseli Elephant Research Project
ANP	Amboseli National Park
ARCP	Amboseli Conservation Research Project
ASAL	Arid and Semi-Arid Lands
ATE	Amboseli Trust for Elephants
ATGRCA	Amboseli/Tsavo Group Ranches Conservation Association
ATGSA	Amboseli/Tsavo Game Scouts Association
AWF	African Wildlife Foundation
BoT	KWS Board of Trustees
CAP	TNC's Conservation Action Planning methodology
CITES	Convention on International Trade in Endangered Species
CPT	Core Planning Team
CWO	Community Wildlife Officer
CWS	Community Wildlife Service
DFZ	Disease Free Zone
DLMC	District Livestock Marketing Counci;
DRSRS	Department of Resource Survey and Remote Sensing
DSC	District Security Committee
ERV	Exceptional Resource Value
GIS	Geographical Information Systems
GPS	Global Positioning System
GR	Group Ranch
HWC	Human-Wildlife Conflict
IUCN	International Union for Conservation of Nature
KEA	Key Ecological Attribute (of conservation target)
KILOA	Kimana Land Owners Association
KMC	Kenya Meat Commission
KWS	Kenya Wildlife Service
MLD	Ministry of Livestock Development
MLs	Ministry of Lands
NEMA	National Environment Management Authority
NGO	Non Governmental Organisation
NMK	National Museums of Kenya
OCC	Ol Kejuado County Council
OIE	Office International des Epizooties (The World Organisation for Animal Health)
PA	Protected area
PAC	Problem Animal Control
PAPF	KWS Protected Areas Planning Framework
PP	Physical Planner
SFS	School for Field Studies
SPS	Sanitary and Phytosanitary Measures
SRS	Senior Research Scientist
SW	Senior Warden
TNC	The Nature Conservancy
WCMD	Wildlife Conservation and Management Department
WRMA	Water Resources Management Authority
WS	Warden Security
WTO	World Trade Organization

Plan Foundations

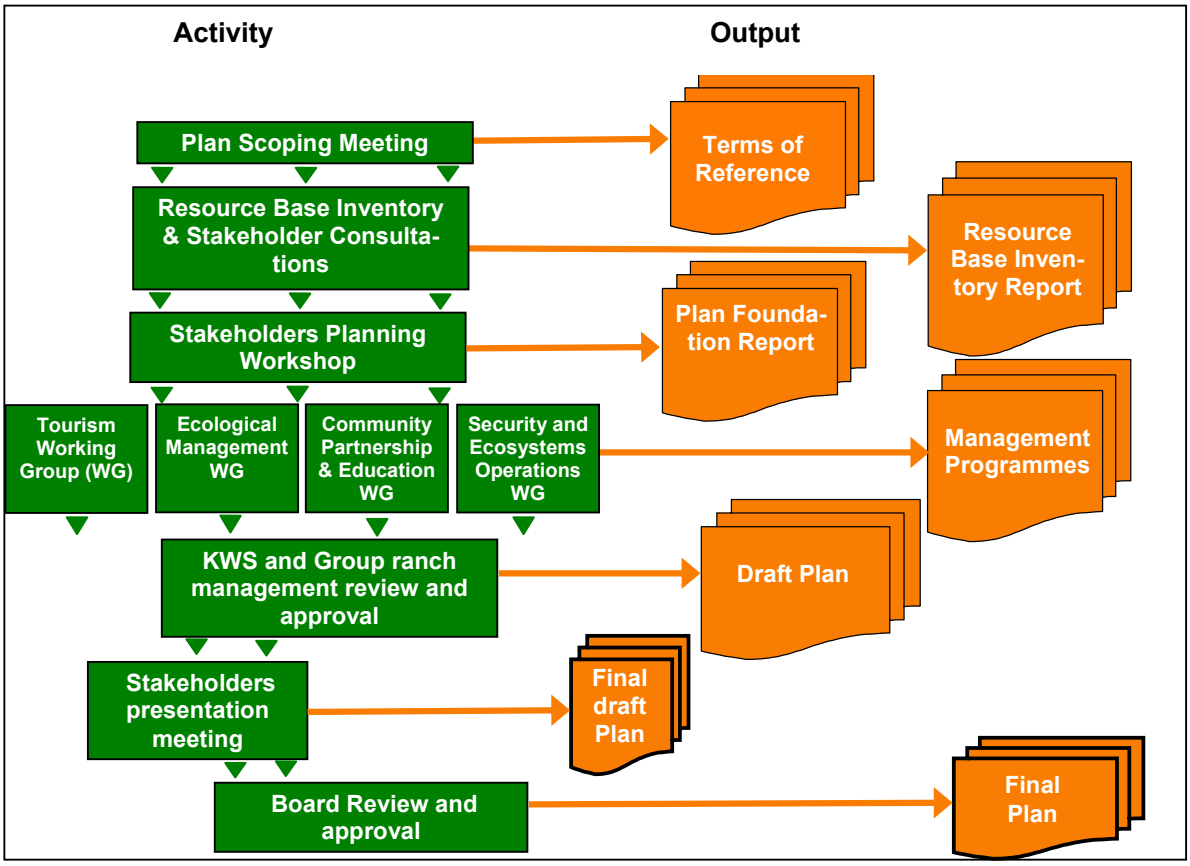
The Plan

This 10-year (2008-2018) management plan for the Amboseli Ecosystem (AE) has been developed through a collaborative effort involving a wide array of stakeholders including Kenya Wildlife Service (KWS), Amboseli/Tsavo Group Ranch Conservation Association (ATGRCA), African Wildlife Foundation (AWF), African Conservation Center (ACC), Amboseli Trust for Elephants (ATE) and the Oloitokitok/Kajiado District administration (see Annex 1). The planning process was initiated in November 2004 as a follow up to the recommendations of the Amboseli Stakeholders Workshop held in February 2004, which among other things created several task forces aimed at addressing natural resource management issues related to the ecosystem, among them, management planning. The need to prepare a management plan for the AE is based on the appreciation that this globally important dry land pastoralist/wildlife ecosystem, like many ecosystems in the world, is under extreme stress due to several interacting human induced and natural pressures that either have begun to, or could if not properly managed, result in: deterioration and loss of biodiversity; deterioration and decline of grazing resources; depletion and pollution of water; and unsustainable use of other resources.

The main causes of the continuing deterioration of the ecosystem's integrity have been attributed to increase in human population and settlements, failure in local governance, overstocking, marginal farming that is destroying the only permanent wetlands, fencing of vital wildlife corridors, sub-division of the group ranches and increasing game meat poaching. This scenario has generated competition and conflict among the people, livestock and wildlife and threatens their future. The challenge therefore is how to create, implement and manage a sustainable future for the Amboseli Ecosystem itself - its habitats, its human inhabitants and its livestock and wildlife habitats. This then is the essence of this general management plan.

In order to address ecosystem management issues comprehensively, the planning process adopted a participatory approach in which all the key stakeholders were involved through workshops and individual consultations (Figure 1). Several expert studies aimed at shedding light on management issues pertaining to the ecology of the ecosystem, infrastructure development and maintenance, leases relating to community facilities, transboundary collaboration, and tourism development, were also carried out.

Figure 1. Amboseli Ecosystem Management Planning Process and Key Planning Outputs



Rationale for the Management Plan

The previous management plan for the AE covered the period 1991-1996. The plan mainly focused on the management of the Amboseli National Park, but it also recognized the dependence of the park on the larger dispersal area. In recognizing this interdependence, the management plan defined a strategy whose aim was to win cooperation and participation of the park adjacent landowners. The plan implementation strategy, however, failed to put in place a sustainable resource management structure to secure the ecological integrity of the park and critical wildlife dispersal areas. As a result, the Amboseli National Park and the wider Amboseli Ecosystem have continued to face many threats, both internal and external. The aim of this management plan is therefore to define the principles and strategies for creating, implementing and managing a sustainable future for the Amboseli Ecosystem by addressing wildlife conservation and management issues in the entire ecosystem.

Plan functions

Conservation effort in the Amboseli ecosystem aims at maintaining ecosystem integrity and enhancing the ecosystem's benefits to the local community in view of increasing environmental threats facing the local Maasai community, their livestock and wildlife. Evidence gathered over many years shows that Amboseli National Park and, to a lesser extent the larger ecosystem, is already under severe threat and has lost much of its diversity. The

planning strategy for the ecosystem therefore adopts a holistic management planning and implementation strategy that embodies the principles of Ecosystem Approach. The overall purpose of this management plan is therefore to provide guidelines and direction for mitigating the ecosystem threats through the development of innovative and proactive ecosystem management strategies that are integrated with compatible community based resource management strategies to reduce resource degradation and provide sustainable livelihoods.

However, despite the plan being strategic in its approach to management issues in the ecosystem, it is also designed to be a practical management tool to support Amboseli managers, in the wildlife sector, in carrying out their duties. The plan achieves this aim by providing a series management actions and day-to-day management activities that need to be implemented in order to achieve the objectives of the plan.

Plan structure

The management plan is divided into five main sections i.e. plan foundations, AE zonation scheme, the five management programmes, and plan monitoring.

- **Plan Foundations**. This chapter gives a brief introduction to the planning process, and describes the plan's functions, structure and stakeholder participation mechanisms. The chapter also provides an introduction to the AE, its location, its management units, and exceptional resource values. It sets out the AE's Purpose Statement, which explains the significance of the ecosystem which the plan aims to maintain.

- **AE Zonation Scheme.** This section sets out areas of the AE where different types of land uses are expected to be carried out during the plan period. It also provides a visitor use zoning scheme which defines the geographic areas where various types of tourist accommodation facilities and tourist activities are permitted.

- **The five management programmes.** The main bulk of the plan is divided into five management programmes:

    - **Ecological Management Programme**
    - **Tourism Development and Management Programme**
    - **Community Partnership and Education Programme**
    - **Security Programme**
    - **Ecosystem Operations Programme**

Each programme includes a programme purpose statement, which sets out the overall goal to which management under this programme is working towards, and a strategy describing the principles underlying the management approach pursued through the programme. Each programme also contains management objectives that set out the goals that AE management aims to achieve, and a set of specific management actions to achieve these goals. In order to facilitate plan implementation, management programmes have been aligned with the KWS organizational structure.

Each of the management programmes has a 3-year Activity Plan, which breaks down the individual management actions into day-to-day management activities that will be implemented in the first three years of the plan period. The 3-year activity plan also specifies individuals and organizations that will be responsible for implementing specific activities and sets milestones for each management action to facilitate plan monitoring. It is expected that AE managers will in future be drawing their Annual work Plans from these 3-year activity plans ensuring that the plan's vision is realized.

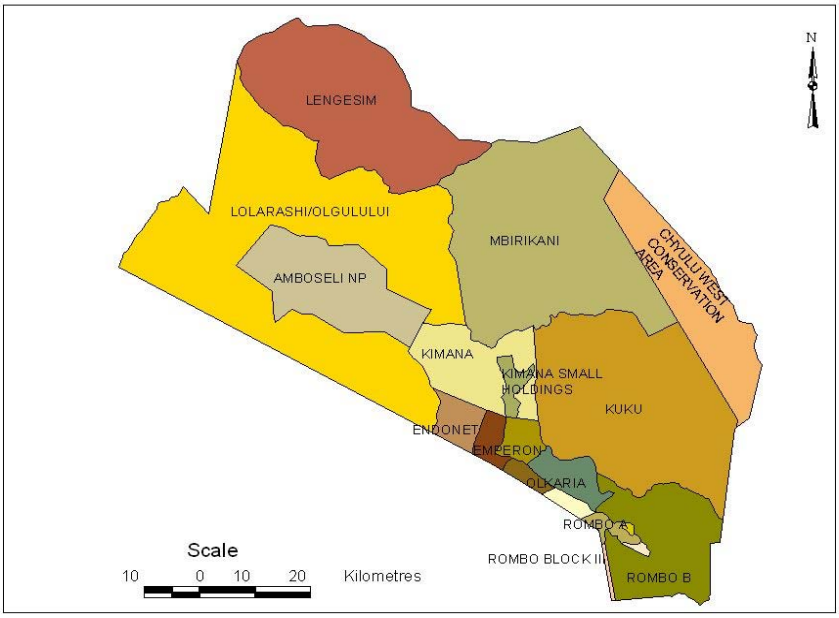
- The **plan monitoring** framework provides guidance to enable the assessment of the potential impacts resulting from the implementation of each of the five management programmes. The framework sets out the desired impact of each programme's objectives and/or sub-objectives, and any potential negative impacts that may occur. The framework also includes easily measurable and quantifiable indicators for assessing these impacts, and potential sources of the information required.

The Amboseli Ecosystem

Area description

The Amboseli ecosystem covers an area of approximately 5,700 Km² stretching between Mt. Kilimanjaro, Chyulu Hills, Tsavo West National Park and the Kenya/Tanzania border. The area is generally arid to semi-arid with a very small variation in its agro-ecological zones and is more suitable for pastoralism rather than cultivation with a high potential for conservation of wildlife and tourism enterprises. Administratively, the Amboseli ecosystem consists of Amboseli National Park and the surrounding six group ranches. The six group ranches namely; Kimana/Tikondo, Olgulului/Olararashi, Selengei, Mbirikani, Kuku, and Rombo and cover an area of about 506,329 hectares in Loitokitok District (see figure 2). It also includes the former 48 individual ranches located at the foot slope of Kilimanjaro that are now under crop production, mainly rain fed agriculture.

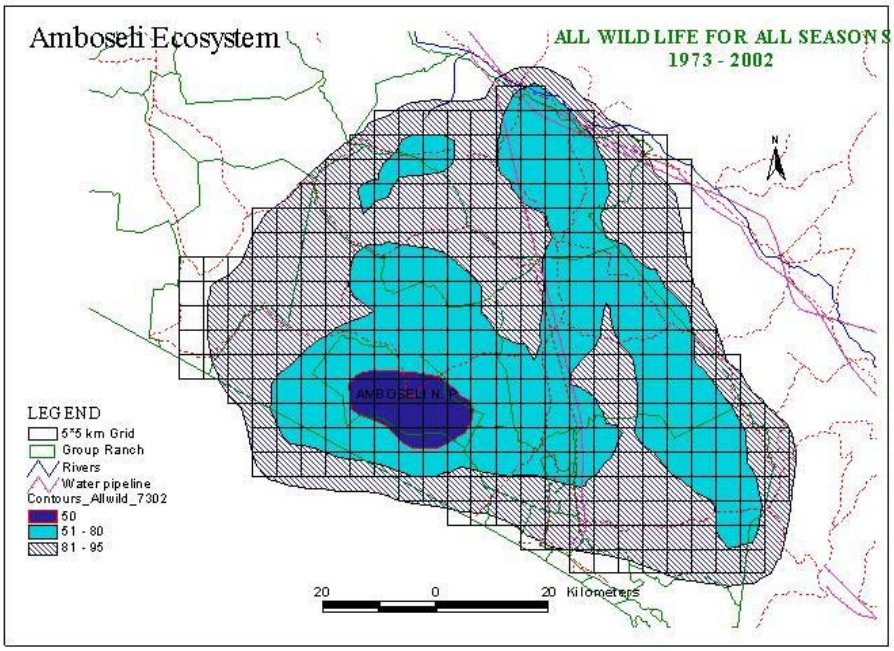
Figure 2. Amboseli Ecosystem Components



The ecological extent of the Amboseli Ecosystem is delineated by the extent of animal movements as represented by a wildlife occupancy map generated by Amboseli Research and Conservation Project (ARCP) from the consolidated population distribution of all species

and all seasons between 1973 and 2002 (Figure 3). The wildlife occupancy map gives a good statistical measure of the areas essential for maintaining the migratory species over extremes of climate over the last three decades. The area delineated is the minimum area that should be conserved to maintain a good representation of all elements of (natural) biodiversity in the ecosystem maintaining the capacity for its ecological components to regenerate naturally.

Figure 3. The Amboseli ecosystem as defined by the extent of wildlife movement[1]



[1] Data source: Western, 2005

Amboseli Ecosystem Purpose Statement

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

The purpose of the Amboseli Ecosystem is:

To maintain AE's ecosystem diversity and resilience, conserve the ecosystem's threatened species and habitats, and especially the charismatic elephants and expansive swamps, and promote sustainable development of the ecosystem for the benefit of the present and future generations

AE's supplementary purpose statements are:

- ***To maintain wildlife migrations essential for sustaining large herds and their resilience in the face of rainfall patchiness, disease and predation***
- ***To promote partnerships with the local communities in the ecosystem by enhancing benefits derived from sound management of natural resources***
- ***To promote sustainable tourism in the ecosystem***
- ***To provide research and conservation educational opportunities***

The development of the above Purpose Statement was based on the AE's Exceptional Resource Values (ERVs). These ERVs are discussed and elaborated in the following section.

Amboseli Ecosystem Exception Resource Values

The ERV's for the Amboseli Ecosystem describe the ecosystem's key natural resources and other features that offer outstanding benefits to local, national and international stakeholders. ERV's are important for maintaining the ecosystem's uniqueness and they are the values that are critical to maintenance of the ecosystem's integrity. The ERVs are categorized as: Biodiversity, scenic, cultural and cultural (Table 1).

Table 1. Amboseli Ecosystem Exceptional Resource Values

Category	*Exceptional Resource Value*
Biodiversity	▸ Habitat diversity
	▸ Landscape diversity
	▸ Amboseli elephants
	▸ Array of ungulates
	▸ Rich birdlife
	▸ Diverse carnivores

Category	*Exceptional Resource Value*
Scenic	▸ Mount Kilimanjaro
Cultural	▸ Authentic Maasai culture
	▸ Rich history
	▸ Cultural sites of local importance
	▸ Historical sites
Social	▸ Long term research programs
	▸ Traditional pastoralism
	▸ Amboseli as a Biosphere Reserve
	▸ Community wildlife conservation initiatives

Biodiversity Values

Habitat diversity

The Amboseli ecosystem falls under the Chyulu/Kilimanjaro volcanic natural region which is an Acacia dominated dry woodland savannah. This vegetation type supports the pastoralist lifestyle of the local Maasai and a wide array of savannah wildlife species, the cornerstone of tourism in the ecosystem.

The bigger part of the Amboseli ecosystem is semi-arid. Nevertheless, water springs associated with Mt. Kilimanjaro emanate at the basin of the ecosystem and give rise to several swamps which are critical to maintaining wildlife in the ecosystem. The high primary productivity of the swamps is able to sustain a vast array of wildlife species in a semi-arid environment and contributes to the high biodiversity and tourism value of the ecosystem.

Landscape diversity

Amboseli, means "Salty Dust" in the Maasai language. The 'salty dust' is volcanic ash from Mount Kilimanjaro eruptions a millennium ago. The dry, arid plains covered by this dust form heat wave mirages common in the dry season. In this arid landscape belies an endless water supply from Kilimanjaro ice caps. This water erupts as the springs that feed the expansive swamps, the lifeline of both wildlife conservation and pastoralism in the ecosystem.

Outside Amboseli National Park are a number of geomorphologic features that stand out and are of tourism interest. These include Mount Kilimanjaro, Chyulu, Losoito, Lemipoti, Ilng'arunyoni, and Lemomo among others. In Amboseli National Park, the Observation and Ilmerisheri hills are of special interest. The Observation hill is the highest point in the Park and is commonly used by tourists as a picnic site. One is able to get a synoptic view of the Amboseli National Park from the top of Observation Hill.

Amboseli elephants

Amboseli ecosystem has an elephant population of about 1400 individuals. These elephants have been a major driving force in the ecology of the Amboseli Ecosystem and are closely associated with habitat changes in the Amboseli National Park. The elephants have been the subject of one of the longest elephant studies in Africa and as a result of the long and close interaction with researchers, the elephants are approachable giving visitors excellent opportunities for watching them at close range. They further attract a lot of interest from wildlife researchers.

Array of ungulates

Though Amboseli ecosystem is a semi arid environment, it supports a wide range of ungulates, which in turn support carnivores such as lion, leopard, cheetah, hyena, jackals, civets, and serval cats. This agglomeration of ungulates makes Amboseli an important wildlife conservation area in Kenya. The ungulates habitat utilization pattern is similar to that of the Maasai livestock and thus, Amboseli Ecosystem is a test case of how wildlife conservation and pastoralism can coexist.

Rich birdlife

Amboseli National Park is one of the 60 Important Bird Areas (IBAs) in Kenya and thus it is recognized as globally significant for bird conservation. The ecosystem has a rich birdlife, with over 400 species recorded, of which 40 are birds of prey. It has globally threatened bird species (e.g. Lesser Kestrel), restricted-range birds that are found only in a very small area such as the Taveta golden weaver, bird species that live only in a particular vegetation type such as the Grosbeak weaver, and regionally threatened bird species such as Martial eagles. The bird life in Amboseli is diverse due to the varying habitats. In October-December when the rains are on or about, the local birds are joined by migrants such as European storks from the Northern hemisphere, sometimes in fairly large numbers, and bird watching around the swamps and seasonal lakes can be a very rewarding venture.

Diverse carnivores

Most of the carnivore species, including leopard, lion, cheetah, and caracal, hyena, and serval cat can be seen easily in the Amboseli Ecosystem. These carnivores rank high as a tourist attraction in the Park and adjacent areas. They also play a significant role in controlling the herbivore populations.

Scenic Values

Mount Kilimanjaro

Mount Kilimanjaro, the highest mountain in Africa, lies on the Kenya-Tanzania border. It has three scenic peaks, Shira, Kibo and Mawenzi. The mountain is very popular with both local and international mountain climbers. Since the best views of the mountain can be enjoyed from the Amboseli ecosystem, the mountain is among the key tourist attractions in the area.

Cultural Values

Authentic Maasai culture

What makes the Maasai culture famous is the fact that the culture has remained largely unchanged in the midst of western influence. The traditionally semi – nomadic Maasai tribe has held on to their culture. Their largely livestock grazing lifestyle has been important in conserving wildlife resources in the Amboseli Ecosystem.

Rich history

Mount Kilimanjaro: The Amboseli-Kilimanjaro ecosystem boasts of a rich history. The Wachagga people of Tanzania talk of Mawenzi receiving fire for its pipe from his younger brother Kibo. Another of their legends talks of demons and evil spirits living on the mountain and guarding immense treasures. Arab and Chinese traders and historians tell of a giant mountain lying inland from Mombasa. Slave traders passed below it and sometimes raided the villages of the Wachagga but it was not till the middle of the 19th century that a more serious interest was taken in the mountain and attempts were made to scale it. In 1848 Johann Rebmann, a missionary from Gerlingen in Germany, while crossing the plains of Tsavo, saw Mount Kilimanjaro. Rebmann's report stimulated great interest in Germany and in the following years several expeditions were organized.

Swamps: The perennial swamps in the ecosystem acted as a gathering point for slave traders on the Kilimanjaro slave route, which started from Nairobi area passing through Amboseli and Rombo then to Mombasa.

Cultural sites of local importance

Although many of the cultural and sacred sites are not well documented in the Amboseli Ecosystem, there is rich history that needs to be well understood and protected. These include areas used by the Maasai for various cultural ceremonies such as circumcision. Other cultural sites include the Maasai Moran Manyattas, and the Chyulu caves.

Social Values

Long term research programs

The Amboseli Baboon Project: The Project was started in 1963 and it focuses on baboon research at the individual, group, and population levels. Since the early 1960s, more than 50 researchers have carried out investigations on various aspects of baboon ecology including population ecology, social behavior, development, individual-based life histories, male dominance and reproduction, aging, foraging, impacts of changing ecological conditions, genetic population structure, and physiology.

Amboseli Research and Conservation Project (ARCP): The ARCP was started in 1967 and centers on providing long-term data on the structure, dynamics and changes of the Amboseli ecosystem and technical support for its conservation. ARCP has been involved in many aspects of conservation in the Amboseli ecosystem. It is credited with providing the natural resource inventory and ecological information that was used to support the establishment of Amboseli National Park and it also prepared the initial Park development plans.

Amboseli Elephant Research Project (AERP): This project started in 1972 and hence makes the Amboseli elephants one of the most studied non confined elephants in the world. The AERP has generated a wealth of knowledge of the elephants making the Amboseli elephants one of the most famous wild elephants in the world, attracting large numbers of both local and the foreign tourists to Amboseli ecosystem.

Amboseli as a Biosphere Reserve

Amboseli ecosystem is a member of the global network of biosphere reserves which are areas of terrestrial and coastal/marine ecosystems or a combination thereof, which are internationally recognized within the framework of UNESCO's programme on Man and the Biosphere (MAB). They are nominated by governments to promote solutions to reconcile conservation and sustainable use.

Amboseli ecosystem was listed as a biosphere reserve in 1991 becoming the fifth biosphere reserve[2] in Kenya. The core area of the reserve is the protected Amboseli National Park while the buffer zone comprises of the six group ranches, Olgulului/Olorarashi, Eselengei, Mbirikani, Kimana, Kuku, and Rombo.

Traditional pastoralism

Pastoralism of the semi-nomadic, transhumant variety has been the land use of choice for hundreds of years in the Amboseli ecosystem. Emerging land use activities in the ecosystem, whether agriculture- or wildlife-based, have to compete not only economically, but culturally and spiritually with pastoralism.

Community wildlife conservation initiatives

Amboseli/Tsavo Group Ranch Conservation Association (ATGRCA): The Amboseli-Tsavo Group Ranch Conservation Association (ATGRCA) was established in 1997 to provide a platform for Group Ranch representatives to coordinate conservation activities that impact across Group Ranch boundaries. It is credited with the establishment of the Amboseli-Tsavo Game Scouts Association (ATGSA).

Amboseli/Tsavo Game Scouts Association: The Amboseli-Tsavo Game Scouts Association (ATGSA) is an umbrella body that coordinates all the game scout activities in the ecosystem. It was formed originally under the auspices of ATGRCA (with the purpose of enhancing wildlife conservation and management in the group ranches. Community game scouts are natural resource managers based at the village level that are involved in day-to-day management of wildlife in the group ranches.

Key Threats to Viability of the Amboseli Ecosystem and the integrity of its ERVs

This section provides the major threats to the viability of Amboseli ecosystem which formed the basis for the planning and management guiding principles adopted in this management plan. The threats are the human activities or processes that have caused, are causing or may cause the destruction, degradation and/or impairment of biodiversity and natural processes and therefore are the focus of conservation planning. In Amboseli ecosystem there are threats that are impacting on biodiversity within the ecosystem and others that are affecting interactions of the Ecosystem with other adjoining ecosystems. All these threats

[2] As of 2008, Kenya had six biosphere reserves. These are: Mt Kenya, Mt. Kulal, Malindi/Watamu Marine, Kiunga Marine, Amboseli and Mt. Elgon

and their underlying causes need to be countered by effective conservation actions if the ecosystem integrity is to be maintained.

A summary of the key threats is provided in tables 2 and 3 below, while Figure 4 shows the linkages in the Amboseli meta-ecosystem.

Table 2. Key threats to ecological connectivity in Amboseli ecosystem

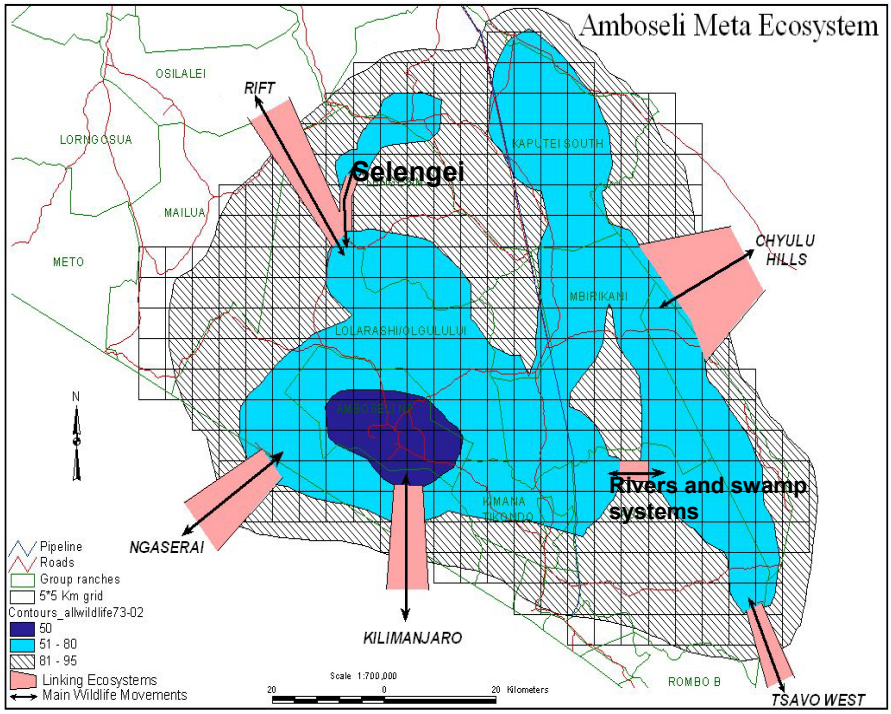
Threat	Location of threat	Impact
Farming, settlement and land subdivision	Dispersal areas south of Amboseli National Park	Wildlife corridors to and from the Kilimanjaro forest are being lost
Settlement	Loitokitok Pipeline	Migrations between Amboseli and Mbirikani dispersal areas as well as access to the Chyulu Hills are being curtailed
Subdivision, crop farms and fences	Namelok and Kimana	Wildlife and especially elephant movements to and from Amboseli are being curtailed
Farming and irrigation	Kimana and Lenker Swamps	Swamps critical to livestock and wildlife populations on Kimana, Kuku and Mbirikani Group Ranches are being eliminated. Also wildlife sanctuaries and tourism facilities on all three ranches are also threatened by the loss of both swamps.
Unplanned tourism development	Kimana individual plots	Wildlife and especially elephant movements to and from Amboseli are being curtailed

Table 3. Key threats to ecological connectivity between Amboseli ecosystem and adjoining ecosystems

Threat	Location of threat	Impact
loss of forest cover on the upper Chyulus, as well as farming and settlement on the lower slopes	Chyulu Hills	Ecological link with the Amboseli ecosystem is being severed.
Settlement and farms along the corridor at the base of the Chyulus	Tsavo West	Wildlife movements that connect Tsavo West to Amboseli through Kuku and Mbirikani Group Ranches are being severed
Subdivision and settlement	Selengei	The link between the Amboseli and Eastern Kaputei populations of migratory herbivores is being severed
Farming and fencing	Kilimanjaro	The last remaining link in the ecological gradient running down the northern face of Kilimanjaro to Amboseli as well as an elephant and ungulate corridor between the mountain forest and lowlands is being severed
Loss of water down the Ngaserai furrow	Ngaserai	There is a slump in dry season wildlife numbers, reducing the flow of animals to and from Amboseli
Land subdivision in Matapato	Rift Valley	Wildlife movements, especially elephants, west to the rift valley is being

Threat	Location of threat	Impact
		severed
Water off take from the rivers and swamps fed by the Chyulus and Kilimanjaro	Rivers and swamp systems	Drought refuge vital for livestock and wildlife in the Amboseli meta-ecosystem is being lost and habitat diversity created in large part by gravitational water flow from Chyulus and Kilimanjaro is being degraded.

Figure 4. The major interlinkages between Amboseli Ecosystem and adjoining ecosystems[3]



[3] Data source: Western, 2005

AE Zonation Scheme

Introduction

The overall goal of zoning in the Amboseli ecosystem is to separate conflicting land uses while at the same time providing a conducive environment for investment in other land use options that are socially and economically acceptable to land users. Inside the Park, zoning aims at providing areas that are excellent for wildlife viewing and areas that can provide solitude. Outside the park, zoning aims at separating conflicting land uses such as agriculture and conservation. It also aims at providing adequate space for pastoralism-tourism land use mix in areas that are not suitable for arable agriculture. To achieve these aims, the ecosystem is divided into three broad land use zones and three visitor use zones. The principles that have guided the zonation are given in box 1, while details on the zonation scheme are set out in the following sections.

Box 1. Zonation guiding principles

The following are the underlying principles of zonation for Amboseli Ecosystem

- Separation of incompatible land uses
- Maintaining ecosystem connectivity
- Providing diverse types of tourism experience
- Reducing tourism pressure on Amboseli National Park

Land Use Zones

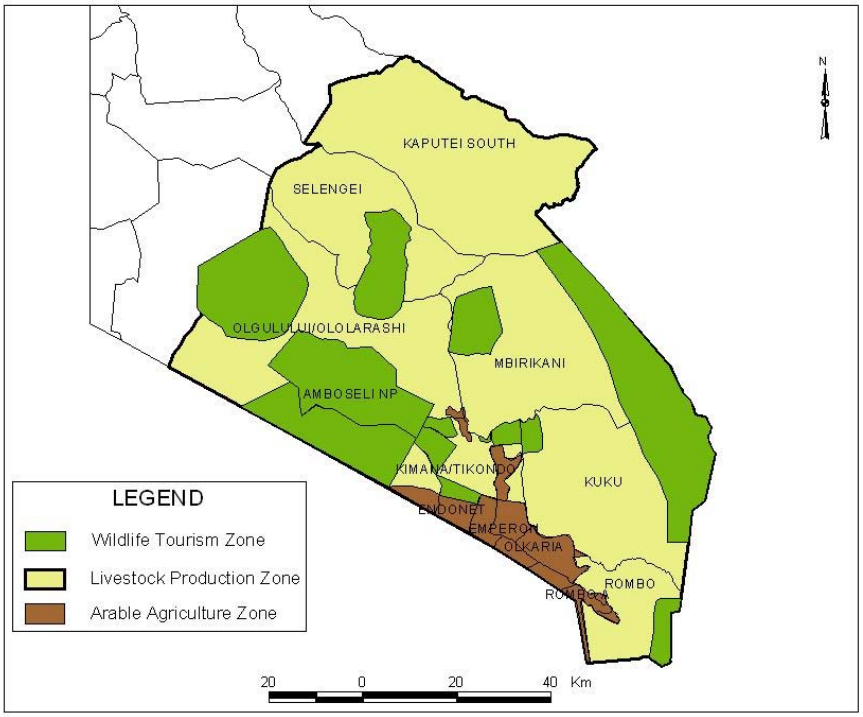
It is acknowledged that land users in the ecosystem will only adopt or invest in a particular land use depending on the extent to which they feel the land use is beneficial to them, either as individuals or as a community. As such, based on environmental and socio-economic considerations, the ecosystem has been divided into three broad zones, arable agriculture, livestock production, and wildlife tourism.

Arable agriculture zone comprises of the individually owned land at the foot slopes of Kilimanjaro and the irrigation schemes in the ecosystem where crop production is the best land use option as water is not a limiting factor. In this zone, returns from crop farming are comparatively higher than returns from other competing uses such as pastoralism and tourism. Wildlife tourism zone comprises of the Amboseli National Park and both the existing and proposed wildlife concession areas. This zone is characterized by high densities of wildlife which makes wildlife tourism based on viewing a preferred land use option. The zone also falls in areas where the mean annual rainfall is about 400mm which does not favour arable farming. The rest of the ecosystem is categorised as livestock production zone to facilitate traditional pastoralism which is the mainstay of the local community in the ecosystem. A summary of the zone description is given in table 4 while figure 5 shows the land use zoning scheme.

Table 4. AE Land Use Zones

Land Use Zone	Land Use Objective	Zone Description
Wildlife tourism	Wildlife conservation and tourism	Includes Amboseli National Park and the existing and proposed community wildlife concession areas
Livestock production	Livestock production through pastoralism	Includes all the area in the ecosystem that is neither under agriculture or conservation land
Arable agriculture	Agricultural production through rain fed and irrigated agriculture	Includes all the irrigation schemes and the arable strip of land at the foot slope of Kilimanjaro

Figure 5. Amboseli Ecosystem Land Use Zones



Visitor Use Zones

The value of the visitor use zoning to tourism land use planning is that it identifies areas that are environmentally and ecologically suitable for different types of tourism development based on the naturalness of the area and the spatial distribution patterns of existing land uses and infrastructure. Tourism products can then be developed that conform with existing land uses and infrastructure, changing the underlying land use patterns only when the land use change is advantageous to the land users. This is especially critical with tourism planning in and around ANP, where there are many conflicting land uses.

The AE visitor use zonation scheme provides a framework aimed at regulation and promotion of visitor use across the ecosystem. To achieve this, the ecosystem has been divided into three zones (High Use Zone (HUZ), Exclusive Use Zone (EUZ) and Low Use Zone (LUZ)) each of which provides unique visitor products and is best suited to a particular type of tourism and level of use (see Figure 6). The visitor use zones have also been aligned with the land use zones, hence conflicts that arise between the needs of tourism and other major land uses such as pastoralism, conservation and agriculture are minimised gaining the much needed local support for conservation.

The following descriptions of the three zones help show how it is possible to develop sustainable tourism in the entire ecosystem through effective resource planning. The distribution of existing visitor facilities in the AE is given in figure 7.

Figure 6. AE visitor use zones

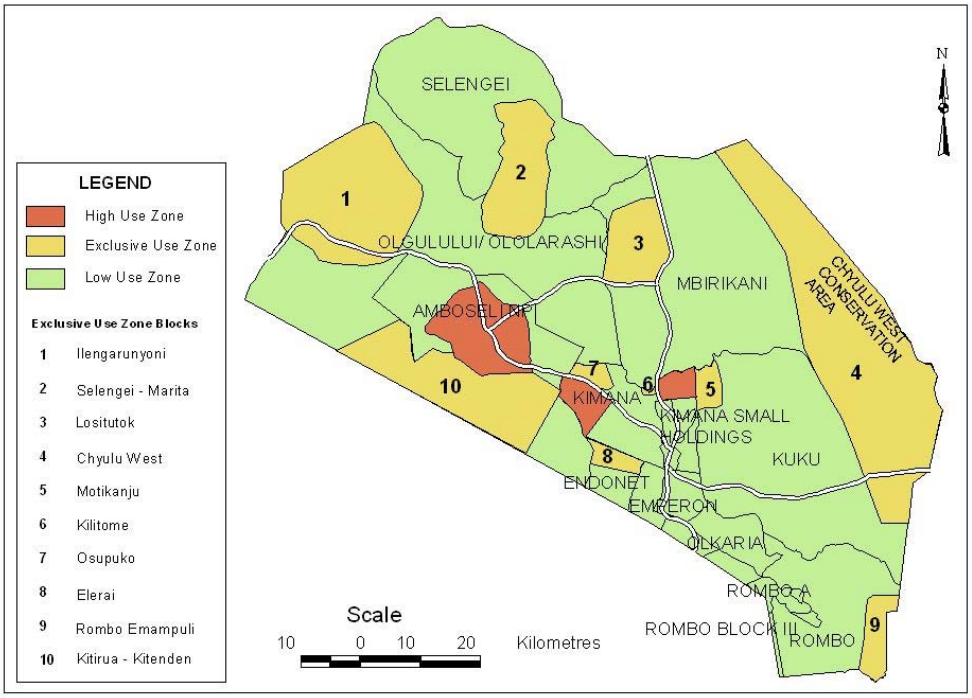
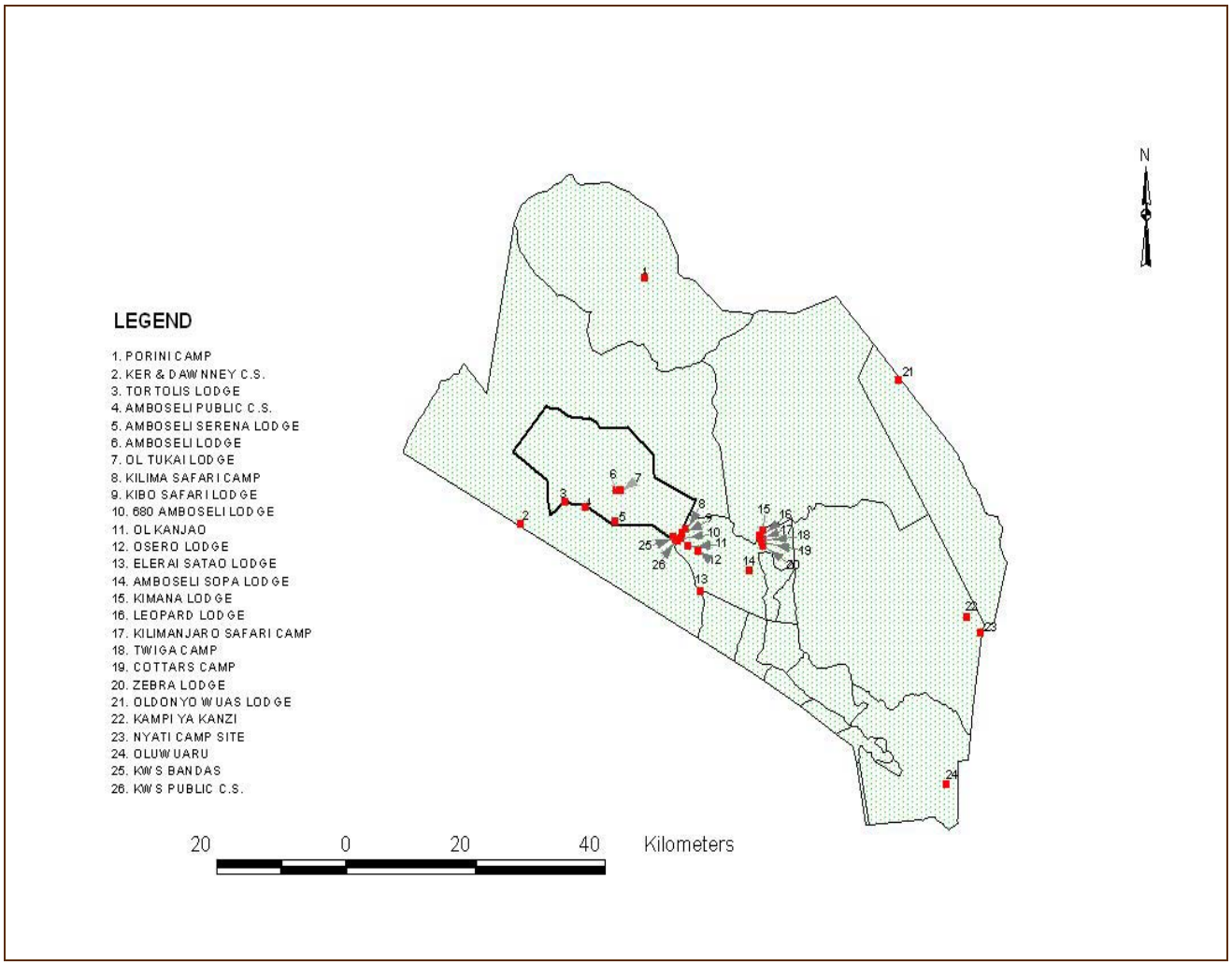


Figure 7. Existing Visitor Accommodation facilities in the Amboseli Ecosystem



High Use Zone

The High Use Zone (HUZ) caters for large volumes of tourists in a naturally scenic though substantially human altered environment. Tourism in this Zone is closely linked to motorized transportation on viewing roads. Tourism infrastructure is highly developed with high densities of viewing roads and tourist beds. Tourism activities in this zone are mainly based on wildlife viewing as the zone coincides with the sections of the ecosystem that have high wildlife concentrations all year round, and hence highly suitable for wildlife viewing from vehicles.

This zone has three separate sub-zones, one in Amboseli National Park and the other two in the subdivided Kimana Group Ranch. These sub-zones are described in the following sections.

ANP High Use Zone

The Park's HUZ zone covers about 25% of the total park area, occupying mainly the central and southern sections of the park. This area comprises the three expansive swamps, Longinye, Ol tukai Orok and Enkongo Narok, the lifeline of Amboseli's wildlife. The zone also includes the Ol Tukai enclave at the center of the Park, which unlike the rest of the Park, is trustland. All the tourist lodges in the park are found in this zone (see table 5). Other physical features of tourist interest include the Observation Hill, the highest point in the Park.

Table 5. Accommodation prescriptions for Amboseli NP HUZ

Status	*Facility Name*	*Type*	*No. of Beds*
Existing	Amboseli Serena	Lodge	182
	Ol Tukai	Lodge	170
	Amboseli Lodge	Lodge	240
	Kilimanjaro Safari Camp	Lodge(derelict)	160
	Community public camp-site	Bandas	18
Pro-posed	Additional accommodation facilities are not permitted in this zone		

Ol Kelunyiet High Use Zone

Outside the park, in Kimana Group Ranch, there are two areas, Ol Kelunyiet and Kimana Sanctuary, classified as HUZs. The Ol Kelunyiet HUZ is located to the western edge of the ranch and includes a small section of the Park where the ANP headquarters, KWS Bandas and KWS public campsite are located. The northern boundary of the zone is defined by the Amboseli-Loitokitok Road, while the eastern extent is marked by the Lemong'o springs. To the south, the zone boundary follows the Kimana-Olgulului/Olorarashi boundary. This zone is highly developed with eight tourist facilities already established here (see table 6).

*Table 6. **Accommodation prescriptions for Ol Kelunyiet HUZ***

Status	Facility Name	Type	No. of Beds
Existing	Osero house	Lodge	
	Kilima Safari Camp	Permanent Tented camp	120
	Kibo Safari Camp	Permanent Tented Camp	122
	Amboseli Centrim	Permanent Tented Camp	120
	ATGSA	Permanent Tented Camp	Not operational
	Ol Kanjao	Permanent Tented Camp	12
	Amboseli KWS Bandas	Banda	20
	KWS HQ	Public Campsite	
Proposed	Additional tourist accommodation facilities permitted but the investor has to purchase or lease a minimum of 300 Hectares for a lodge and 150 Hectares for an ecolodge or tented camp		

Kimana Sanctuary High Use Zone

The Kimana Sanctuary HUZ is located to the extreme northeast of Kimana Group ranch. The zone boundary follows the Kimana Sanctuary boundary. The zone has one tourist lodge and two tented camps in an area of 6000 Hectares (see table 7).

*Table 7. **Accommodation prescriptions for Kimana Sanctuary HUZ***

Status	Facility Name	Type	No. of Beds
Exist-ing	Kimana Leopard	Lodge	112
	Zebra camp	Permanent Tented Camp	38
	Twiga camp	Permanent Tented Camp	20
Pro-posed	Additional accommodation facilities are not permitted in this zone		

Summary of AE zonal activity and accommodation prescriptions

Given the high level of development of visitor facilities and high concentration of large mammals in this zone, which offers excellent opportunities for wildlife viewing, the zone will continue to have the highest level of tourism use in the Amboseli Ecosystem. However, in order to help ensure a quality experience, visitor activities in this zone will be restricted to game viewing from vehicles and guided nature walks at permanent accommodation facilities. No further development of tourist accommodation facilities will be allowed in the Park and Kimana Sanctuary HUZs as these two zones are currently saturated with beds. However, in order to gain more land for wildlife-tourism outside the Park, development of tourist facilities in the Ol Kelunyiet HUZ will be allowed. The minimum land parcel size for establishing such

facilities will however not be less than 600 Hectares for a lodge and 300 Hectares for ecolodges and permanent tented camps. The specific activities and facilities allowed in this zone are set out in Table 8 and 9.

*Table 8. **High Use Zone: Visitor activity prescriptions***

▸ **Game drives**
▸ **Night game drives**
▸ **Guided nature walks**
▸ **Bird watching**
▸ **Visit to cultural centers**

*Table 9. **High Use Zone: Permitted visitor facility categories***

Facility type	Maximum size
▸ Lodges	80
▸ Ecolodges	40
▸ Permanent tented camps	40
▸ KWS self help Bandas	20
▸ Student hostels	80
▸ Public campsite	20
▸ Special campsites	2

Exclusive Use Zone

This zone comprises the existing and proposed community wildlife conservation areas. The zone covers land primarily set aside for wildlife-tourism. This zone ensures that land in community lands is reserved for exclusive wildlife-tourism use which ensures that viable corridors and wildlife dispersal areas are maintained. However, mechanisms need to be put in place to ensure that land zoned for wildlife-based tourism is used exclusively for this purpose otherwise the value of the land gained from this status will be eroded threatening support from private sector investors and tour/safari operators.

The zone offers a high quality visitor experience to a small generally affluent clientele. The tourism experience emphasizes personal and small group interaction within a quiet natural landscape. It is a value-added tourism product with higher prices charged per visitor day. Preserving the naturalness of the zones and maintaining the exclusiveness, so that it retains its appeal to the targeted market segment is the key management goal of this zone. In order to encourage establishment of additional conservation areas and hence maintain ecosystem

connectivity, a wide variety of tourist activities and facilities are permitted in this zone (see table 11, 12 and 13 for details). However, to ensure that the conservation areas are large enough to accommodate viable wildlife populations the minimum contiguous land for establishment of a conservation area will be 2500 Hectares. Table 10 gives a summary of EUZ zoning blocks and their descriptions.

Table 10. EUZ zoning blocks

Block	*Description*
Ileng'arunyani	This conservancy consists of two contiguous, but administratively separate conservation areas. One part is in Olgulului/Olorarashi GR and the other is in the neighbouring Mailua GR. The key physical features in this conservation area are the Ilengarunyoni hills. The conservancy is being established by the two ranches.
Selengei-Kinyei(Marita)	The conservancy consists of the Selengei Conservation area in Selengei GR and the proposed Kinyei conservation area in Olgulului/Olorarashi GR. The Ol Kejuado river is the key physical feature in this conservancy.
Losikutok	This is a conservancy proposed for establishment of a Rhino sanctuary in Mbirikani GR. The key physical feature in this conservancy is Lemeipoti hill.
Chyulu West	The Chyulu West conservancy is located at the western footslopes of Chyulu Hills. It traverses both Mbirikani and KuKu group ranch. A key physical feature in this area is the Esoit pus swamp. Tourist facilities include Oldonyo Wuas ecolodge in Mbirikani GR, and Campi ya Kanzi in Kuku GR, which are found to the extreme north and south of the conservancy respectively.
Motikanju	Motikanju (also referred to as Kimana extension) is a conservancy that is being established at the north-western tip of Kuku GR. The conservancy borders Kimana wildlife sanctuary to the west and Mbirikani group ranch to the north.
Kilotome	Kilotome is a conservancy that is being established by individual land owners in the subdivided Kimana GR. The conservancy borders the Amboseli National Park to the west and Olgulului/Olorarashi GR to the north. To the south, the extent of the conservancy is marked by the Ol Kelunyiet gate – Oloitokitok road while the Namelok irrigation scheme marks the eastern extent.
Osupuko	Osupuko is another conservancy that is being established in the subdivided Kimana GR. The conservancy borders Mbirikani ranch to the north while to the east the boundary is defined by the Oloitokitok-Emali road
Elerai	Elerai conservancy is located at the foot slopes of Mt. Kilimanjaro within Entonet Location. The land is distinctively characterized by two prominent hills – Endonyo Entawua marking the northeast boundary with Kimana GR and Enoolarami, located somewhat centrally but towards the eastern boundary of the Elerai ranch.
Rombo Emampuli	This is a conservancy that is being established in Rombo GR along the Rombo-Tsavo West boundary. The seasonal Mokoine River passes through the proposed conservancy and also marks the northern border with Kuku Group Ranch.
Kitirua-Kitenden	This conservancy consists of the Kitirua concession area and the Kitenden elephant corridor. The two are contiguous and are located in the southern sector of Olgulului/Olorarashi GR. The southern boundary is marked by the Kenya-Tanzania border while the northern boundary follows the park boundary. A key physical feature in this area is the Lemomo hill.

*Table 11. **Accommodation prescriptions for Exclusive Use Zone***

Status	Facility Name	Type	No. of Beds	EUZ Block
Existing	Porini Safari Camp	Ecolodge	12	Selengei-Marita
	Oldonyo Wuas	Ecolodge	14	Chyulu West
	Campi ya Kanzi	Ecolodge	16	Chyulu West
	Elerai Satao	Ecolodge	8	Elerai
	Nyati Camp	Permanent Tented Camp	24	Chyulu West
	Tortilis Camp	Permanent Tented Camp	38	Kitirua-Kitenden
	Olowuara	Permanent Tented Camp		Rombo Emampuli
	Abercrombie & Kent	Special Campsite		Kitirua-kitenden
	Kimbla	Special Campsite		Kitirua-Kitenden
	Ker & Downey	Special Campsite		Kitirua-Kitenden
	Ol-Doinyo Wuas	Special Campsite		Chyulu West
Proposed	Ileng'arunyani(Mailua)	2 Ecolodges	48	Ileng'arunyani
	Ileng'arunyani(Olgulului)	Ecolodge	24	Ileng'arunyani
	Ol Kejuado Riv-er(Selengei)	Ecolodge	24	Selengei-Kinyei
	Kinyei (Olgulului)	Ecolodge	24	Selengei- Marita
	Motikanju	Ecolodge	24	Motikanju
	Kitenden	Ecolodge	24	Kitirua-Kitenden
	Osupuko	Ecolodge	24	Osupuko
	Kilotome	Ecolodge	24	Kilotome
	Losukutok	Ecolodge	24	Losukutok
	Chyulu West	Ecolodge	24	Chyulu West
	Emampuli	3 Ecolodges	72	Rombo Emampuli

*Table 12. **Exclusive Use Zone: Visitor activity prescriptions***

- **Game drives**
- **Guided nature walks**
- **Walking safaris**
- **Camel and horseback safaris**
- **Balloon safaris**
- **Bird shooting**
- **Bird watching**
- **Bush break fast, sundowners, and dinners**

*Table 13. **Exclusive Use Zone: Permitted visitor facility categories***

Facility type	Maximum size
▸ Ecolodges	24
▸ Permanent tented camps	24
▸ Starbed camps	6
▸ Special campsites	
▸ Fly camping	

Low Use Zone

The Low Use Zone covers the rest of the ecosystem that is neither HUZ nor EUZ. In the park, this zone lies in the western (Kitirua area and the seasonal Lake Amboseli), the northern and eastern sections of the park. This zone is characterised by a very low density of viewing roads and is devoid of tourist accommodation facilities. It however gives the discerning naturalist an opportunity to enjoy the panoramic landscape from vantage viewing points such as Kitirua and Imerishari hills. The level of infrastructure development will remain as at present and no further developments will be allowed.

Outside the Park, the LUZ covers all the land that has not been set aside as either wildlife sanctuary, conservancy or concession area. Most of this zone is under pastoralism and agriculture, but it can still be used to support special tourist niches such as cultural tourism. In addition, the zone can be used for many tourist activities that are prohibited in the High Use Zone such as balloon safaris and bird shooting. However, since the primary land use objective of the LUZ outside the park is livestock and crop production, tourism facilities that conflict with these two major land uses will not be allowed unless the tourist facility site is designated as EUZ first. Special campsites for overnight stay will, however, be allowed along horse back, camel and walking safari routes. Visitor activity and accommodation prescriptions for the LUZ are given in tables 14, 15, and 16.

*Table 14. **Accommodation prescriptions for Low Use Zone***

Status	*Facility Name*	*Type*	*No. of Beds*
Existing	Amboseli Sopa	Lodge	188
Proposed	Accommodation facilities targeting the international market will be limited to special campsites along designated walking, camel or horseback safari routes, while accommodation facilities for the domestic market will be limited to student hostels		

Table 15. ***Low Use Zone: Visitor activity prescriptions***

▸ **Game drives**
▸ **Walking safaris**
▸ **Camel and horseback safaris**
▸ **Balloon safaris**
▸ **Bird shooting**
▸ **Bird watching**
▸ **Visit to cultural centers**
▸ **Bush break fast, sundowners, and dinners**

Table 16. ***Low Use Zone: Permitted visitor facility categories***

Facility type	Maximum size
▸ Student hostel	80
▸ Special campsites	12

Ecological Management Programme

Programme Purpose and Strategy

Programme Purpose: To ensure that the ecological components and processes that shape Amboseli Ecosystem are clearly understood, sustainably managed and threats to the key ecological processes are minimized.

The Amboseli National Park (ANP) and to a lesser extent, the larger ecosystem is already under severe threat with significant loss in its biodiversity. The wildlife numbers have declined with species such as Black Rhinos disappearing from the ecosystem. While the loss of Rhinos may have been associated with animosity from the local people, degeneration and loss of habitats are a primary cause. The elephant numbers have gradually increased leading to destruction of woody vegetation in some areas of the ecosystem. This is notable within the park where there has been decline in woody tree species. The changes in land use and land ownership have adversely affected the ecology and integrity of the ecosystem as wildlife habitat. It is evident that land degradation due to overgrazing and habitat fragmentation as a result of agriculture and unplanned human settlements are increasingly becoming common within the AE.

The ecological management programme will help in formulating guidelines for managing the changes that may hinder the future viability of the ecosystem as a key wildlife conservation area. In order to guide the managers within the AE to achieve a sustainable balance between conservation and development, the ecological programme will provide technical assistance, and generate and disseminate relevant planning and management information to ensure that sound management interventions are designed and implemented.

In implementing the AE's Ecological Management Programme, AE Management will strive to ensure that:

Habitat connectivity between ANP and surrounding areas is maintained

ANP wildlife and sustainability of the ecosystem at large depend on the connectivity of the park and surrounding communal land. Due to the semi-arid nature of the ecosystem, water availability is limited and wildlife mainly concentrates within wetlands in and out of the park in the dry season. During the wet season, wildlife disperses widely within the ecosystem. It is therefore critical that habitat connectivity is maintained by securing wildlife dispersal areas and corridors to safeguard against biodiversity loss that could arise if wildlife access to areas adjacent to the Park is inhibited.

Critical ecological processes are maintained

To maintain Amboseli's biological diversity, integrity and resilience, vital internal and external processes need to be maintained. Maintaining these processes limits disruptions and reduces the need for intensive management. The link between the AE and the surrounding landscape is crucial to prevent its ecological isolation and degradation. The external processes that need to

be maintained are: the Kilimanjaro-Chyulu water catchments and the eco-climatic gradient governing landscape diversity; while the internal processes include:

- Large scale wildlife and livestock seasonal migrations.
- **Drought refuges.** The lowland swamps and highland forests which sustain large herbivores during the dry seasons
- **Habitat diversity.** Amboseli's mixed habitats created by varied water and soil conditions which account for its primary species richness.
- **Grazing succession**. The interaction of herbivores in relation to forage within and between habitats which creates a subsystem that creates local heterogeneity and secondary species richness.
- **Community structure.** The wide spectrum of body sizes and feeding guilds among Amboseli's large mammals which is crucial to sustaining species richness and patchiness.
- **Keystone species.** In particular Elephants and the Maasai livestock have a large influence on the ecological dynamics of the Amboseli ecosystem. Their numbers, mobility and interactions play a large role in shaping habitats and habitat mosaics.

As the mandate of KWS to manage land use outside ANP is limited, maintaining internal and external processes will require collaboration between landowners and other stakeholders. This is elaborated further in various section of this management plan.

Conservation of threatened mammal species is enhanced

The AE is home to many threatened mammal species including the elephant, black rhino and large carnivores such as lions. The elephant population in Amboseli has been increasing for the last two decades, from an initial decline due to insecurity outside the park. They however, face the threat of habitat loss as a result of increased human activities outside ANP. There is as well a threat from increasing human-wildlife conflicts, which occasionally results to injuries and deaths of both humans and elephants.

On the other hand Rhinos have been eliminated in ANP, particularly due to poaching and loss of woody vegetation. However, a few free ranging rhinos remain in the Chyulu-Mbirikani area of the AE ecosystem; hence understanding their habitat and security needs is important for the long-term conservation of this species in the ecosystem.

In the past, the Maasai have lived in harmony with wildlife, but recently, there has been intolerance to lions due to predation on livestock. As such poisoning and spearing of lions has become common and it has been linked to the appreciable decline in the AE's lion population in recent years. Management actions under this program aim at ensuring that human-wildlife conflicts in the Amboseli Ecosystem are minimized. This effort will require monitoring the interactions between lion and humans and in instituting measures to mitigate arising conflicts.

Ecological components of the AE are monitored

Monitoring the trends and threats to the viability of the Amboseli Ecosystem is key to designing sound management interventions. While the ecosystem has largely retained its species richness, a number of human induced threats that are likely to negatively affect the ecological integrity of AE have been noted. Studies show that:

- Livestock numbers have increased since the 1960s.

- Human activity and settlements have increased steadily since the 1960s.
- Sedentarization by pastoralists has progressively increased
- Crop farming has spread steadily down the rainfall gradient from higher (Kilimanjaro slopes) to lower elevations (wetlands).
- And subdivision and fencing are on the rise.

The ecological management program will provide the information needed to discern trends and threats, and propose measures needed to mitigate the threats.

Targeting Ecological Management Action

The Protected Area Planning Framework (PAPF) prescribes the use of the *Nature Conservancy's (TNC) Conservation Action Planning (CAP)* process as a foundation for designing the PA plan's Ecological Management Programme. The rationale underlying this is that, with limited human and financial resources available to PA managers, it is impractical to attempt to manage and monitor every single aspect of the complex ecology of a protected area.

The first step in the TNC CAP methodology is the identification of a small suite of species, communities, and ecological systems that represent and encompass the biodiversity found in the planning area and which form the basis for setting goals, carrying out conservation actions, and measuring conservation effectiveness. The second step is the identification of characteristics or key ecological attributes (KEAs) that can be used to help define and assess the conservation target's ecological viability or integrity. These attributes are critical aspects of the target's biology or ecology that, if missing or altered, would lead to the loss of that target over time. The third step is to identify the various factors that immediately affect the identified conservation targets and then rank them to focus conservation actions where they are most needed. The fourth step involves developing strategies to counter the threats considering the need to get the most impact from the available resources. And the final step involves measuring success to gauge whether the strategies are working as planned and thus whether adjustments are needed.

Details on the conservation targets identified for the AE and their key ecological attributes are given in Table 17, while a conservation target-threat matrix is provided in table 18.

Table 17. AE Conservation targets

	Conservation Target	***Rationale for Selection***	***Important subsidiary targets***	***Key ecological Attributes***
Systems	**River and Swamp systems**	➢ Only few rivers and swamps ➢ Critical habitats for wildlife and livestock ➢ Under severe threat from human activities	➢ Kimana wetland ➢ Nolturesh wetland ➢ Swamps within Amboseli Ecosystem ➢ Riverine habitats ➢ Wetland associated avifauna ➢ Hippopotamus ➢ Reptiles and amphibians ➢ Waterbuck	➢ River regime (flow and level) ➢ Water quality ➢ Riparian habitats ➢ Aquatic life forms ➢ Associated catchments

	Conservation Target	*Rationale for Selection*	*Important subsidiary targets*	*Key ecological Attributes*
	Wildlife migratory corridors	➢ Critical to maintenance of ecosystem connectivity and ensuring a minimum viable conservation area	➢ Kimana – Kuku corridor ➢ Kitenden corridor	➢ Size and status of the corridor ➢ Wildlife use of corridor
Habitats	**Acacia Woodland and Grassland mosaic**	➢ Important for browse and graze ➢ Important for breeding and wildlife cover ➢ Threatened by overgrazing, crop farming and human settlement	➢ Browsers: lesser kudu, impala, gerenuk, giraffe, black rhino ➢ Grazers: zebra, wildebeest, hippopotamus, buffalo ➢ Birds: Ostrich, Martial eagles, fish eagles, Kori Bustard	➢ Size of Acacia woodland/bush land ➢ Grassland condition ➢ Vegetation composition and structure ➢ Graze and browse availability ➢ Composition and size of herds of ungulates
	Hilly habitats	➢ critical habitats for wildlife and livestock ➢ important water catchment (chyulu hills) ➢ Important tree species ➢ Tourism value (scenery)	➢ Coke's hartebeest, ➢ Giant forest hogs ➢ Black rhinos ➢ Sandalwood ➢ Raptors ➢ Endemic birds	➢ Forest cover ➢ Graze and browse availability ➢ Tree species composition ➢ Abundance of bird species
Species	**Lion**	➢ Important for tourism ➢ Threatened by poisoning, spearing, habitat fragmentation, diseases	➢ Lion ➢ Cheetah ➢ Hyena ➢ Wild dog	➢ Population size and structure ➢ Habitat size and quality ➢ Genetic diversity ➢ Prey species and availability ➢ Health
	Elephants	➢ Keystone role of maintaining habitats ➢ Classified as threatened by IUCN ➢ Of great tourism and scientific interest	➢ Migratory grazers such as wildebeest and zebras	➢ Population size and structure ➢ Habitat size and quality ➢ Water availability ➢ Dispersal areas/migratory corridors
	Giraffe	➢ Declining population due to habitat loss and poaching for bush meat	➢ Coke's hartebeest ➢ Gerenuk ➢ Impala ➢ Dik dik ➢ Thomson and Grant gazelle	➢ Population size and structure ➢ Habitat size and quality ➢ Dispersal areas

*Table 18. **Threats to AE Conservation Targets***

TARGETS / *THREATS*	River and Swamp systems	Acacia Woodland and grass-land mosaic	Hilly habi-tats	Wildlife migratory corridors	Lion	Elephants	Giraffe
Bush meat poaching							High
Water abstraction	Very High					High	
Illegal harvesting		High	High	High			
Land subdivision and sedentarization	Very High	Medium		Very high	Medium	Very high	Medium
Water pollution	High						
Livestock overgrazing	High	High	High	High		Medium	High
Human settlement	High	Medium	Low	High	Medium	Medium	Medium
Charcoal burning	Medium	High	Low	Medium	Medium	Medium	Medium
Human-wildlife conflicts					Very High	High	Low
Land sale	Medium	Medium	Low	Medium	Low	Low	Medium
Tourism infrastructure	High	Low	Low	High		Medium	Low
Poor information sharing mechanism	Low	Low	Low	Low	Low	Low	Low
Diseases					High	High	High
Accidental fires	Low	Low	Low	Low	Low	Low	Medium

Ecological Management Objectives and Actions

The identification and ranking of the threats to the AEs conservation targets and their KEAs provides the basis for the development of the Ecological Management Programme's management objectives and actions. Objectives have been developed to address the clusters of threats or conservation targets shown in Table 15 and 16. Four objectives have been developed addressing threats to AE's critical wildlife habitats; addressing AE's threatened large mammals (covering conservation targets: Elephant, large carnivores and Black rhino); and addressing ecological monitoring and research information dissemination. The four objectives developed for the AE Ecological Management Programme are:

MO 1. Critical Wildlife dispersal areas and corridors within the Amboseli Ecosystem are secured
MO 2. Swamps and river systems managed and protected in collaboration with stakeholders
MO 3. Conservation of AE threatened large mammal species is enhanced
MO 4. Ecological monitoring and research information dissemination is strengthened

These management objectives and their corresponding management actions are described in detail in the sections below. Where appropriate, "sub-objectives" have been developed to provide a clearer framework for the management actions. Under each management objective (or sub-objective) there is a brief description of the relevant management issues and opportunities, which provides the specific context and justification for the management actions.

Management Objectives

Objective 1: Critical Wildlife dispersal areas and corridors within the Amboseli Ecosystem are secured

Connecting Amboseli National park and Kilimanjaro forest on the Tanzanian side, is a narrow strip of land, the Kitenden Corridor, which allows wildlife movement, and particularly elephants, between the two protected areas. The Amboseli populations may act as an important gene pool, particularly for the small population of eland in the moorland and alpine zones of Kilimanjaro, which might be prone to natural extinction if passage through the corridor is blocked. Many other species of mammal such as zebra, giraffe, impala, and patas monkey, lesser kudu and fringe-eared Oryx utilize the corridor, particularly during the dry season when the area is little used by Maasai cattle. Whereas the Tanzanian section of the corridor is protected, the Kenyan side has not been given any protection nor have clearly defined measures been taken to protect and conserve the corridor. Hence, the Kenyan part of the corridor is under increasing pressure from human settlement and uncontrolled development of tourist cultural centers limiting free movement of wildlife.

In addition, Kimana Sanctuary entirely relies on the Kimana corridor to link it to the Amboseli population to boost its wildlife diversity enhancing tourist experience. Increased developments in form of tourist accommodation facilities and cultural centers in the individually owned land abutting the park to the east is blocking free movement of wildlife between the Park and the eastern part of Amboseli ecosystem.

Moreover, there are about 1400 elephants in Amboseli ecosystem giving a density of 4 elephants/km² if they were to be confined in Amboseli National park. This density is far beyond the threshold of one (1) elephant/Km², which has been shown to result in decline in woody vegetation cover through elephant destruction. Similarly, the large wildebeest and zebra populations in Amboseli require extra range for survival. It is during their wet season migration to the Amboseli ranches that the vegetation in the Park rejuvenates. It has been observed that over 95% of the Amboseli fauna may disperse from the Park to the group ranches during the wet season. El mau area, in Mbirikani is the primary dispersal area for plain game and Selengei/Kiboko river junction is also important. However, during the dry season, 95% of the water dependent species is within a radius of 8Km to water and within an area of 450Km² in and around the Park. Hence isolation of the park from the rest of the ecosystem would have adverse impacts on wildlife populations and tourism in the area. If the park is isolated, there would be less wildlife species diversity, it would necessitate reduction of elephant numbers and 15% biomass potential of wildlife in the ranches could be lost. Also, extensive flooding in the park limits wildlife occupancy all year round.

The management actions that have been developed to ensure that critical wildlife dispersal areas and migratory corridors continue to be available to wildlife are set out in the following sections. Additional management actions are included under Actions 1.1, 1.2, 1.3 and 1.4. of the Community Partnership and Education Programme

Action 1.1 Support the development of land use plans for individual group ranches in the ecosystem

Some of the key threats to sustainable wildlife conservation in the AE are: permanent settlements in the wildlife dispersal areas; fragmentation of the ecosystem through on-going subdivision and subsequent settlement; and competition for water and grazing. At the ecosystem level, there is no land use zoning and land use controls leading to emergence of uncoordinated and conflicting land uses.

As such, to harmonize land use in the group ranches, and preserve critical wildlife habitats, the ranches will be supported to develop land use plans that are based on land suitability for current and potential land uses. In regard to this, land evaluation will be carried out at the group ranch level to identify a mix of the best land use options that are socially and economically acceptable to the group ranches. The output from the land evaluation exercise will then inform the participatory land use planning processes that will be initiated for the ranches that have no land use plans i.e. Selengei, Mbirikani, Kuku and Rombo. The land use plans will clearly zone the ranches to provide for livestock grazing, wildlife sanctuaries, settlement and farming areas, and propose ways to implement the defined land use zoning scheme.

Action 1.2 Liaise with the District administration to control charcoal burning in the AE

Charcoal burning destroys woody vegetation, which is very critical in water cycle and soil erosion control. Charcoal production is relatively extensive in the subdivided Kimana group ranch as individual owners of the 60 acre plots enjoy their property rights to use natural resources found within their land. One of the major impacts of charcoal burning is the decline

of the *Acacia* mosaic in the affected area. Considering that the Acacia mosaic has declined significantly in the Park with resultant decline[4] or local extinction[5] of many browsing species from the Park, it is imperative that intervention measures are taken to prevent a similar scenario in the dispersal areas.

To curb charcoal burning and by so doing maintain a mosaic of plant community structure, AE management will lobby the District Administration to ban commercial charcoal production in the AE. This issue will be raised at the District meetings that KWS will be participating in (see action 1.5 under the Ecosystems Operations Programme).

Objective 2: Swamps and river systems managed and protected in collaboration with stakeholders

The Amboseli swamps and river systems are the lifeline of both wildlife and livestock in the ecosystem. The major wetlands systems outside the park include Kimana-Kikarankot and Nolturesh river systems. There are also other equally important springs and swamps e.g. Namelok that are centers of horticulture production as well as critical dry season drinking points for both wildlife and livestock. However, these wetlands face apparent threats from human encroachment such that some are no longer available to wildlife as they have been fenced off to facilitate irrigated farming...

The upper water catchment of Kimana –Kikarankot river system, which is arguably the most extensive and reliable water source outside Amboseli National Park, has been cleared for cultivation over the last 10 years. The lower sections of the river are fed by underground springs few of which are protected and consequently face degradation through tree felling and trampling by livestock. Water is diverted from the springs that feed Kimana River into irrigation canals or is piped for use elsewhere reducing water flow downstream. There is evidence of high level of pollution from pesticides used to control crop pests in the irrigated horticultural farms (see table 19). These pesticides are washed into the rivers through run-off. Nol turesh river system is similarly affected. There is no longer perennial flow of the Nol Turesh River into Tsavo River due to excessive water abstraction up stream.

This management action has therefore been designed to avert further degradation and depletion of the water resource in the ecosystem, which can limit wildlife ranging patterns and concentrate wildlife in the park with catastrophic impacts to the environment. Management actions that have been developed to achieve this objective focus on water resource assessment, developing wetland management plans, controlling water pollution, carrying out environmental audits, protecting critical water sources, and supporting establishment of water resource users associations. These actions are elaborated in the following sections.

[4] Impala, gerenuk and eland show the largest declines; Giraffe numbers are down from over 100 to fewer than 10 and kongoni numbers from some 200 during the dry season to an occasional migrant.
[5] Lesser kudu, bushbuck and dikdik have all but disappeared from the park.

*Table 19. **Major irrigation schemes and their associated Wetlands**[6]*

Irrigation scheme	Size (Km^2)	Associated wetland (s)
Inkisanjani	4.47	Nol turesh river / springs
Olorika	1.69	Nol turesh river
Ilchalai	4.00	Kikarankot river
Kimana swamp ("Marula")	10.38	Isinet – Kimana rivers
Namelok (fenced)	15	Namelok/Engumi springs
Isinet	0.77	Isinet river
Ol pusare	3.29	Ol pusare/Moilo springs
Elangata Engima	7.6	Nolturesh river
Esambu	1.16	Kikarankot river
Kimana (fenced area)	35	Springs/ Kimana river

Action 2.1 Carry out a water resource assessment study to discern both water availability in the ecosystem and water requirements for the local community

There is a scarcity of water in the area surrounding the Park, particularly in Olgulului/Olorarashi group ranch. The group ranch depends mostly on a series of boreholes and dams, and the 90 Km Amboseli water pipeline for water for livestock and domestic use. The water supply system is however, unreliable due to frequent break down of pumping systems. Hence, during the dry season, when water is scarce outside the Park, the Park management has no option but to allow the community to water their livestock at designated points in the Park. However, the large numbers of livestock that are brought into the Park cause severe degradation at the watering points as attested to by the large scars of bare ground at the designated livestock watering points.

As such, through this management action, AE stakeholders, in collaboration with the Ministry of Water officials at Oloitokitok District Office, will carry out a water resource assessment study to discern status of various water sources in the ecosystem. The study will also evaluate water requirement for the local community and their livestock to discern the water deficit in community land and recommend measures to fill this deficit. The outcome of this study will then be used to draw an effective community water supply system in the Park adjacent areas to reduce not only ecological degradation, but also the human-wildlife conflicts occasioned by frequent contacts of livestock with dangerous wildlife like elephants and lions.

Action 2.2 Support development of Kimana wetland management plan

Kimana swamp, which is shared by both Kimana and Mbirikani group ranches, is a critical dry season grazing area and drinking point for both wildlife and livestock in the AE. However, the swamp is threatened with major management challenges which could lead to degradation of this important swamp. These include excessive water abstraction for irrigated farming, water pollution from pesticides and herbicides that are used in the irrigated plots, overgrazing, and conversion to agriculture. The Kimana group ranch part of the swamp has already been set aside as a wildlife sanctuary, but the Mbirikani side has not and it is the part that faces extreme pressures from the aforementioned threats.

In order to maintain the integrity of this wetland so that it continues to be a vital refuge for wildlife during the dry season, the two group ranches that share the swamp will be supported to develop a participatory integrated management plan for the swamp. The planning process

[6] Data source: Kioko, 2005

will seek to find long lasting solutions to the current resource use problems facing the swamp. As a start, and to provide essential planning information, an Environmental Audit (EA) of development activities at the swamp will be carried out to determine the impacts of the land use activities on the ecological as well as socio-economic values of the swamp. In addition, to ensure that the use of the swamp is coordinated to prevent over-exploitation, the community will be assisted to establish a Water Resource Users Association (WRUA) to manage the swamp by implementing management measures prescribed in the management plan.

Action 2.3 Support establishment of soil and water conservation measures to reduce water pollution in AE's water bodies

Water quality surveys carried out in the swamps located outside the Park where high intense irrigated agriculture is taking place show that the water is polluted to an extent that it does not meet the Kenya Bureau of Standards (KEBS) and World Health Organization (WHO) standards for domestic consumption. Specifically, total suspended solids, concentration of iron, nitrates and phosphates are beyond the safe limits recommended by the two institutions. The high concentration of these chemicals could be attributed to horticultural farming, which uses artificial fertilizers to supplement soil minerals and pesticides to control crop pests.

To minimize water pollution in the rivers and swamps, the farming community will be supported to adopt effective soil and water conservation measures to ensure that pollutants do not enter the water bodies. This will involve training the farmers in soil conservation measures e.g. terracing and digging contour trenches to prevent water run off from draining into the water bodies. Additionally, the community will be supported to harden the irrigation furrows at Ichalai and Nol turesh irrigation schemes to control soil erosion. And to ensure that the management decisions regarding AE hydrological systems are based on sound and timely information, AE management will periodically monitor the water quality and quantity from the most stressed water bodies to discern the effectiveness of the management interventions.

Action 2.4 Carry out Environmental Audits of water projects in the ecosystem to determine the social and environmental impacts of water abstraction

Excessive and unregulated water abstraction from the rivers and swamps fed by the Chyulus and Kilimanjaro threatens the drought refuges vital for livestock and wildlife in the Amboseli ecosystem. Water off take also threatens habitat diversity created in large part by gravitational water flow from Chyulus and Kilimanjaro. For instance, much of the original outflow from Nolturesh springs has been tapped into pipelines for use in Loitokitok town and about 150 km away in eastern and rift valley provinces. The remaining water that flows into the river is used by the residents for livestock, domestic use and for irrigation agriculture leaving only 13% of its output to flow downstream. The high off take of water at Nolturesh springs combined with water abstraction by irrigation schemes along Nolturesh River has meant that much of the Nolturesh River has remained without water leading to Esoit Pus swamp downstream, a key dry season grazing and watering point for livestock and wildlife, drying up during the dry season. In addition, a comprehensive inventory of water abstraction levels from various water sources both in the park and elsewhere in the ecosystem is lacking. This puts to speculation the impacts of water abstraction by tourist and park administration facilities on the AE wetlands.

To ensure that water abstraction from the critical water bodies is regulated thereby forestalling ecological degradation in critical dry season wildlife and livestock refuges in the ecosystem, AE management will collaborate with NEMA and Ministry of Water in carrying out environmental audits of the major water bodies. The audits will assess water abstraction levels, irrigation methods used, protection of riparian land, and recommend mitigation measures that will ensure that sufficient water is continuously available to various water users in the ecosystem.

Objective 3: Conservation of AE threatened large mammal species is enhanced

Large mammal species in the AE that are categorized by IUCN as threatened include the elephant, lion, rhino and wild dog. The first two are found in Amboseli National Park, but the Rhino, which was previously common in the Park in the 1970s, is now extinct in the Park and most of the ecosystem. However, the Chyulu Rhino stock often extends its range to the eastern fringes of the ecosystem in Mbirikani Group ranch; hence it requires management measures to ensure that it is protected.

In addition, owing to their water dependence, the Amboseli elephants use the park and its immediate environs up to 4 Km from the park boundary during the dry season, but disperse widely during the wet season when plenty of water and forage is available widely in the ecosystem relieving pressure on the park and allowing vegetation to rejuvenate. If these seasonal movements are curtailed through settlement along current corridors and dispersal areas, the elephants would concentrate in the park leading to an ecological catastrophe as the park alone can only comfortably support approximately 10 elephants.

On the other hand, large and medium size carnivores in the ecosystem are a key tourist attraction. Despite this, however, the carnivores such as cheetah, leopards, spotted hyena and wild dogs, are threatened with local extinction mainly due to killing and poisoning by pastoralists in retaliation for livestock predation.

This objective has therefore been designed to ensure that threatened mammal species in the AE are protected and conserved. To realize this objective, three sub-objectives focusing on enhancing management of threatened large mammal species have been developed. These sub-objectives and their corresponding management actions are elaborated in the following sections.

Sub-objective 3.1: Elephant monitoring and management enhanced

Elephant population in Amboseli like other elephant populations in other parts of the country experienced major reduction during the 1970s and 1980s due to poaching. The Amboseli elephant population was estimated at 1200 elephants in the 1960s, but by early 1970 when the Amboseli Elephant Research Project began, there were approximately 700 left. By the end of 1978, there was further reduction to 480 through poaching, spearing and droughts. The population has now recovered after an effective spirited effort by KWS to stamp out poaching and the international intervention by CITES to ban trade in ivory products. The elephant population now stands at about 1485 elephants. The elephants have been a major driving force in the ecological dynamics of the Amboseli Ecosystem. They have been the subject of one of the longest elephant studies in Africa and as a result of this long term interactions between researchers and elephants, the elephants are easily approachable giving

visitors excellent opportunities for watching them at close range. Besides this, they attract a lot of interest from wildlife researchers.

This sub-objective has therefore been designed to ensure that elephant-habitat interactions in the ecosystem are understood and the long term elephant monitoring programme carried out by Amboseli Trust for Elephants (ATE) continue to provide information relevant to the management of the Amboseli elephants. The management actions that have been developed to realize this sub-objective are elaborated in the following sections.

Action 3.1.1 Carry out an elephant-habitat modelling study to determine the elephant carrying capacity of the ecosystem

The elephant ranging patterns have changed a lot over the years owing to the security in the ranches. In the 1970s and 80s when poaching was at its peak, elephants concentrated in the Park in the dry season and moved out in the wet season. However, since the 1990s elephants have been spending a great deal of their time outside the Park in both the wet and dry seasons, but tending to come into the Park just after the wet season to form large aggregations. Generally, on any given day there are rarely more than 300-400 elephants in the Park, which leaves over 1100 outside on the Maasai group ranches and across the border in Tanzania.

The National Park cannot support all these elephants because of its small size of only 392Km^2. However, the ecosystem over which the elephants can still range is close to 5000km^2. The challenge therefore is to ensure that most of the current elephant range remains available in the long term. But if this does not happen because of land conversion and habitat fragmentation, then it is imperative that the habitat scenarios that might ensue be predicted so that timely corrective intervention measures can be effected.

As such, through this management action, an elephant-habitat modelling study will be carried out to shed light on the interaction between Amboseli elephants and the rest of the ecosystem components. The aim of this study will be to determine the number of elephants that the ecosystem can support without experiencing ecological degradation. The study will involve detailed mapping and description of the habitat quality and composition which will be assessed against elephant habitat requirements. This study will be carried out in collaboration with the ATE and ACC scientists who have a wealth of data and information on Amboseli elephants collected continuously for over thirty years.

Action 3.1.2 Collaborate with ATE to ensure that long term elephant monitoring and research in the ecosystem is maintained

Amboseli elephants have been a subject of a long term monitoring and research project (Amboseli Elephant Research Project) since 1972. Over the years a wealth of in-depth information and knowledge on these elephants has been generated and disseminated widely through more than 60 peer-reviewed papers, numerous books, articles, films and interviews. This makes Amboseli elephants not only one of the longest studied elephant population in the world, but also one of the most famous in the world attracting huge numbers of tourists to the ecosystem.

However, since its inception this project has relied heavily on the drive and management of its expatriate scientists making its sustainability wanting considering that the expatriate team is now aging. As such, in order to ensure continuity of the elephant research project, and provide uninterrupted up to date information regarding elephant population dynamics and behaviour, AE management will collaborate with Amboseli Trust for Elephants under whose

auspices AERP is implemented, to recruit and train young scientists to carry on the work from the expatriates. This will be one of the issues that will be covered in the MOU envisaged under action 1.3 of the ecosystems operations programme. In addition, the Trust that will be formed under action 1.1 of the Ecosystems Operations programme will give guidance on the best way of ensuring continuity in this private sector led research.

Sub-objective 3.2: Conservation of threatened predators enhanced

Like elsewhere in the country, increasing human encroachment into predator range is displacing prey species resulting in increased livestock-predator interactions that in turn increase livestock predation incidents. Livestock predation is therefore the main reason why the local community kills predators in the AE. In addition, suppressed carnivore populations, particularly of lions, are also partly attributed to diseases like Canine distemper and Feline Immunodeficiency Virus which have killed a substantial number of carnivores in the recent past.

The lion population in the AE has declined with only small populations remaining in the ANP and in the Mbirikani-Chyulu area. The entire Amboseli lion population was wiped out through poisoning and killing in the early 1990's, but dispersal into the Park from surrounding lands ensured that a new population re-established itself. That reservoir has nearly dried up, and at the current rate of killing, Amboseli NP may soon have no lions, and no source of replacement.

Limited data from the Amboseli Ecosystem indicate that approximately 108 lions were killed in the region between 2001 and 2006 in spite of a generous compensation program which pays people for livestock lost to predators on Mbirikani Group Ranch. Most of the killing was through poisoning and spearing, both in retaliation for livestock killed by lions and for traditional *Olamayio* (young men proving their manhood).

This sub-objective therefore aims to enhance carnivore conservation by firstly gaining knowledge of the population status and threats to top carnivores, and secondly by developing viable local conservation strategies. The management actions that have been designed to achieve this sub-objective are elaborated in the following sections.

Action 3.2.1 Monitor AE top carnivores to determine population trends, distribution and movements

Knowledge of the movement and ranging patterns of carnivores is important in the development of practical species conservation strategies. In 2001, a collaborative lion monitoring project [7] was established in the AE to study the movements and home ranges of ANP lions through GPS/GSM tracking, VHF tracking and direct field observations. This study is expected to shed light on not only the pride's home range, but also it will establish the spatial extent of corridors and dispersal areas used by lions.

However, in order to gain insight on population status and trends of large carnivores, and efficacy of management interventions, apart from collecting data on lions only, AE management will liaise with the KWS Species Programme department to extend carnivore monitoring to other top carnivores (Cheetah, Hyena and wild dogs). In regard to this, species monitoring protocols for top carnivore species in the AE will be developed and implemented in collabora-

[7] Amboseli Lion Project is a collaboration between KWS, Institute of Environmental Sciences of Leiden University (Netherlands) and Tshwane University of Technology, Pretoria, SA.

tion with stakeholders. The data that will be collected will include population demography, threat status, and population distribution.

Action 3.2.2 Identify potential carnivore conservation zones using available information

One way of minimizing carnivore-livestock conflict and retaliatory killings of carnivores is through establishment of carnivore conservation zones. Such zones can be set aside with the aim of ensuring the protection of carnivores and hence would have limited and controlled livestock and human use. Since the target carnivore species have large home ranges that are located mostly in community land, it is critical that the conservation zones are identified and set aside with full community participation to ensure success. As such, under this management action, potential carnivore conservation zones will be identified through analysis of data generated from the activities to be implemented under Action 3.2.1. Carnivore ranging patterns will be mapped and it will be overlaid with spatial data on socio-economic activities in the carnivore home ranges to establish threats and the extent of suitable habitat, including critical corridors. It is on the basis of this that the communities in the identified potential carnivore conservation zones will be engaged in an incentive based dialogue to set aside such areas for purposes of carnivore conservation. However, this Action will be carried out in conjunction with Action 1.1 and 1.2 of this programme, Action 1.3 of the Tourism Programme, and Actions 1.1, 1.2 and 1.3 of the Community Partnership and Education Programme.

Action 3.2.3 Establish a GIS based human-carnivore conflict database

Indiscriminate killing is the key threat to the survival of carnivores in AE. It is fuelled by depletion of their home range which is increasingly being encroached by human activities such as settlement, agriculture and livestock production. To ensure carnivore survival, it is critical to establish nature, extent and trends of human – carnivore conflict through monitoring to support planning and management. As such, AE management will liaise with the KWS Species Programme Department to establish a human-carnivore conflict database. Therefore, AE management will develop, test and implement standardized data collection methodologies for documenting human-carnivore conflict cases. The data collection tools will be simple and user friendly as AE management will be using KWS rangers, community game scouts and other equally competent members of the local community to collect the conflict data. The main data sets that will be captured include: location of conflict incident, species of livestock killed or injured, predator responsible for the killing or injury, and action taken. Information generated from the analysis of this data is expected to be used in developing outreach materials to educate communities on the importance of co-existence with carnivores (see action 4.1 of the Community Partnership and Education Programme). In addition, to ensure that the database is functional, AE researchers will be trained on aspects of database maintenance.

Action 3.2.4 Support disease surveillance, monitoring and control

Carnivore diseases are a major threat to the viability of small populations of threatened carnivore species like those found in the AE. A disease such as Canine distemper which commonly affects lions has wiped out many populations in the Past. Similarly Feline Immunodeficiency Virus infects lions suppressing their populations substantially. Frequent outbreaks of rabies among both domestic and wild carnivores also threaten the small wild dog population in the AE.

As such, to have insight on the status of infectious carnivore diseases among the AE top carnivores and take timely intervention measures to avert major disease outbreaks, AE management will collaborate with the KWS Vet Department in sampling carnivores for purposes of determining the dynamics of carnivore diseases and the array of disease pathogens that they may be harbouring. Samples will be taken from both live animals and those killed during problem animal control operations. In addition, to minimize threat from rabies which can greatly suppress or even wipe out small populations of carnivores like that of the wild dogs, AE management will liaise with the Veterinary Department in the Ministry of Livestock to ensure that domestic dogs in the AE are vaccinated against rabies annually.

Sub-Objective 3.3: The black rhino population management is enhanced in line with the KWS National Rhino Management Strategy

Black rhino (*Diceros bicornis*) population in the ANP has declined from 1950's, primarily due to poaching. Habitat change from woody vegetation to open grassland compelled rhinos to move out in search of adequate browse rendering them vulnerable to poaching. In 1980, the rhino population was 12 and decreased to 8 by 1988. The only rhinos that remain in the ecosystem are in Chyulu hills-Mbirikani area.

This sub-objective has been developed to ensure that conservation and management of black rhinos in the AE contributes to the national rhino conservation strategy that aims to conserve at least 2000 rhinos in their natural habitat. The target of 2000 black rhinos can best be achieved if such wild rhino populations as that of Chyulu hills are maintained. There exists potential to increase the number of rhino's, currently estimated at 8 in the Chyulu through enhanced management programs focusing on improving rhino habitat and security. The management actions discussed below addresses these issues to ensure that Black rhino populations are increasing in accordance with the national strategic targets.

Action 3.3.1 Carry out a habitat assessment study in the Mbirikani rhino dispersal area

The Chyulu Rhino population range extends to the eastern fringes of Mbirikani Group ranch. Considering that the primary land use in the ranch is livestock production which competes with rhino conservation, it is essential that rhino habitat requirements be determined as a first step towards enhancing involvement of the local community in rhino conservation in the area. In regard to this, AE management will collaborate with the Chyulu Hills National Park management in carrying out a habitat assessment study with the aim of discerning forage and water availability in the Mbirikani rhino dispersal area. The main habitat attributes that will be investigated are availability of important browse plants, browsing pressure, competition between livestock and black rhinos, water availability and the attitudes of the local community towards black rhinos. This study will provide crucial information required to support the implementation of Action 3.3.2 and 3.3.3 of this programme.

Action 3.3.2 Improve the joint KWS/Maasai land Preservation Trust Rhino monitoring and reporting system

The current surveillance and monitoring of the Chyulu-Mbirikani rhinos is carried out by KWS in collaboration with community game scouts under the Maasai land Preservation Trust (MPT). However, the obligations of each party in this collaboration are not clear as there is no formal collaborative agreement. In addition, the MPT community game scouts do not collect crucial rhino data during their surveillance work because they are not trained in the

KWS standard procedures for collecting rhino data; hence the data can not be integrated in the KWS HQ Kifaru Rhino monitoring program.

As such, to streamline rhino monitoring in the Chyulu-Mbirikani area, AE management will liaise with the KWS Species Programme to draw a collaborative agreement between KWS and MPT. Through this agreement, the MPT community game scouts will be trained in standardized rhino monitoring methods that have been adopted by KWS in other rhino sanctuaries. And to further enhance rhino monitoring, the Chyulu-Mbirikani rhinos will be under constant monitoring to determine their status in terms of security and health. The rhino monitoring will give crucial feedback vital to implementation of Action 3.3.2 of this programme. In addition a night water-hole photographic survey programme, similar to the one being carried out at Ngulia sanctuary, will be implemented in Mbirikani area.

Action 3.3.3 Support expansion of the Rhino range from Chyulu hill slopes to lower Mbirikani plains

As part of the Big Five, rhinos are a major tourist attraction in all the sanctuaries that host it in the country. Accordingly, the Chyulu-Mbirikani rhinos are a major tourist attraction to visitors who are hosted at the Oldonyo Wuas lodge, in Mbirikani group ranch as this is the only place in the AE where rhinos can be viewed. This exclusive attraction, together with lions and elephants that are common in this area, if properly managed, can be used to attract visitors to the eastern parts of the ecosystem enhancing economic returns to the local community and at the same time relieving tourism pressure from the Park.

Mbirikani Group Ranch has the potential to support more black rhinos if measures are enhanced to support this. However, this potential can not be fully exploited without full knowledge of the suitability of the area for rhinos and if rhino security is not enhanced. Therefore, to increase the rhino dispersal area; hence increase the tourism attractiveness of the eastern part of the ecosystem, AE management will collaborate with the local community to expand the rhino range in Mbirikani group ranch through provision of adequate security and the required additional rhino requirements such as water. This Action will, however, be carried out in conjunction with Actions 1.3, 3.2.1 and 3.2.2 of this programme.

Objective 4: Ecological monitoring and research information dissemination is strengthened

The AE is home to a number of long term research projects such as, Amboseli Research and Conservation Project; the Amboseli Elephant Research Project; and Amboseli Baboon Research Project. While such projects can play a key role in guiding management action, there has been inadequate dissemination of research information to AE managers and planners; hence science driven management has been minimal at the AE.

In addition, KWS has no research presence at the AE meaning that AE management has to rely on other stakeholders for scientific information to support planning and management decisions. Due to lack of collaborative mechanisms between the research stakeholders and KWS, request for information can be denied or it can take a long time before the information is provided.

This objective has therefore been designed to streamline wildlife related research and dissemination of research outputs among stakeholders. The management actions that will be implemented to achieve this objective focus on establishing a KWS research sub- station; establishing a comprehensive research database; transboundary collaboration in research matters; monitoring range condition; and carrying out priority research. These management actions are elaborated in the following sections.

Action 4.1 Establish a KWS research sub-station at ANP headquarters

In order for research to play a central role in guiding the management of the AE, it is essential that wildlife related research is focused on management oriented research and be driven by KWS needs. Currently, KWS does not have a research presence in the AE; hence research is carried out by other stakeholders whose objectives are not necessarily similar to those of KWS. As such, realizing the scientific value of the AE as a base for ecological research and studies on Park–people interactions, a research sub-station will be established at the ANP headquarters. The Sub-station will be equipped with the relevant staff and standard research equipment in line with the Biodiversity Research and Monitoring Divisions strategic plan. The functions of the research station will mainly focus on the following:

a) ecological monitoring;
b) Ecological surveys;
c) Management oriented research;
d) Single species and communities research;
e) Environmental Impact Assessments and Audits of facilities in the Park; and
f) Coordinating wildlife research in the AE

Action 4.2 Establish a database of research on Amboseli Ecosystem

Although enormous scientific data and information has been generated through research, this information is not readily available as it is held at offices of various government institutions (e.g. KWS, DRSRS, and Livestock Department), individual researchers, or long term research projects. To ensure that research information is available to AE managers and enhance science driven management, AE research section will establish a comprehensive research database comprising historical as well as on going research outputs. As a first step, an annotated bibliography of all research work that has been carried out in the ecosystem will be done. Efforts will then be made to solicit for the outputs (research papers, documents and data) that are not readily available to the public. In particular, long term ecological monitoring data from the DRSRS, ARCP and AERP will be solicited to establish baseline ecosystem-data that will be up dated continuously.

Action 4.3 Establish a transboundary research coordinating committee to facilitate information sharing and implementation of cross border research activities

There are a number of long term research projects in both the Kenyan and Tanzanian sides of the AE. However, information sharing is very limited and depends on the initiative of individual researchers. There is therefore need to formalize information sharing among researchers from the two countries to enhance ecosystem management.

As such, under this management action, AE management will steer the establishment of a transboundary forum through which research information can be shared among researchers in the greater Amboseli-Kilimanjaro ecosystem. The forum will have a transboundary coordi-

nating committee that will develop mechanisms to facilitate scientific meetings and synchronization of wildlife census and monitoring of transboundary populations, especially elephants and carnivores.

Action 4.4 Monitor the range condition and develop measures to improve the poor range condition within the Amboseli Ecosystem

The fluctuations in livestock and wildlife numbers in the Amboseli Basin are closely correlated. Population fluctuations in both populations for the Amboseli Basin and ecosystem are in turn correlated with antecedent rainfall. These close correlations show that livestock and wildlife are linked ecologically by pasture and water availability in much the same way and share a common ecosystem.

There is strong evidence and a good theoretical basis to suggest that the local loss of animal diversity over the last 40 years is directly related to localized changes in habitat diversity. Habitat diversity, especially in arid and semi-arid ecosystems, is driven largely by non-equilibrium controlling factors, such as rainfall, and, in the case of Amboseli, the vicissitudes of water table fluctuation from the poorly-understood hydrology of the volcanic features surrounding the ecosystem. Habitat specificity has been shown to vary widely among herbivores. Some species, including eland, impala, kongoni and giraffe are largely confined to specific habitats. Others, such as wildebeest, zebra, Grant's gazelle and livestock range across a wide variety of habitats. A loss of habitat will therefore lead to a loss of herbivore diversity.

To mitigate against range deterioration which can eventually lead to loss of biodiversity, range condition will be monitored on regular basis to determine those areas that need improvement or rehabilitation. The range condition and status of woody and herbaceous plants will be assessed in various parts of the AE to determine seasonal browse and graze availability in the ecosystem and facilitate development of sound range management interventions. The parameters to be monitored will include plant biomass, forage quality and availability, and the degree of soil erosion.

In addition, to have an insight on the impact of elephants on the woody species, assessments will be carried out to determine the level and extent of elephant damage in different habitats and for specific woody species. *Acacia spp.* will be targeted for monitoring as this form the bulk of the dry season forage for most wild herbivores and small livestock.

Action 4.5 Carry out priority applied research in support of Amboseli Ecosystem Management

Amboseli Ecosystem has been a subject of numerous ecological and socio-economic studies which have contributed greatly to the current appreciable understanding of ecosystem functions and dynamics. Despite this, there are still several aspects of the ecosystem that are little understood and since they are critical to ecosystem integrity, measures are required to generate insights on these aspects. For instance, the hydrology of the Kilimanjaro catchment and its contribution to the Amboseli swamp system the lifeline of Amboseli biodiversity, is little understood. Similarly, the status of the bird species assemblages has not attracted intensive research to shed light on their role in the ecosystem. Hence, under this management action, AE researchers will identify the most crucial ecosystem aspects that need to be studied and work with external researchers to carry out research in these areas.

Box 3. Preliminary priority research identified for the AE:

1. The status of ungulate population in the Amboseli ecosystem
2. The status of large carnivores in the Amboseli Ecosystem
3. Carry out ornithological studies targeting both migratory and resident species
4. Elephant-habitat interactions within the park and wider ecosystem
5. The impact of bush meat poaching on ungulates in the Amboseli ecosystem
6. Status and threats of specific elephant corridors in the Amboseli Ecosystem
7. Status of fringe eared Oryx and its habitat
8. Potential solutions to human-wildlife conflicts related to elephants and large carnivores
9. The nature and extent of illegal sandal wood harvesting in the Amboseli Ecosystem
10. The viability of the Chyulu rhino population (genetic and demographic studies)
11. Habitat restoration studies
12. Natural resource valuation study

Three Year Activity Plan 2008 – 2011

The following pages give an outline of the first 3-Year Activity Plan for the Ecological Management Programme. The activity plan details the activities, responsibilities, timeframe and milestones necessary for implementation of each management action over the first 3-year timeframe of this management plan. .

Management Action and Activities	*Responsibility*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
Objective 1: Critical Wildlife dispersal areas and corridors within Amboseli Ecosystem are secured														
Action 1.1 Support the development of land use plans for individual group ranches in the ecosystem														Land evaluation study report compiled by June 2010
1.1.1 Carry out an inventory of natural resources in the group ranches	SRS-Southern, ACC, AWF				■	■								
1.1.2 Carry out a land evaluation study for tourism development, livestock production and agriculture	SRS-Southern, ACC, AWF						■	■	■					
1.1.3 Carry out land use zoning based on the land evaluation study	SRS-Southern, ACC, AWF, GR committees									■	■			
1.1.4 Organise group ranch level meetings to disseminate the land evaluation study output	SRS-Southern, CWO-Amboseli, ACC, AWF, GR committees									■	■	■	■	
Action 1.2 Liaise with District Administration to control charcoal burning in the AE														A charcoal burning survey report compiled by September 2009
1.2.1 Identify and map charcoal burning hotspots	SRS-Southern, ACC, AWF, GR committees				■	■								
1.2.2 Disseminate the charcoal burning survey information to the District Environment Committee	SW-Amboseli					■	■							
Objective 2: Swamps and River Systems managed and protection in collaboration with stakeholders														
Action 2.1 Carry out a water resource assessment study to discern both water availability in the ecosystem and water requirements for the local community.														A water resources assessment report ready by June 2009
2.1.1 Carry out an inventory of key water sources	SRS-Southern, ACC,				■	■								

Management Action and Activities	*Responsibility*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
2.1.2 Carry out a survey of water users for each key water source	SRS-Southern, ACC, AWF, GR committees													
2.1.3 Prepare a report on water resource assessment detailing water availability and demand	SRS-Southern, ACC, AWF, GR committees													
Action 2.2 Support development of Kimana Wetland Management Plan														Kimana Wetland Management Plan compiled by December 2010
2.2.1 Carry out a resource inventory of Kimana swamp	SRS-Southern, AWF, Kimana and Mbirikani Land Owners													
2.2.2 Organise stakeholder planning workshops	SRS-Southern, AWF, Kimana and Mbirikani Land Owners, ACC													
2.2.3 Carry out expert studies on water resource assessment, and irrigated farming	SRS-Southern, AWF, Kimana and Mbirikani Land Owners													
2.2.4 Compile Kimana wetland management plan	SRS-Southern, AWF, Kimana and Mbirikani Land Owners													
Action 2.3 Support establishment of soil and water conservation measures to reduce water pollution in AE's water bodies														Water quality and quantity monitored semi-annually
2.3.1 Liaise with the Ministry of Agriculture to sensitize farmers on the importance of soil and water conservation	SRS-Southern, CWO-Amboseli													
2.3.2 Monitor water quality and quantity at key water points	SRS-Southern													
Action 2.4 Carry out Environmental Audits of water projects in the ecosystem to determine the social and environmental impact of water abstraction														Environmental Audit report for Kimana-Kikarankot river system compiled by December 2009
2.4.1 Carry out an environmental audit of Kimana-Kikarankot river system	SRS-Southern													
2.4.2 Carry out an environmental audit of Nol Turesh water supply system	SRS-Southern													
Objective 3: Conservation of AE threatened large mammal species is enhanced														

Management Action and Activities	*Responsibility*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
Sub-Objective 3.1: **Elephant monitoring and management enhanced**														
Action 3.1.1 Carry out an elephant-habitat modelling study to determine the elephant carrying capacity of the ecosystem														
3.1.1.1 Carry out an ecosystem-wide habitat assessment study	SRS-Southern, ATE, ACC/ARCP													
3.1.1.2 Develop computer simulation models of elephant-habitat interactions	SRS-Southern, ATE													
Action 3.1.2 Collaborate with ATE to ensure that long term elephant monitoring and research in the ecosystem is maintained														Elephant scientists deployed to ANP by June 2011
3.1.2.1 Recruit young elephant scientists and deploy them for internship with the AERP	H-HC													
Sub-Objective 3.2: Conservation of threatened predators enhanced														
Action 3.2.1 Monitor AE top carnivores to determine population trends, distribution and movements														Carnivore monitoring protocols developed by December 2010
3.2.1.1 Develop monitoring protocols for cheetah, hyena and wild dogs	SRS-Southern, H-SP													
3.2.1.2 Monitor population status and distribution of cheetah, hyena and wild dogs	SRS-Southern, H-SP													
Action 3.2.2 Identify potential carnivore conservation zones using available information														
3.2.2.1 Carry out spatial GIS modelling of suitable carnivore conservation zones using geo-referenced carnivore movement data	SRS-Southern, H-SP													
Action 3.2.3 Establish a GIS based human-carnivore conflict database														A functional database in place by March 2010
3.2.3.1 Develop a GIS based data collection tool	SRS-Southern, CWO-Amboseli, ACC													
3.2.3.2 Train KWS rangers and community game scouts on use of the conflict data collection tool	SRS-Southern-CWO-Amboseli													
3.2.3.3 Design a Human-carnivore conflict GIS database	SRS-Southern-CWO-Amboseli													
3.2.3.4 Implement the human-carnivore conflict database	SRS-Southern-CWO-Amboseli													
3.2.3.5 Train AE researchers on the human-carnivore conflict database	SRS-Southern-CWO-Amboseli													

Management Action and Activities	*Responsibility*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
Action 3.2.4 Support disease surveillance, monitoring and control														Wildlife disease monitored continuously
3.2.4.1 Liaise with KWS Vet department in sampling carnivores for disease pathogens	SRS-Southern, H-Vet													
3.2.4.2 Support Ministry of Livestock in its efforts to vaccinate domestic dogs against rabies	SRS-Southern, H-Vet													
Sub-objective 3.3 The black rhino population management is enhanced in line with the KWS National Rhino Management Strategy														
Action 3.3.1 Carry out a habitat assessment study in the Mbirikani rhino dispersal area														Habitat Assessment Study report prepared by September 2010
3.3.1.1 Develop terms of reference for the habitat assessment study	SRS-Southern, SRS-Rhino													
3.3.1.2 Identify a competent wildlife ecologist to carry out the habitat assessment study	SRS-Southern, SRS-Rhino													
3.3.1.3 Implement the study in collaboration with the KWS Rhino programme	SRS-Southern, SRS-Rhino													
Action 3.3.2 Improve the joint KWS/Maasai Land Preservation Trust (MPT) Rhino monitoring and reporting system														KWS/MPT memorandum of understanding signed by June 2010
3.3.1.1 Organise KWS/MPT meetings to discuss a collaborative MOU	SRS-Southern, SRS-Rhino, MPT													
3.3.1.2 Draw and sign an MOU on collaboration in rhino monitoring	SRS-Southern, SRS-Rhino, MPT													
3.3.1.3 Train community game scouts in KWS Rhino monitoring protocols	SRS-Southern, SRS-Rhino, MPT													
3.3.1.4 Implement a night water-hole photographic rhino survey programme	SRS-Southern, SRS-Rhino, MPT													
Action 3.3.3 Support expansion of the Rhino range from Chyulu hills slopes to lower Mbirikani plains														
3.3.3.1 Identify suitable sites for establishment of wildlife water points	SRS-Southern, SRS-Rhino, MPT													
3.3.3.2 Construct wildlife water points	SRS-Southern, SRS-Rhino, MPT													
Objective 4: Ecological monitoring and research information dissemination is strengthened														
Action 4.1 Establish a KWS research sub-station at ANP headquarters														A KWS researcher de-

Management Action and Activities	*Responsibility*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
4.1.1 Deploy a research scientist to ANP	SRS-Southern, DDBR&M							■	■					ployed to ANP by June 2010
4.1.2 Identify research equipment and facilities required to initiate an ecological research and monitoring system	SRS-Southern							■	■					
4.1.3 Procure research equipment	SRS-Southern							■	■					
Action 4.2 Establish a database of research on Amboseli Ecosystem														
4.2.1 Carry out a comprehensive inventory of research work that has been carried out in Amboseli	SRS-Southern			■	■									A digital research library compiled by December 2009
4.2.2 Collect all the available published and unpublished research documents on Amboseli	SRS-Southern			■	■									
4.2.3 Develop a digital research library for Amboseli documents	SRS-Southern			■	■	■	■							
Action 4.3 Establish a transboundary research coordinating committee to facilitate information sharing and implementation of cross border activities														
4.3.1 Organise a transboundary research meeting for researchers in the Amboseli-Kilimanjaro and Tsavo-Mkomazi ecosystems	SRS-Southern, ACC, ATE, AWF									■				A transboundary research coordinating committee established by December 2010
4.3.2 Develop terms of reference for the transboundary research coordinating committee	SRS-Southern, ACC, ATE, AWF										■			
4.3.3 Hold regular research coordination meetings	SRS-Southern, ACC, ATE, AWF											■	■	
Action 4.4 Monitor the range condition and develop measures to improve the poor range condition within the Amboseli Ecosystem														
4.4.1 Establish a biomass monitoring programme using remote sensing data	SRS-Southern									■	■	■	■	Vegetation monitoring transects established by June 2011
4.4.2 Establish transects to monitor impacts of elephants on woody vegetation outside ANP	SRS-Southern, ARCP											■	■	
4.4.3 Monitor elephant impacts on the woody vegetation semi-annually	SRS-Southern, ATE, ACC/ARCP													
Action 4.5 Carry out priority applied research in support of Amboseli Ecosystem Management														A Scientific workshop

Management Action and Activities	*Responsibility*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
4.5.1 Organise a research meeting to identify priority research areas for Amboseli	SRS-Southern, ATE, ACC,AWF													organised by June 2010
4.5.2 Create awareness on identified research opportunities through the internet	SRS-Southern, ATE, ACC,AWF													

AE Ecological Monitoring Framework

The Ecological Monitoring Framework set out in table 20 is an important complement to the Ecological Management Programme's objectives and actions. This framework aims at ensuring that the ecosystem health is assessed during the plan period to continuously gauge the effectiveness of the implementation of management actions under this programme. The framework is however not exhaustive and will therefore need further elaboration into a comprehensive AE Ecological Monitoring Plan which will provide a comprehensive basis for future ecological monitoring activities in the AE.

Table 20. Framework for the development of the AE Ecological Monitoring Plan

KEA/Threat	*Indicator of change*	*Method of measurement*	*Collection frequency*	*Data source*	*Responsibility*	*Data currently collected?*
***Conservation Target 1:* River and Swamp Systems**						
KEA: Catchments forest size **Threat**: Habitat conversion	Area under forest catchments	Analysis of satellite images and aerial photos	Every 5 years	Land cover changes report	SRS; ARCP	Data is available
KEA: River regime (flow and pattern) **Threat**: Water abstraction	Level of water in key rivers	Installing and taking reading from water flow meters	Daily	Water flow monitoring reports	SRS/WRMA	Data is available
KEA: Water quality **Threat**: Chemical pollution	Amounts of dissolved chemicals in water	Direct measurements and laboratory analysis of chemicals in water samples	Seasonal (wet and dry)	Water quality analysis reports	SRS;SFS;WRMA	Data is available
KEA: Riparian habitat **Threat**: Habitat conversion	Area under riparian habitats	Analysis of satellite images	Every 5 years	Land cover changes report	SRS;SFS;WRMA	No data is available
Threat: Drainage of swamps	Area under swamps	Analysis of satellite images	Every 5 years	Land cover changes report	SRS;SFS;WRMA	No data is available

KEA/Threat	*Indicator of change*	*Method of measurement*	*Collection frequency*	*Data source*	*Responsibility*	*Data currently collected?*
***Conservation Target 2: :* Acacia Woodland and Grassland mosaic**						
KEA: Population of key grazing species	Number of individuals of different sex and age classes of key grazing species	Aerial surveys, ground counts	Seasonal (wet & dry) after every 3 years	Ground counts and aerial survey reports	SRS;ARCP	Baseline data available for all species
Threat: Bush-meat poaching	Number of arrests made and snares removed	Analysis of occurrence book; removal	Monthly	Reports on arrests and snares	SRS/security	Baseline data available
KEA: Extent of grassland	Area under grassland woodland	Analysis of satellite images and aerial photos	Every 5 years	Land cover changes report	SRS; ARCP	Baseline data available
KEA: Vegetation structure and composition	Number of species and vegetation cover	Sampling transects to assess vegetation composition & structure	Seasonal (wet and dry) after every 3 years	Reports on floral structure	SRS; ARCP	Baseline data available
Threat: Fire	Number of fire outbreaks; Area burnt	Analysis of MODIS satellite reports	every 3 years	Land cover changes report	SRS; ARCP	No data is available
***Conservation Target 3:* Hilly habitats**						
KEA: Vegetation structure and composition	Number of species and vegetation cover	Sampling transects to assess vegetation composition & structure	Seasonal (wet and dry) after every 3 years	Reports on floral structure	SRS;ARCP	Data available
Threat: tourist activities	Vegetation cover	Land cover assessments	Every 3 years	Land cover survey reports	SRS/security	No data is available
***Conservation Target 4:* Wildlife migratory corridors**						
KEA: Habitat size and quality	Extent of suitable grasslands; quantity and quality of preferred forage species	Mapping of habitat through satellite image analysis; lab forage quality analysis; transects & quadrants to establish forage quantity, rainfall to relate to primary productivity	Bi-annual; Daily (rainfall data)	Monitoring and mapping/land cover changes report	ARCP;SRS/ consultant	data is available
Threat: Cultivation and settlement	Extent of settlement , cultivation and fences	Mapping land cover using aerial photos and mapping fences using GPS	Every 3 years	Land cover survey reports	ARCP;SRS	No data is available
***Conservation Target 5:* Lion**						
KEA: Optimal population size, recruitment and	Large carnivore population performance; Habitat availability	Radio tracking	continuous	Carnivore monitoring reports	SRS	Baseline data is available

KEA/Threat	*Indicator of change*	*Method of measurement*	*Collection frequency*	*Data source*	*Responsibility*	*Data currently collected?*
structure						
KEA: Population of herbivore species	Number of individuals of different sex and age classes of key browsing species	Aerial surveys, ground counts	Seasonal (wet & dry) after every 3 years	Ground counts and aerial survey reports	SRS; ARCP	Baseline data available for all species
Threat: Poaching	Number of arrests made and snares removed	Analysis of occurrence book; snares removal	Monthly	Reports on arrests and snares removed	SRS/security	Baseline data available
KEA: Extent of bushland grassland	Area under bushland grassland	Analysis of satellite images	Every 5 years	Land cover changes report	SRS/Consultant	Baseline data is available
Conservation Target 6: **Elephant**						
KEA: Migration routes/ dispersal areas **Threat**: Settlement in critical elephant habitats	Length and width of migratory routes; size of dispersal area	Elephant surveillance; mapping of available habitat through satellite images	Daily surveillance; every 5 years	Elephant movement pattern reports; land cover changes report	AERP; SRS	Baseline data is available
KEA: Optimal population size, recruitment and structure	Elephant population performance; Habitat availability	Individual identification method; aerial surveys	continuous; every 3 years	Elephant ID and aerial census survey reports	AERP; SRS	Baseline data is available
KEA: Genetic diversity and variability **Threat**: Inbreeding	Number of individuals with similar genes; Quantitative characteristics of the population (phenotype)	Genetic mapping; Population performance	Every 3 years	Genetic mapping reports	SRS/KWS Veterinary department/ consultant	No data is available
Threat: Poaching	Number of poached elephants	Aerial surveys; aerial surveillance; mapping of carcasses through ground surveillance by security rangers; Occurrence book analysis	Every 3 years; daily	Aerial survey reports; daily surveillance reports	AERP; SRS/ Security	Baseline data available

KEA/Threat	*Indicator of change*	*Method of measurement*	*Collection frequency*	*Data source*	*Responsibil-ity*	*Data currently collected?*
Conservation Target 7: **Giraffe**						
KEA: Available habitat and quality **Threat**: Insuffi-cient habitat	Quantity and quality of pre-ferred forage species; Popula-tion size verses carrying capacity	Transects to establish forage quantity and lab forage quality analysis;	Bi-annual	Monitoring reports	ARCP;SRS	No data is available
KEA: Population size, recruitment and structure	Number of individuals (age & sex)	Wildlife census	Every three years	Wildlife census reports	ARCP;SRS	Baseline data is available
Threat: Disease	Number of disease outbreaks	Disease surveillance	continuous	Disease surveil-lance reports	SRS/ vet	Baseline data available

Tourism Development & Management Programme

Programme Purpose and Strategy

Programme Purpose: Develop high quality and sustainable tourism that optimizes benefits locally and nationally within agreed limits of acceptable use

Amboseli ecosystem is one of the most important tourism destinations in Kenya receiving over 130,000 visitors annually. The high visitation is attributed to the presence of many unique and diverse tourism resources that offer varying tourism opportunities to both local and international visitors who include Amboseli in their itinerary. The major attractions include the scenic view of the snow capped Mt. Kilimanjaro, the easily approachable elephants, large herds of plains wildlife that are found in the mosaic of AE habitats, and the authentic Maasai culture. These tourism resources offer not only excellent viewing opportunities, but also present opportunities for development of visitor activities and attractions that are specific to Amboseli. The swamps which are found in the Park and in the neighbouring ranches are the lifeline of the wildlife in the ecosystem. They offer critical watering points and grazing areas for most grazers particularly during the dry season. They are therefore the best wildlife viewing areas as they host high densities of animals which congregate in these swamps during the dry season.

The high tourism potential and diverse opportunities for tourism investment provided by tourism resources in the ecosystem has attracted a considerable number of tourism developments in the ecosystem. However, due to lack of a negotiated ecosystem-wide tourism development plan and a land tenure that is fast changing from communal to private land ownership, which makes land sale or leasing easier, in the recent past tourism investors have been acquiring land in the ecosystem and developing tourism accommodation facilities without due regard to wildlife migratory routes and dispersal areas. This situation, if not checked, has the effect of cutting off critical wildlife migratory routes and congregating wildlife in the Park. The concentration of wildlife in the Park will have very adverse ecological impacts on the Park as it cannot support the large numbers of migrating wildlife such as elephants, and it will also erode the tourism potential of the Amboseli ranches impacting negatively on tourism returns for the local community.

This tourism development and management programme sets out actions that AE will implement in the next 10 years. In implementing these actions the AE management hopes to realize sustainable tourism development, by increasing the socio-economic benefits that accrue to the stakeholders and at the same time ensure that tourism does not impact negatively on the natural resource base. The following sections set out the strategic principles that will guide AE management in implementing the Tourism Development and Management Programme and in achieving the programme purpose.

In implementing the AE's Tourism Development and Management Programme, AE Management will strive to ensure that:

Tourism in the AE is developed in a sustainable manner

Over a very long time, development of tourism facilities within the Amboseli Ecosystem has mainly been investor driven and therefore not coordinated. Tourist facilities have therefore been developed without any regard to their potential impact on the environment. For instance at the 1.6 Km^2 Ol Tukai Triangle, which is at the center of the Park, but owned

by the County Council, there are currently three lodges (Amboseli (partially operational) Kilimanjaro (derelict) and Ol Tukai), which have become a significant visual intrusion. The high density of people is also causing considerable environmental pressures resulting from sewage, garbage, insecurity and illicit activities. On the other hand, in the subdivided Kimana ranch, tourist facilities are being developed on wildlife routes blocking free movement of wildlife to their dispersal areas. Hence the challenge for the tourism programme in the ecosystem is to design a high value, low impact tourism product that balances conservation and development. This demands a common tourism vision and strategy among competent landowners in order to ensure that tourist facility development does not impinge on tourism resources degrading and consequently devaluing the tourism product.

Currently, the destination of the bulk of visitors to the AE is the Park as tourism facilities such as viewing roads are not developed in the Amboseli group ranches. As such, there is potential over concentration of visitors in the Park if the current increasing uncontrolled development of tourist accommodation facilities continues outside the Park without the development of corresponding viewing circuits to support more vehicles. In order to ensure that tourists are dispersed widely in the ecosystem, and hence forestall further tourist-related ecological degradation of the park and ecosystem, tourism development will have to be coordinated with all facilities, existing and proposed, being subjected to environmental impact assessment or audit in line with the requirement of the Environmental Management and Coordination Act (1999). In addition, development of tourism accommodation facilities will be guided by the limits of acceptable use set out in the ecosystem zoning scheme.

The tourism product is diversified to reduce pressure in the Park and enhance tourist experience

The predominant tourism activity in the ecosystem is wildlife viewing and photography against the backdrop of the majestic Kilimanjaro, the tallest mountain in Africa on the Kenya/Tanzania border. The concentration of wildlife in swamps in the Park and Kimana wildlife sanctuary is a major attraction especially during the dry season, leading to tourist congestion in these two wildlife focal areas. Wildlife dispersal during the wet season has little impact on distribution of visitors, perhaps due to lack of roads and other tourism related infrastructure in the dispersal areas.

In order to exploit the existing tourism potential in the ecosystem without compromising its ecological integrity, there is need to develop new tourism products that are not necessarily based on wildlife viewing. These activities would not only ensure that visitor experience is enhanced, but they would keep visitors from the roads minimizing congestion. In addition, visitors participating in these activities would spend more time and cash in the ecosystem further boosting the local economy. Potential opportunities for tourism diversification are in cultural tourism, volunteer tourism, horse riding, walking and bird watching among others. These activities are well developed in some of the group ranches with conservancies and they will be developed further through this programme.

Local communities in the AE are benefiting from tourism

Tourism development in the Amboseli Ecosystem has, and continues to play an important role in the socio-economic development of the local people through generating revenues and employment. Wildlife based tourism has been adopted by some land owners as an alternative land use option through the establishment of sanctuaries and leasing of concession areas to private investors.

Nevertheless, tourism derived benefits have not been distributed among stakeholders in a manner commensurate with the costs of tolerating wildlife. Most of the leases and tenancy agreements of the lodges, campsites, and tourist enterprises outside the park have been poorly negotiated and prepared, with the result that they are in favour of the lessee rather than the landowners. Since a viable and sustainable wildlife tourism sector depends primarily on maintaining connectivity between the Park and adjacent ranches to allow wildlife to access forage, it is vital that local communities receive tangible benefits for them to continue supporting wildlife tourism.

These guiding principles are intended to guide the implementation of the four tourism management and development objectives. These objectives focus on minimizing adverse impacts of tourism, enhancing equity in sharing benefits accruing from tourism, enhancing visitor satisfaction by improving and diversifying the tourism product, and marketing the tourism resources in the AE. The four objectives are:

MO 1. AE tourism developed and managed in a coordinated and sustainable manner
MO 2. Tourism returns to local communities enhanced
MO 3. Tourism in AE diversified and visitor experience enhanced to boost visitor satisfaction
MO 4. Tourism in the AE promoted and marketed to attract high end local and international tourists

The following sections describe these management objectives and describe the management actions needed to achieve them. Under each management objective there is a brief description of the relevant management issues and opportunities providing the justification for the actions. The final section of the programme contains the *3-Year Activity Plan* for the Tourism Development and Management Programme, and details the activities, responsibilities, timeframe and milestones necessary for the delivery of each management action over the first 3-year timeframe of this management plan.

. Management Objectives

Objective 1: AE tourism developed and managed in a sustainable way

Amboseli is one of the most popular national parks in Kenya. The high visitation, inadequate planning together with some natural and tourism related impacts have negatively affected the natural appeal of the area. Visitor congestion, over development and derelict infrastructure in the Ol Tukai Triangle, and loss of tree cover and bush cover that is attributed to elephants have all contributed to loss of naturalness of the product and visitor exclusivity.

Amboseli ecosystem has experienced inadequate management of tourism development both in the park and in dispersal areas. There is need for development of an integrated tourism development, diversification and marketing strategy to address the challenges facing the tourism sector in Amboseli. Under this management objective, several management actions have been developed to address these challenges and ensure that

tourism is developed in a sustainable manner. These management actions focus on regulation of infrastructure development, providing incentives to tourism stakeholders to enable them establish viable conservation areas, carrying out land evaluation for wildlife tourism in the AE, developing tourism development plans, establishing a tourism monitoring programme, carrying out inspections of tourist facilities, establishing a tourism development and management committee, and increasing the entry fees to Amboseli National Park.

Action 1.1 Collaborate with AE stakeholders to control and regulate infrastructure development in the ecosystem

As discussed under the Ecological Management Programme, the area to the south and east of ANP is increasingly being overcrowded by tourism development. Tourist accommodation facilities are being established on leased plots in the individual land parcels in the former Kimana Group ranch at an alarming rate. For instance between 2004 and 2007 over ten tourist accommodation facilities have been constructed in this area. Similarly, cultural Manyattas that display the Maasai culture to tourists have also increased to the south of the Park, in Olgulului/Olararashi group ranch further blocking elephant routes to Kilimanjaro. In addition, unplanned and unsightly tin-shack markets that degrade the aesthetic appeal of the area and impinge on the security of the park entry gates have sprung up and continue to expand at Meshanani, Ol Kelunyiet and Iremito gates. Similarly, the uncontrolled and unplanned development within Ol Tukai area has resulted in derelict and disused tourist facilities that are currently an eyesore to visitors.

In order to enhance the aesthetic appeal of the Park, the focal wildlife viewing area of the ecosystem, KWS will collaborate with Department of Physical Planning, tourism stakeholders, individual land owners in Kimana, and group ranch committee members in the other Amboseli ranches to curb uncontrolled tourism related infrastructure development in the ecosystem. Towards this, KWS will liaise with Department of Physical Planning to initiate a regional physical development planning process to prepare a land use zoning plan for the Greater Amboseli ecosystem. This plan will define allowable land uses and set aside sites for future infrastructure development in the ecosystem. The output land use plan will be used by Loitokitok County Council to control future land use developments in the area. The management of AE will also coordinate with group ranch committees and the department of culture and social services to ensure harmonization in the licensing and development of cultural Manyattas making certain that these facilities do not operate sub-optimally because of stiff competition among themselves.

In addition, in order to ensure that development of facilities in the privately owned land in Kimana area does not block wildlife movement, KWS will carry out an inventory of private land owners whose land parcels constitute critical wildlife routes. These land owners will then be engaged in negotiations aimed at leaving the routes open for wildlife to roam freely. Depending on the outcomes of these negotiations, the land could be leased, grazing compensation fees paid, or land owners could consolidate land and establish tourist facilities.

As regards regulation of tourism developments in the Ol Tukai enclave, KWS will collaborate with the County Council, Ministry of Lands and NEMA to ensure that apart from the existing three lodges (Kilimanjaro Safari Lodge, Amboseli Lodge and Ol Tukai Lodge) no additional facilities will be constructed at Ol Tukai.

Action 1.2 Provide incentives to tourism investors to facilitate establishment of private wildlife conservation areas in the land bordering the park

One of the immediate threats to development of sustainable tourism in the AE is potential degradation of the key tourism resources in the area, the wildlife diversity, through congestion in the Park after wildlife movements are curtailed by tourism developments and agricultural expansion in wildlife dispersal areas. The ongoing land subdivision is not helping since once a group ranch is subdivided; individuals sell it to investors for development of tourist facilities. The land bordering the Park is currently being sold at a premium because of proximity to the Park, but despite this the big investors are still leasing or purchasing it. In order to ensure that this land is not converted to land use that is incompatible with conservation e.g. settlement, KWS will give incentives to tourism investors and tour operators who lease or purchase land and consolidate it to create large conservation areas that offer critical connectivity between the Park and the rest of the ecosystem. Suitable and agreeable incentives will be negotiated through the tourism stakeholder forum to be established under action 1.7 of this programme and the Ecosystem Trust to be established under Action 1.1 of the Ecosystem Operations programme.

Action 1.3 Carry out a detailed land evaluation for Wildlife tourism in the Amboseli Ecosystem

In order to make timely and well informed decisions on future tourism development trends in the ecosystem, it is imperative that an assessment of land suitability for wildlife and nature based tourism is carried out. This is in recognition of the fact that not all land can be set aside primarily for wildlife and tourism, nor is all land in the ecosystem suitable for tourism development. Developing tourism related facilities in areas with marginal tourism potential will result in dissatisfied visitors and hence facilities will tend to operate sub-optimally. Hence, under this management action, a survey will be carried out to assess the ecosystem's suitability for wildlife-tourism as a land use. The assessment will be based on the factors given in box.1 below among other factors.

Box 2. Factors to be taken into account when identifying land for wildlife and nature based tourism

1. There must be good opportunities for quality game viewing.
2. There needs to be a sense of remoteness and wilderness in game viewing areas.
3. There must be opportunities to undertake a range of appropriate tourism activities in the resource area.
4. Tourism resources of the resource area must match the demands and expectations of the targeted tourist market segments.
5. There needs to be adequate road access to the resource area relative to the type of tour vehicles used to ferry tourists to the resource areas.
6. There should be little interaction with farming activities – livestock and cultivation.
7. In the context of the Amboseli ecosystem the following also need to be considered: Minimal influence of villages, people, livestock and cultivation on wildlife tourism resources.
8. Must be in proximity to host communities for volunteer-based community tourism.
9. Land ownership needs to be in the following categories for community-based tourism: Group ranches, Community associations, Cooperatives, Land owned and managed by the Government.

Adopted from: Hicks R., 2007

The output report on '*land suitability for wildlife-tourism in the Amboseli Ecosystem'* will include the role of various stakeholders in tourism development and guidelines to be followed

by tourism investors in the development of sustainable tourism products in the Amboseli ecosystem. This report will also inform negotiations envisaged under action 2.1 and the detailed local level tourism development plans to be prepared under action 1.4 of this programme.

Action 1.4 Facilitate development of viable local level tourism development plans

Tourism planning within the group ranches is critical in ensuring that other competing uses do not impede its development. Currently tourism development is threatened by the imminent subdivision of the group ranches into small private plots that cannot support viable wildlife tourism individually. Since tourist accommodation facility development sites require areas that are isolated, rich in wildlife, and have limited or are devoid of other human activities, it is vital that areas with high tourism potential be identified and set aside for tourism development before subdivision occurs. In order to ensure that wildlife tourism as a land use is integrated in the ecosystem's land use system, unsubdivided group ranches will be assisted to develop detailed tourism development and management plans as part of the group ranch management plans envisaged under the Ecology management programme

Action 1.5 Establish a tourism monitoring programme for the AE

Environmental pollution is a major problem in Amboseli ecosystem. Most of the existing lodges and other tourist facilities inside the ecosystem have negatively impacted on the environment. Poor management of solid and liquid waste, noise pollution from generators, and ground water pollution in the swamps, are some of the key impacts of tourism.

The area to the south and south western end of the ANP, from Kimana gate to Kitirua gate, is greatly affected by unplanned tourism developments. The concentration of tourist facilities in one area not only lowers the quality of visitor satisfaction, but blocks wildlife movement as well. Within the group ranches, expansion of human activities is being aggravated by the recent subdivision of Kimana Group Ranch into individual plots which are being leased or purchased for development of tourist facilities.

In order to understand the nature, extent and trends of tourism impacts, and consequently intervene promptly to avert major negative environmental and social impacts arising from tourism activities, AE management, will establish a tourism monitoring programme in collaboration with the tourist facilities and resident research NGOs in the AE. Visitor satisfaction in the AE will be monitored to determine the factors likely to affect the desirability of the ecosystem by visitors. Frequent interviews and visitor surveys, will be carried out and results used to improve the tourism product in the AE. The results will also be disseminated to the tourism stakeholders through regular briefings and reports to facilitate them to take corrective action. Some of the data to be collected through the tourism monitoring programme will include bed occupancy, resource use by the facilities, amount of solid waste disposed at campsites and picnic sites, AE visitation, and visitor activities.

Action 1.6 Carry out regular inspections of the AE tourism facilities

It is a statutory requirement under the Environmental Management and Coordination Act (1999) for all tourist Camps and lodges to carry out an initial environmental audit and subsequent annual audits. However, this provision is rarely followed partly because NEMA lacks the required capacity to enforce this legal requirement. In order to ensure that tourist lodges in the AE are environmentally compliant, hence minimize environmental pollution emanating from these facilities, AE management will liaise with the KWS headquarters EIA section and

NEMA to have the KWS resident researcher or any other qualified resident environmental researcher, appointed by NEMA as an Environmental Inspector in accordance with the EMCA 1999. The Environmental Inspector will be responsible for leading quarterly inspections of facilities to assess their adherence to environmental mitigation measures outlined in environmental Impact assessment and environmental audit reports. These inspections will be impromptu to ensure that facilities are continuously compliant. The Inspection will also focus on activities that contravene park rules and regulations and the wildlife act (CAP 376) such as habituation and feeding of animals at the tourist facilities.

Action 1.7 Establish a functional AE tourism-stakeholders' forum and hold regular forum meetings

Because of their vested interests, tourism investors can play a positive role in influencing future tourism development in the AE. The investors share common interests of enhancing their clients' satisfaction to ensure repeat visits and positive marketing of their facilities by the clients. In addition, investors would like to recoup their investment and make profits from their enterprises. However, this cannot be achieved in an environment where land use is not controlled and therefore there is need for current investors, although they are competitors, to forge a common front to ensure that high quality tourism is developed in the AE. Development related issues have already emerged in the areas to the east and south of the Park. Fences installed by developers are limiting animal movement by either hemming the animals in, or preventing traditional movements. It is therefore important that new entrants in the Amboseli tourism development sector find a cohesive and collaborating tourism industry to avoid chaotic development. Towards this, a tourism development and management committee consisting of the current tourism stakeholders and KWS will be established for purposes of lobbying for coordinated and sustainable tourism development in the ecosystem. Issues of concern among the tourism stakeholders such as asset devaluation (due to increased overcrowding by similar facilities), reduction of the natural and aesthetic appeal of the area, blockage of wildlife corridors, threat to visitor safety, will be addressed by this forum. In addition this forum will agree on modality of joint implementation of management actions of benefit to all stakeholders e.g. electricity supply from the main grid.

Action 1.8 Liaise with KWS Headquarters to increase the entry fees for Amboseli National Park

Tourism arrivals in Amboseli NP are by arrangement through package tours resulting in low quality tourism and low prices. The low prices charged on package tours means that lodges are continually trying to expand bed capacity to meet the ever increasing demand for accommodation. However, the increase in visitors is leading to congestion in the Park necessitating measures to control visitation to alleviate degradation of the tourism product.

There are several ways of limiting visitation to a predetermined carrying capacity and hence minimize adverse tourism impacts. The site can be zoned according to allowable activities to encourage activities that have minimal impacts in fragile areas. Activities can also be diversified to distribute visitors, and Instead of increasing beds to enhance revenue, entry fees can be increased to limit visitation.

Amboseli can maximize revenue generation and minimize visitor impacts from high visitor numbers by increasing the entry fees. Although this might not have a significant reduction on visitor numbers since Amboseli has already established itself as a high quality destination among tour operators and local and international tourists, increased revenue will go a long

way in countering the impacts of high visitation e.g. regular road maintenance, garbage collection, and water maintenance.

Under this management action, KWS will lobby the Ministry of Forestry and Wildlife and the tourism industry to have the tariffs for Amboseli reviewed upwards. The forum established through action 1.7 of this programme will also be used to build consensus in the tour industry on the importance of charging a premium entry fee for Amboseli.

Objective 2: Tourism returns to local communities enhanced

Wildlife based tourism as a land use has been gaining popularity with the Amboseli landowners and as a result various conservancies have been established within the Amboseli Ecosystem. The first community conservancy in Amboseli, Kimana Wildlife Sanctuary, was established in 1996, while Porini Conservancy in Eselenkei was established in 1998. Olgulului group ranch has set aside Kitirua Concession Area as an exclusive wildlife and tourism area, while Mbirikani has entered into a concession with Ol Doinyo Wuas Lodge. Community established and managed conservancies are very positive for development and conservation, and a clear demonstration that conservation can compete with other types of land uses in the Amboseli Ecosystem.

Despite these positive measures towards integration of wildlife tourism in the AE land use mosaic, there is discontent among the local communities regarding benefits accruing from tourism compared to what they get from other competing uses such as livestock and agricultural production. This is therefore a threat to development of a vibrant, viable and sustainable tourism in the AE necessitating enhancement of tourism revenues and employment opportunities, and ensuring equity in benefit sharing if tourism is to thrive outside the park. In order to ensure that community gains from tourism are increased thereby increasing support for conservation, management actions under this management objective will include, renegotiating the lease agreements for tourist facilities and concession areas, promoting cultural tourism, establishing a cultural center association, and establishing curio shops at appropriate strategic points.

Action 2.1 Renegotiate leases for tourist accommodation facilities, wildlife sanctuaries and concession areas

Tourism investors play a critical role in wildlife conservation in the Amboseli Ecosystem. They provide employment to local communities and support local entrepreneurs who provide goods and services to their clients. There are several investors who have leased land from the local community and are using it for game viewing. These leased concession areas cover an area of about 100,000 acres. However, the lease fees are generally considered inadequate and do not reflect the opportunity cost of alternative land use. Under this management action therefore, the community will be facilitated to renegotiate lease fees for the concession areas and the tourist accommodation facilities on their land to reflect current market rates. The tourist accommodation lease fees will be benchmarked against those charged by KWS for similar facilities in National Parks. Re-negotiating lease fees is expected to generate considerable revenue for the community as attested by the renegotiation of the Kitirua concession area lease which yielded a four fold increase in lease fees.

Action 2.2 Promote and facilitate development of cultural tourism showcasing authentic local Maasai culture

The Maasai community is one of the few ethnic groups that has been categorised as an indigenous community because of its persisting and well preserved authentic culture. This outstanding cultural distinctiveness is a tourist attraction which has been marketed widely. Culture related tourism is currently low and it usually involves visits to cultural centers which are included in the wildlife viewing tour package offered by tour operators. In order to reap maximum benefits from the opportunities offered by the cultural experience, measures that consider the interests of visitors and respect the Maasai culture will be taken. First, KWS will support members of the local Maasai community to display their way of life in its unadulterated form. This will involve promoting and supporting development of 'home stays' for cultural tourists. Second, cultural events such as circumcision ceremonies will be promoted widely and visitors wishing to participate in, or film such events will be booked in advance. Third, the management of the existing cultural centers will be revamped through training of cultural center operators in management and governance issues to ensure that the beneficiaries of these facilities are not exploited by visitors through acts that demean the community and its culture. These operators will also be trained in basic ways of interpreting the cultural aspect of the ecosystem to visitors.

Action 2.3 Establish a Cultural Centre Association to control and streamline service and product quality in the cultural centres

Currently, cultural centers have to negotiate with tour drivers to get visitors as inclusion of these facilities in the visitors' itinerary is determined by the tour drivers. Due to the increasing number of these facilities, there is need for coordination among the facilities to ensure that authentic Masai culture is displayed in a way that meets visitor expectation. Under this management action therefore, an Amboseli Cultural Center Association consisting of representatives from the existing cultural centers will be established to set up standards and brand the cultural centers in terms of design, construction and operation, and liaise with tour operators regarding issues on cultural centers. One of the issues that will be addressed through this association concerns the small fraction of tourism revenue received from visitors who enter these facilities. Since these facilities rely entirely on the good will of tour drivers to have visitors, the management of these facilities are forced to strike a deal with the tour drivers where the drivers get up to 90% of the revenue. The association, with assistance from KWS and other stakeholders, will establish a revenue collection and transfer arrangement with prominent tour operators to ensure that the cultural centers are not fleeced by tour drivers. KWS on its part, through its intelligence network, will identify notorious tour drivers and recommend disciplinary action to their employers.

In order to strengthen the capacity of this association and make it effective in developing and managing cultural tourism in the ecosystem, cultural center operators will be trained in various aspects of enhancing cultural tourism including, tourism product development, display of culture, and delivery of quality service.

Action 2.4 Support establishment of well designed community curio shops

Curio shops provide visitors an opportunity to step out of vehicles and stretch as they buy local works of art on display. Lack of curio shops close to ANP has led to emergence of a thriving, but uncontrolled curio hawking businesses at the three busiest Park gates i.e. Meshanani, Ol Kelunyiet and Iremito. The hawkers, in their spirited attempt to sell their curios, end up annoying the visitors with their insistence reducing visitor satisfaction. In addition, the

hawkers have also partly contributed to the expansion of the out of character informal human settlements at the park gates as they have to be accommodated close to the gates.

As such, in order to streamline the curio business and earn additional revenue to local communities, the community will be supported to establish well designed, large and environmentally friendly curio shops at suitable sites along the main access roads, but at least 2-5 Km from the park gates. These curio shops will have stalls that will be leased to individual curio traders and they will be provided essential services, such as water, from the Amboseli water supply system.

Objective 3: Tourism in AE diversified and visitor experience enhanced to boost visitor satisfaction

Amboseli is currently marketed as a premium wildlife safari destination where the Big Five can be viewed with the backdrop of Kilimanjaro. Hence most of the tourist activities revolve around wildlife viewing. Tourism activities in Amboseli Park is limited to wildlife and scenery viewing as the high concentration of wildlife and plain landscape do not favour activities that are carried out outside vehicles. Hence, with increase in visitors over the last four years, tourist vehicles on Amboseli's roads have increased leading to congestion on the roads during peak viewing periods, devaluing visitor experience.

However, opportunities for tourists to get out of vehicles and engage in other equally satisfying activities exist in the Amboseli ranches. There are vast sparsely populated areas where walking, horse and camel safaris can be carried out and a few adventure tour operators have been exploiting and developing these tourism products for the adventure tourism market.

This objective is therefore designed to enhance visitor experience by providing a range of additional tourist activities and attractions that are based on the ecosystem's tourism resources such as the hills and wilderness areas. In addition, the objective aims to increase visitor appreciation of the ecosystem's exceptional values by offering information to visitors through a Visitor Center and tourist information centers that will be developed under this objective. The management actions to realise this objective are elaborated in the following sections.

Action 3.1 Establish a Visitor Centre in Amboseli National Park

A visitor center at a specific attraction or place of interest, such as a viewing point or busy park entry gate is a useful visitor facility that in addition to keeping visitors from the park roads and reducing tourism pressure, can educate the visitor on various aspects of the ecosystem enhancing visitor experience and satisfaction markedly. Currently, such a facility is lacking in the ecosystem. Under this management action therefore, a conveniently located Visitor Center will be established in the Park. This Visitor Center will have elaborate educational exhibits featuring photographs, artefacts and other AE interpretation materials covering natural as well as cultural themes. Free brochures representing premium things to see and do and places to stay will also be available at the Visitor Center. An experienced guide will also be available to explain materials on display and give talks on the Amboseli ecosystem to enhance the visitors' appreciation of the ecosystem. Some of the key themes to be exhibited in the visitor center include Amboseli elephant behaviour which is well documented, Amboseli ecological dynamics, and Masai history and culture. The Visitor Center will have an

amphitheatre where short interpretive films on the ecosystem will be shown to enhance visitor appreciation of the ecosystem's exceptional resource values. The Visitor Center will also consist of a gift shop with KWS branded items such as jackets, hats, tee shirts, and a snack bar where visitors will buy much needed cold beverages. However, due to the negative impacts such a highly visited facility can generate, especially from both solid and liquid waste, an environmental impact assessment of the proposed sites (Observation Hill, Imerishari hill, Meshanani gate, Ol kelunyiet gate, and Ol Tukai) will have to be carried out in order to select the best site.

Action 3.2 Establish tourism information centres

Tourist information centres can be instrumental in conveying park interpretation to visitors and hence influencing where they visit and what they look out for once they are in the ecosystem. Currently, park information is provided at the gates, but it is not displayed conveniently as there is no space to do this. Consequently, most visitors go through the gates without knowledge of the availability of the information. To enhance visitor experience, information centers will be established at the key entry points to the Park namely: Meshanani, Iremito, Ol Kelunyient and Empusel (airstrip) gates. These information centers will consist of one room at the gates where maps and guidebooks will be sold and brochures offered for free. The tourist information centers will be required to be proactive acquiring and providing up-to-date information on the ecosystem to visitors. Information will be acquired from stakeholders who have facilities or services to offer to tourists in the ecosystem.

Action 3.3 Support establishment of walking, horse and camel safaris in the Exclusive Use and low use zones of the ecosystem

The AE provides vast wilderness areas that are ideal for development of alternative nature based tourism products such as walking, horse and camel safaris to cater for adventure tourists. The areas that have potential for walking, horse and camel safaris include the El Mau plains in Mbirikani group ranch, the foot of Chyulu hills, in Kuku and Mbirikani group ranches, Ol Kejuado river course in Selengei group ranch, and Naiperra/Lemomo hill area in Olgulului/Olorarashi group ranch. Through this management action, tour operators will be encouraged to establish safaris as an additional tourist activity in the ecosystem's Exclusive Use and low use zones. KWS will collaborate with interested tour operators and the local community to identify and map feasible safari routes for walking, horse and camel riding. All safaris will be designed to provide high quality and memorable experience to visitors. This will be achieved by engaging qualified guides to interpret the ecosystem resources encountered along the safari routes. Besides ensuring safety of visitors during the safaris, the tour operators will be expected to engage professional armed security guides with paramilitary and wildlife control experience. These guides will be vetted and approved by KWS in conjunction with the District Security Committee (DSC) to ensure they do not pose any security risk. In case a tour operator is not able to get security guides that meet the DSC requirements, KWS will provide security to these safaris at a fee.

Since the safari routes will be free for use by all competent tour operators, it is essential that a mechanism be established to regulate safari route use to avoid usage of the same route by several visitors at the same time, eroding visitor experience. In this case, the tour operator will be expected to book a safari route with the Park warden who will be coordinating the use of all designated non exclusive safari routes in the ecosystem.

Action 3.4 Establish walking trails and picnic sites at vantage viewing points such as Imerishari and Kitirua hills

The volcanic hills dotting the Amboseli ecosystem offer vantage scenery viewing points, and are thus prime areas for location of tourist facilities such as walking trails and picnic sites that increase visitor activities in the ecosystem. A walking trail and picnic site have been constructed at the observation hill in the Park. There are also other hills in the park and ecosystem where walking trails and picnic sites can provide visitors an opportunity to enjoy scenic views of the ecosystem. These include Imerishari and Kitirua hills in the park and Lemomo hill in Olgulului/Olararashi group ranch.

To increase and diversify tourist activities in the ecosystem, a walking trail will be constructed at the Imerishari hills to the south of the Park. Currently, visitors drive or walk up the hill and then either have a picnic, or walk on the flat hill top (about 200 meters long), enjoying the panoramic scenic views of the Amboseli landscape. Since the existing vehicle track seems to have been opened by visitors as an off-road to get to the top of the hill quickly, it is poorly sited and creates a visually intruding hillside scar that can be seen from afar. To address this visual impact, the walking trail will be designed to follow the contours of the hill just like the Observation hill trail. The vehicle track will be closed and visitors will be expected to park their vehicles at the parking area to be provided at the base of the hill. In addition, two picnic sites with minimum standard picnic site infrastructure such as benches and tables will be provided at the hill top. Similarly, Kitirua hills, which are located at the south western boundary of the Park, have a vehicle track to the top of the hill and a picnic area that is usually used for sundowners. This sector of the Park is rarely used by visitors and it therefore offers a sense of solitude and wilderness that is preferred by nature-based tourists. To enhance and streamline the use of this hill by visitors, a walking trail will be constructed at the hill and a picnic site provided at the hill top.

Action 3.5 Support establishment of volunteer tourism in the community areas

Amboseli ecosystem is in a perfect position to be a leader in volunteer tourism where people volunteer to visit a destination area to contribute their energy, skills and intellectual capital to a worthwhile cause. The rich Maasai culture, long term research programmes, a prominent and world renowned Park, the ecosystem challenges ranging from health issues, water supply problems, illiteracy, overgrazing and environmental degradation in the AE, present excellent opportunities for development of a viable volunteer tourism in the Amboseli ecosystem. Under this management action, KWS will partner with the community and other stakeholders to design a volunteer programme that will exploit the opportunities offered in the ecosystem. Visitors will be encouraged to volunteer in the Park and participate in various park activities such as vehicle and plant maintenance, visitor education and park interpretation, construction and rehabilitation of Park infrastructure and wildlife research. In areas outside the Park, volunteer opportunities exist in teaching and health institutions. Initially, volunteers will be accommodated at the KWS self catering Bandas, but as the programme gains popularity, other alternative accommodation facilities such as ‘home stays’ will be provided by members of the local community.

Objective 4: Tourism in the AE promoted and marketed to attract high end local and international tourists

Park Visitation in Amboseli has been increasing over the last four years (2004-2007) with the park hosting an average of 130,000 visitors annually. This is after a recovery from the national tourism slump that was occasioned by the 1997 tribal clashes. Between 1997 and 2003 Amboseli recorded an average of 80,000 visitors annually. Domestic tourism trends in Amboseli show that tourist numbers have been an average of 40,000 citizen visitors for the last four years compared to an average of 90,000 non resident visitors recorded for the same period. In view of the unpredictable perturbations in the international tourism market, it is important that the domestic tourism market is wholly exploited to ensure sustainable tourism development in the Amboseli Ecosystem. In addition, there is need to develop a common ecosystem wide marketing strategy as currently only the Park and its associated tourism resources have received significant marketing.

This objective aims to market the ecosystem resources locally and internationally to ensure that ecosystem visitation remains high. The management actions designed to achieve this objective focus on developing and marketing new tourism products targeting specific tourism markets, marketing the ecosystem through the media and special events and developing tourist information and promotion materials. These management actions are elaborated in the following sections.

Action 4.1 Develop and market tourism products targeting the domestic tourism market

The domestic tourism market, if tapped appropriately, has the potential to cushion the AE tourism sector from the frequent unpredictable fluctuations in the international tourism market. In order to make significant inroads in this market, AE stakeholders will collaborate in developing tourism products specifically targeting local visitors. First, the existing tourist camps and lodges will offer special discounted prices during the low tourism season to make the facilities affordable to a wide range of Kenyans. Secondly, visitor accommodation facilities targeting the middle class domestic tourism segment will be developed by the local communities in collaboration with tourism investors. These facilities will include self catering Bandas and tented camps, and tents for hire. The development of the domestic tourism products will, however, be informed by results of research that will be carried out to find out the requirements of the various market segments of the domestic tourism market in terms of tourism experiences and packages of interest.

The other market segment of domestic tourism that will be exploited is the educational market. This is currently hampered by lack of suitable accommodation facilities for students in the AE. There is therefore significant room to grow this market if student hostels are provided for organised school groups. With regard to this, student hostels will also be constructed in the high use and low use tourism zones outside the park. Once the new domestic tourism products are developed, they will be marketed in accordance with Action 4.2 of this programme.

Action 4.2 Market the AE through the local and international media

Amboseli ecosystem has in the past been covered by many local and international media. The main focus of the media coverage has revolved around the Masai culture and the rich wildlife biodiversity, particularly the famous long-studied Amboseli elephants. Tourist facilities have also been advertising in the media.

In order to ensure that tourism resources in the ecosystem are widely known by potential visitors, KWS will solicit regular local and international media coverage of the ecosystem's activities such as cultural events, habitat restoration, wildlife counts and translocations. Moreover, KWS will collaborate with other stakeholders (researchers, community and tour operators) to ensure that at least two television interviews, two radio interviews, five newspaper articles and one magazine article are produced every year.

The ecosystem's tourism activities are currently advertised in many internet websites including the KWS website. The web content of these sites is, however, shallow and does not display tourism resources in the ecosystem adequately to create continuous interest in the ecosystem. In order to enrich the ecosystem's web content and give updated and relevant information to visitors through the KWS website, KWS will solicit relevant information from AE stakeholders and incorporate it in the Amboseli web page.

Action 4.3 Develop guide books and tourist maps for the entire Amboseli ecosystem

Guidebooks and tourist maps are very important in promoting tourism resources in a tourism destination. They provide the much needed information on what is on offer, where it can be found, and how to get there. This information helps a visitor to understand the tourism products enhancing visitor experience and satisfaction. High quality guidebook and tourist maps have been developed for Amboseli National Park, but an ecosystem wide guidebook and map are lacking. As such, through this management action, a high quality guidebook and tourist map will be developed for the Amboseli Ecosystem. These tourist information resources will highlight cultural as well as natural resources that can be enjoyed outside the Park, encouraging visitors and tour operators to venture into community areas, hence spreading tourism benefits. The guidebook and tourist map will be developed by KWS in liaison with the AE stakeholders. The key stakeholders (community, KWS, Amboseli Elephant Trust, ACC, and AWF) will be required to provide the necessary content for both documents as most of the relevant information, including photographs and GIS maps, already exists. Once the stakeholders have provided the information to KWS through the AE Warden, a publishing firm will be contracted to compile, produce and print the guidebook and tourist map which will be availed to all stakeholders through the KWS outlets.

Action 4.4 Hold special events to promote tourism in the Amboseli ecosystem

An effective way of promoting the AE is by organising special events that are attended by both local and international visitors. Some of the events that the Amboseli stakeholders will organise will be geared towards marketing cultural tourism and wildlife based tourism. In regard to this, under this management action, an Amboseli marathon will be organised annually.

Three Year Activity Plan 2008 – 2011

The following pages give an outline of the first 3-Year Activity Plan for the Tourism Development and Management Programme. The activity plan details the activities, responsibilities, timeframe and milestones necessary for implementation of each management action over the first 3-year timeframe of this management plan.

Management Action and Activities	*Responsibility*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
Objective 1: AE tourism developed and managed in a sustainable way														
Action 1.1 Collaborate with AE stakeholders to control and regulate infrastructure development in the ecosystem														A regional land use planning process initiated by June 2009
1.1.1 Liaise with the Ministry of Lands to initiate a regional land use planning process for the greater Amboseli ecosystem	SW-Amboseli													
1.1.2 Carry out a regional land use inventory	PP-MLs, SRS-Southern													
1.1.3 Organise regional land use planning meetings	PP-MLs, SW-Amboseli, SRS-Southern													
1.1.4 Compile a regional land use plan	PP-MLs													
Action 1.2 Provide incentives to tourism investors to facilitate establishment of private wildlife conservation areas in the land bordering the park														An tourism investors' meeting held by June 2009
1.2.1 Hold stakeholder meetings to negotiate incentives to tourism investors	SW-Amboseli													
Action 1.3 Carry out a detailed land evaluation for Wildlife tourism in the Amboseli Ecosystem														Land evaluation for wildlife tourism carried out by March 2010
1.3.1 Develop terms of reference for the land evaluation study	SRS-Southern													
1.3.2 Procure professional services to conduct the land evaluation study	SRS-Southern													
Action 1.4 Facilitate development of viable local level tourism development plans														
1.4.1 Develop terms of reference for the tourism devel-	SRS-Southern, AWF,													Group ranch level tourism

Management Action and Activities	*Responsibility*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
opment plans	ACC													planning processes initiated by June2010
1.4.2 Provide tourism technical assistance to group ranches	SRS-Southern, AWF, ACC													
1.4.3 Hold group ranch level tourism planning meetings	SRS-Southern, AWF, ACC													
Action 1.5 Establish a tourism monitoring programme for the AE														A tourism monitoring programme established by December 2009
1.5.1 Develop tourism monitoring protocols	SW-Amboseli													
1.5.2 Carry out visitor satisfaction surveys	SW-Amboseli													
Action 1.6 Carry out regular inspections of the AE tourist facilities														An Amboseli based Environmental Inspector appointed by NEMA by June 2009
1.6.1 Liaise with NEMA to appoint an Amboseli resident researcher as an Environmental Inspector	SRS-Southern													
1.6.2 Carry out regular environmental inspections of tourist facilities in Amboseli	SRS-Southern													
Action 1.7 Establish a functional AE tourism-stakeholders' forum and hold regular forum meetings														An AE tourism committee established by June 2009
1.7.1 Hold meetings to establish an AE tourism committee	SW-Amboseli													
1.7.2 Hold regular AE tourism committee meetings	SW-Amboseli													
Action 1.8 Liaise with KWS headquarters to increase the entry fees for the Amboseli National Park														Park entry fees reviewed by September 2009
1.8.1 Liaise with the Ministry of Forestry and Wildlife to increase entry fees for Amboseli	SW-Amboseli													
Objective 2: Tourism returns to local community enhanced														
Action 2.1 Renegotiate leases for tourist accommodation facilities, wildlife sanctuaries and concession areas														All leases registered by June 2011
2.1.1 Hold group ranch/tourism investor consultative meetings to renegotiate leases	SW-Amboseli													
2.1.2 Draw and register new leases on concession areas	SW-Amboseli													
Action 2.2 Promote and facilitate development of cultural tourism show casing authentic local Maasai culture														
2.2.1 Identify traditional homesteads that can	SW-Amboseli													

Management Action and Activities	*Responsibility*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
modate cultural tourists														
2.2.2 Liaise with the Ministry of Tourism in registering suitable homesteads as 'home stays'	SW-Amboseli													
2.2.3 Market the Home stays and cultural events through the media and internet	SW-Amboseli													
2.2.4 Train cultural center operators on tour guiding, management and governance issues	SW-Amboseli													
Action 2.3 Establish a Cultural Centre Association to control and streamline service and product quality in the cultural centres														Cultural Centre Association formed by June 2009
2.3.1 Hold consultative meetings for purposes of establishing the Cultural Center Association (CCA)	SW-Amboseli, CWO-Amboseli													
2.3.2 Develop the CCA's Constitution and register the Association	SW-Amboseli, CWO-Amboseli													
2.3.3 Liaise with major tour operators to solicit for clients and to agree on mode of payment for entry to the cultural centers	SW-Amboseli, CWO-Amboseli													
Action 2.4 Support establishment of well designed community curio shops														
2.4.1 Identify suitable sites for establishment of curio shops	SW-Amboseli, CWO-Amboseli													
2.4.2 Develop curio shop designs that interpret the ecosystem values	SW-Amboseli, CWO-Amboseli													
2.4.3 Liaise with group ranches and other stakeholders in the construction of the curio shops	SW-Amboseli, CWO-Amboseli													

Management Action and Activities	*Responsibility*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
Objective 3: Tourism in AE diversified and visitor experience enhanced to boost visitor satisfaction														
Action 3.1 Establish a Visitor Centre in Amboseli National Park														Visitor Center Constructed by June 2011
3.1.1 Identify suitable sites for construction of the Visitor Center	SW-Amboseli, ACC, AWF, Hoteliers													
3.1.2 Develop Visitor Center designs that interpret ecosystem values	SW-Amboseli, ACC, AWF, Hoteliers													
3.1.2 Carry out an Environmental Impact Assessment for the Sites and select the best site	SRS-Southern													
3.1.3 Fundraise for the construction of the Visitor Center	SW-Amboseli, ACC, AWF, Hoteliers													
3.1.4 Construct the visitor center	SW-Amboseli, ACC, AWF, Hoteliers													
Action 3.2 Establish tourism information centres														All Information centers established by December 2009
3.2.1 Establish information centers at Iremito, Ol Kelunyiet, Meshanani and Empusel (Airstrip) gates	SW-Amboseli													
3.2.2 Stock the information centers with adequate tourist maps and brochures	SW-Amboseli													
Action 3.3 Support establishment of walking, horse and camel safaris in the adventure and low use zones of the ecosystem														Safari routes mapped by December 2009
3.3.1 Identify and map feasible safari routes	SW-Amboseli, SRS-Southern													
Action 3.4 Establish walking trails and picnic sites at vantage viewing points such as Imerishari and Kitirua hills														
3.4.1 Develop designs for walking trails at Imerishari and Kitirua Hills	SW-Amboseli													
3.4.2 Construct walking trails at Imerishari and Kitirua Hills	SW-Amboseli,													
Action 3.5 Support establishment of volunteer tourism in the community areas														
3.5.1 Identify opportunities for volunteer tourism														
3.5.2 Prepare advertising materials and advertise the														

Management Action and Activities	*Responsibility*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
volunteer programme in the internet														
Objective 4: Tourism in the AE promoted and marketed to attract high end local and international tourist														
Action 4.1 Develop and market tourism products targeting domestic tourism market														Bandas constructed in Mbirikani by June 2011
4.1.1 Develop and market tourist Bandas at the Losikutok conservation area in Mbirikani	SW-Amboseli, AWF, Mbirikani GR committee													
4.1.2 Market the Community Bandas in Olgulului Olorashi group ranch	SW-Amboseli, AWF, Mbirikani GR committee													
4.1.3 Prepare and advertise a prospectus for potential tourism facilities in the AE														
Action 4.2 Market the AE through the local and international media														Amboseli web page updated to cover the entire ecosystem by June 2009
4.2.1 Prepare radio and TV programmes on Amboseli	SW-Amboseli, ATE, AWF, ACC, ATGRCA													
4.2.2 Prepare newspaper articles on Amboseli	SW-Amboseli, ATE, AWF, ACC, ATGRCA													
4.2.3 Update the KWS Amboseli web page by including current content	SW-Amboseli													
Action 4.3 Develop guide books and tourist maps for the entire Amboseli Ecosystem														A tourist map of the entire Amboseli Ecosystem produced by September 2010.
4.3.1 Map key tourist sites in the AE	SW-Amboseli													
4.3.2 Produce a tourist map for the entire ecosystem	SW-Amboseli													
4.3.3 Produce a tourist guide book for the entire ecosystem	SW-Amboseli													
Action 4.4 Hold special events to promote tourism in the Amboseli Ecosystem														Amboseli marathon held annually
4.4.1 Hold Amboseli marathon annually	SW-Amboseli, Group Ranch Committees													

Community Partnership and Education Programme

Programme Purpose and Strategy

Programme Purpose: To enhance community participation in wildlife conservation for social-economic empowerment

Three things stand out as key in conservation of wildlife in community owned land in Amboseli ecosystem i.e. increasing community participation in decision making to create an environment for sound land use planning; creating economic incentives for conserving wildlife; and reducing the cost of living with wildlife through implementing prudent measures to manage the escalating human-wildlife conflict.

The aim of the Community Partnership and Education Programme is therefore to push for sustainable conservation of community land. In particular, the program seeks to address issues of land use planning, human-wildlife conflicts (HWC), environmental education, and increasing benefits accruing from natural resource management and use. This programme will be guided by a set of principles which are set out in the following sections.

In implementing the AE's Community Partnership and Education Programme, AE Management will strive to ensure that:

Communal lands continue to be available for wildlife dispersal to support wildlife-tourism outside the National Park

Amboseli NP is completely surrounded by Maasai owned group ranches. These are now subdividing to smaller, individual holdings, creating an enormous conservation challenge as tenure changes are likely to result in land use changes that will increase human-wildlife conflict. Critical wildlife dispersal areas and migratory corridors that buffer ANP and link it with other adjacent protected areas such as Tsavo West, Chyulu and Kilimanjaro National Park are all in community owned lands. To ensure that wildlife dispersal areas and corridors remain open for wildlife to roam freely, under this Programme, attempts will be made to promote wildlife-tourism as an alternative land use which can contribute significant incomes to the local community. New community-owned conservation areas will be established and current ones strengthened.

Socio-economic benefits to the local communities and private land owners are enhanced

For the local community in the AE to continue hosting wildlife on their land, it is imperative that wildlife is seen to contribute positively to the economic aspirations of the community. Currently, the local community is receiving about Ksh.69 million annually from wildlife tourism ventures, but there is potential for even quadrupling this amount if the enormous tourism potential is exploited and financial management is enhanced. In addition, there is potential for exploitation of other natural resources increasing income for the community. For instance, bee keeping is still under developed in the AE yet it has a very high potential of contributing substantially to the local economy if properly developed. This program will therefore aim to exploit the available natural resource potential to enhance benefits to the community.

Human-wildlife conflicts (HWC) are minimized

Wildlife continues to affect the AE community negatively through incessant crop raiding, human injury and livestock predation. Crop raiding is rampant in irrigated areas around wetlands, and in the rain-fed agricultural areas at the foot of Mt. Kilimanjaro. Wildlife (especially elephants) continues to expand their range to cover new areas around Namanga and Maparasha Hills, creating new HWC fronts in community areas. Conflict mitigation measures adopted by KWS and other stakeholders include: raising the wildlife tolerance threshold of affected people by paying some form of compensation, problem animal control through scaring or shooting culprit wildlife, improving the habitat by providing water outside the Park, and using physical barriers to keep wildlife out of farms. Despite implementation of these measures, HWC seems to be increasing particularly in the cultivated areas leading to increased resentment of wildlife. To gain support for conservation outside the Park and minimize resentment of wildlife, effective measures to curb HWC will be put in place. These will include rehabilitation of the Kimana and Namelok electric fences which have broken down due to neglect among other measures.

Awareness of the AE's ecological as well as socio-economic importance at the local and international levels is enhanced

Public awareness of the importance of the AE is critical to continued support for conservation in the area. Conservation in the ecosystem is under serious threat from competing land uses and unless the local community is made aware of the opportunities and benefits of conserving the ecosystem, conservation might loose out in the long run. In order to gain support for conservation at the national and international levels, and prevent implementation of policies or actions that may irredeemably change the ecosystem's integrity, an elaborate conservation awareness programme targeting key stakeholders will be carried out. This will be mainly through the mass media, internet and participation in AE management in local environmental events.

Contiguous privately owned land parcels are consolidated to form viable wildlife conservation areas

Land tenure is increasingly changing in AE from large scale group ranching to small scale individual ranching as a result of subdivision of group ranches. Kimana group ranch (63,000 acres) has now been subdivided into small 60 acre plots which have been allocated to individual members. The main impact of land subdivision has been; over-development (mushrooming) of tourism facilities in the newly subdivided plots, especially around the Ol Kelunyiet gate; and increase in land sale with potential for land conversion to agriculture or other uses that are not compatible with conservation.

In order to mitigate against these new challenges and control the apparent rush for prime tourism areas, this Programme aims to support efforts towards reconsolidating individual land parcels to form large conservation areas that can support wildlife-tourism as a land use. Owners of contiguous parcels of land will be supported to establish Land Owners' Associations (LOAs) and operate their land as conservancies. This is expected not only to offer communities an opportunity to exploit wildlife-tourism, but also to provide communal grazing areas and boost livestock development.

Livestock production is improved for livelihood improvement

Livestock production is the mainstay of the local Maasai community in the ecosystem. Hence, to gain community support for conservation initiatives in the ecosystem, problems affecting livestock production have to be addressed. Livestock production shares the same habitat as wildlife conservation and the interaction between livestock and wildlife has many negative impacts ranging from disease transmission from wildlife to livestock, livestock predation by carnivores, and competition for water and forage. All these issues have to be addressed to ensure that there is harmonious co-existence between livestock and wildlife if wildlife conservation as a land use is to succeed. Through the community programme therefore, efforts will be made to enhance community livelihoods by increasing incomes through implementation of intervention measures geared towards realizing increased financial returns from livestock production.

The above guiding principles are meant to guide the development and implementation of the six management objectives that have been identified to achieve the Programme Purpose. These are:

MO 1. Wildlife dispersal areas around Amboseli NP and critical linkages to adjacent Tsavo and Kilimanjaro national parks are opened up and maintained
MO 2. Human-wildlife conflict in community areas reduced to minimum levels
MO 3. Community benefits from natural resource use diversified and equity in benefit sharing ensured
MO 4. Livestock productivity improved to enhance community livelihoods
MO 5. Livestock production and marketing focused on specific local and international markets
MO 6. Awareness about the Park and ecosystem at the local and national level enhanced

The following sections describe these management objectives and corresponding management actions needed to achieve them. These management objectives and their management actions are described in detail in the sections below. The final section of the programme contains the **3-Year Activity Plan** for the Community Partnership and Education Programme, and details the activities, responsibilities, timeframe and milestones for the delivery of each management action over the first 3-year timeframe of this management plan.

Management Objectives

Objective 1: Wildlife dispersal areas around Amboseli NP and critical linkages to adjacent Tsavo and Kilimanjaro national parks are opened up and maintained

Land use in much of the AE is mainly influenced by low erratic rainfall (300-400 mm/year), which is way below the threshold of 800mm required for rain fed farming. Thus, land use options are largely limited to either livestock ranching, wildlife conservation or a combination of both in more than 90% of the ecosystem. Despite this limitation, availability of large amounts of river and spring water has supported a thriving irrigated agriculture in the major swamps, and along the major rivers denying wildlife crucial dry season water points. In addition, the continuing group ranch subdivision into small individual plots is leading to habitat fragmentation and blockage of wildlife routes as individuals sell or lease their plots to investors for development of tourist facilities.

This management objective therefore seeks to ensure that wildlife migratory routes and adequate dispersal areas are reserved during the group ranch subdivision process (see figure 3 for critical migratory routes). The management actions that have been designed to achieve this objective focus mainly on influencing group ranches and private land owners through an elaborate local level land use planning process. These actions are elaborated in the following sections.

Action 1.1 Support development and implementation of local level land use plans

Amboseli National Park is fully surrounded by community owned land whose tenure and use is changing very rapidly to the detriment of the park and wildlife conservation in general. Kimana and Olgulului/Olorarashi group ranches envelop the park and they contain critical habitats and wildlife dispersal areas. Eselenkei group ranch further north provides a wet season foraging area for mega-herbivores such as elephants, while Kuku and Mbirikani group ranches provide critical linkages to Chyulu and Tsavo West ecosystem respectively. Changing land use arising from changes in tenure and socio-economic values among the local Maasai community that is increasingly expanding agriculture in the region, is likely to have a significant effect on traditional wildlife movements in the ecosystem.

Land use planning is the key to management of land use change and influencing of economic activity to accommodate wildlife as a viable land use. Under this management action, private land owners and group ranches will be supported to develop participatory natural resource management plans. In the case of private land, land owners will be assisted in improving the range condition to support a predetermined mix of livestock and wildlife. Range improvement methods will include reseeding degraded areas with appropriate grass species, and bush control. As for group ranches, land will be zoned according to land use potential based on climate and edaphic factors. Alongside the zones will be guidelines on use and prohibited activity. Kimana and Olgulului group ranches have already completed their re-

source plans and Natural Resource Management planning for Kuku, Mbirikani, Eselengei and Rombo is expected to be carried out within the first three years of this plan.

Action 1.2 Support establishment of community wildlife conservation areas in the group ranches to safeguard wildlife corridors

Enhancing benefits from conservation is one of the incentives that can make communities to set aside land for conservation purposes saving wildlife corridors. The major corridors linking AE to other ecosystems that need to be secured include Kitenden corridor, which links ANP to the high rainfall afro-montane Kilimanjaro ecosystem and the Kimana corridor linking ANP and Kimana swamp.

Under this action, efforts will be made to safeguard these corridors to maintain ecosystem interconnectivity. In this regard, the Kitenden corridor will be secured through the establishment of Lemomo Conservancy by the Olgulului Group Ranch. Efforts are underway to integrate the subdivided areas of Misigyo and Murutot into the conservancy to create a continuum between the Kitenden corridor on the Tanzania side and the conservancy. In addition, conservancies covering 20,000 acres each will be established at Ilngarunyoni and Kinyei in Olgulului/Olorarashi group ranch to link the Park with Selengei. The establishment of these conservancies is one of the key management actions outlined in the group ranch's five year natural resource management plan developed by the community.

To secure the Amboseli-Kimana corridor, in Kimana group ranch, where subdivision of the entire ranch has been completed, a conservancy covering 6,000 acres will be established by 100 land owners who have agreed to establish such a conservation area. In addition, the Kimana–Kuku-Tsavo corridor will be secured through expansion of the Motikanju conservancy (an extension of Kimana Sanctuary) by including parts of Olpusare area in this conservancy.

Action 1.3 Support establishment of a land owners association to consolidate Kimana individual land holdings into a viable conservation area

A major constraint to realizing potential tourism revenues in the subdivided ranches is that individual plots are too small to support wildlife on their own. Where the group ranch has been subdivided into smaller units, as in Kimana group ranch, it is important for the land owners to organize themselves into viable wildlife conservancies that can support significant numbers of wildlife to be able to attract tourism investors and earn revenue from wildlife tourism. The conservancies should comprise contiguous pieces of land, which when put together, are large enough to support wildlife conservation.

In order to ensure that communities in the subdivided Kimana group ranch continue to benefit from wildlife tourism and at the same time to save Kimana wildlife corridor, under this management action, KWS will work closely with AWF which is currently assisting land owners to form wildlife conservancies in Kimana group ranch. Currently, two conservancies Kilitome and Osupuko) are being formed. These conservancies are also being facilitated to form and register an umbrella, Kimana Land Owners Association (KILOA) that will coordinate the wildlife-tourism activities in the conservancies. The KILOA, in addition to being the vehicle for conservation development, will be used in negotiating land leases, land purchase and in formation and implementation of land use by-laws in the area.

To ensure that the conservancies and KILOA are functional, the KWS community wildlife programme will offer support that will be requested by the association to make it operational. This will include supporting the Association to organize regular meetings to discuss wildlife-tourism issues.

Objective 2: Human-wildlife conflict in community areas reduced to minimum levels

Human–wildlife conflict in the AE takes five dimensions which include the following: crop and property damage by wildlife especially elephants, injury and death of people caused mainly by elephants, livestock killing by elephants and lions, competition for resources and disease transmission from wildlife to livestock. For instance records of human-wildlife conflicts at Amboseli show that crop raiding accounted for 87% of all cases reported between 1997 and 2004. During the same period human injury accounted for 3.8%, predation 3.5% and others (fence destruction, threat to human life, livestock injury) accounting for 5.1%. From the same records, it is apparent that the elephant is responsible for most of the human-wildlife conflict incidents in the ecosystem accounting for 80% of the incidents. This could explain why most of the elephant mortalities in Amboseli are related to Human-wildlife conflicts (Table 21).

Table 21. Elephant mortalities in Amboseli ecosystem (2003-2007)

Year	Natural	Human-wildlife Conflict	Unknown	Poaching
2003	4	3	1	0
2004	1	5	0	0
2005	9	8	2	1
2006	7	8	5	0
2007	1	3	0	1
	20	27	8	2

(Source: KWS HQs Security data base)[8]

This objective has therefore been designed to address the perpetual human-wildlife conflicts in the AE. The actions that have been designed to realize this objective focus on rehabilitation and maintenance of wildlife barriers, reconstituting conflict resolution committees, and using community structures to mitigate impacts of human wildlife-conflicts. These actions are elaborated in the following sections.

Action 2.1 Rehabilitate and maintain wildlife barriers

Wildlife barriers such as electric fences, if well maintained, can be very effective in keeping off elephants from farms minimizing crop raiding significantly. In the AE, electric fences have been constructed at the Kimana and Namelok farms that are elephant crop raiding hotspots. These fences initially prevented animals from entering farms and villages in these areas, but with time they have been neglected and are now in a serious state of disrepair and in very urgent need of an overhaul. These farming areas are therefore reporting a significant number of elephant crop raiding incidents unlike in the late 1990s when the fence was fully functional. Since these fences had been constructed for the community, it was the expectation of KWS

[8] Human-wildlife conflict related elephant mortalities include elephants shot on control, those killed by the communities, those euthanized because of severe injuries from spearing, and those killed as a result of being crashed by vehicles

that the community would maintain the fences with minimal support from KWS. However, this has not been the case. The failure of the fence maintenance programme is blamed on many factors including lack of funds as well as inefficient and uncommitted fence management committees.

Similarly, the electric fence enclosing the tourist lodges at Ol Tukai has in the past been very effective in facilitating regeneration of acacia trees mitigating visual pollution from the lodges. The fence has also kept elephants out of the lodge premises enhancing visitor security. However, the electric fence is deteriorating because of lack of maintenance and elephants have started to knock down the acacia trees.

Since KWS is spending a lot of resources driving elephants from Kimana and Namelok farms, under this management action, KWS will collaborate with other AE stakeholders to reconstitute and strengthen the fence management committees. The two fences will be rehabilitated in collaboration with the fence management committees and unlike in the past, where the community was given sole responsibility for fence maintenance, KWS will supervise fence maintenance to ensure that fences are functional at all times. In addition, KWS will collaborate with the County Council and Ol Tukai Lodge to rehabilitate the Ol Tukai fence to ensure that visitors are safe and the acacia woodland regenerates to minimize visual intrusion from the tourist facilities. And in case other human-wildlife conflict hot spots emerge during plan implementation, EIAs will be carried out and the community will be assisted in installing effective barriers based on the EIA recommendations.

Action 2.2 Reconstitute the conflict resolution committee (CRC)

Conflict management involves dialogue and negotiation which requires a platform for aggrieved parties to air and get solutions to their grievances. Human–wildlife conflict adversely affects people and the absence of a platform for dialogue only serves to increase and amplify the intensity of the conflict. In case of loss of human life, crops destruction, or livestock killing by wildlife, retaliation raids on offending wildlife is carried out by *Morans* who are mobilized to search and kill the perceived problem animal. The most affected problem animals in the ecosystem are the elephants and lions which also happened to be categorised as threatened species by IUCN. Killing of lions and elephants as a retribution by the local community is exacerbated by lack of a forum for open and proactive dialogue between KWS and the local community. As such, in order to minimise elephant and lion killing by the community, the inactive human-wildlife conflict resolution committee comprising of community members, KWS and other stakeholders will be reconstituted to spearhead continuous dialogue over wildlife problems in community areas and develop proactive conflict resolution methods that will protect people, livestock and wildlife. The AE community wildlife programme will organize meetings aimed at reconstituting the CRC which will be expected to intervene and pre-empt planned retaliatory attacks on elephants and lions. Further, the CRC will negotiate amicable settlements with the aggrieved parties and where appropriate, consolation will be offered through the consolation mechanism referred to in action 2.4 of this programme.

Action 2.3 Collaborate with Maasai Moran Conservation Network to reduce elephant spearing and lion killing

The AE Maasai Morans have established a CBO, *Maasai Moran in Conservation Network,* to lobby for greater participation in leadership. This network is a forum for dialogue among Maasai youth where they evaluate their role in conservation and local leadership. This network has helped reduce conflict where Morans are involved, and of utmost importance, it has

empowered Morans to take up leadership roles in conservation and livelihood improvement in the area. In order to resolve the perpetual problems of elephant spearing and lion killing, AE management will engage the network in dialogue to find a long lasting solution to the elephant spearing and lion killing problems. Towards this, AE management will organize workshops for the network to discuss elephant spearing and lion killing by Morans and the role of the network in minimizing these conflicts.

Action 2.4 Expand the conflict consolation scheme to cover the entire ecosystem

Consolation is a payment made to livestock owners when they lose a domestic animal through wildlife. Consolation payments have no legal basis as compensation for livestock or crop loss was repealed through the amendment of Wildlife Act (CAP 376) in 1989. Hence the consolation payments are not carried out by KWS, but instead KWS' partners have been paying a modest amount to livestock owners whose livestock is killed by Predators or elephants. Consolation payment has been effective in reducing retaliatory attacks on elephants and lions in Mbirikani and Kuku group ranches where the consolation scheme is being implemented and it is important that the scheme is supported and expanded as the change in wildlife compensation law is awaited.

As such, in order to increase support for conservation in the entire ecosystem, the current NGO-supported consolation scheme will continue and it will be expanded to cover the entire ecosystem. And to ensure that the consolation scheme is sustainable, AE stakeholders will establish an endowment fund with contributions from all stakeholders and the interest accruing from this fund will be used to settle the consolation payments.

Meanwhile, to ensure that only deserving cases are paid, AE management will continue supporting the consolation scheme by providing the scheme operators with technical information regarding the cause of death of livestock that is a subject of consolation payment. In regard to this, AE management will make an effort to verify all livestock death allegedly caused by wildlife and prepare a report for each case. These reports will then be shared with the NGOs that are funding the consolation scheme.

Besides consolation, there is need for collection of accurate data on wildlife numbers, distribution and mortality in community areas so that high risk areas are identified and HWC preventive measures put in place. For this reason, the present game scouts will be trained in HWC data collection and verification of cause of livestock predation to ascertain cases that qualify for consolation.

Action 2.5 Train the local community on construction of predator proof Bomas

One of the major problem animals in the ecosystem is the lion. The lion preys on livestock leading to retaliatory lion killing by the Maasai Morans.

To minimize retaliatory lion killing, efforts in preventing lions from preying on livestock will be enhanced through support offered towards the development of improved herding strategies and construction of predator proof Bomas. Members of the community, through the various existing community based forums, will be trained in construction of predator proof Bomas to keep off lions. Towards this, KWS will construct a few model lion proof Bomas in the home range of Amboseli Lions to demonstrate the effectiveness of these Bomas. Once trained, community members who reside in areas prone to lion attacks will be expected to construct such Bomas.

In addition, it is hoped that the lion study that is being carried out under the Ecology Programme will generate information on the movement patterns of the Amboseli lions which in turn will be used to inform herders on areas to avoid because of likelihood of lion attacks.

Objective 3: Community benefits from natural resource use diversified and equity in benefit sharing improved

Community enterprises in Amboseli are mostly tourism based. This has been risky as tourism associated business is very vulnerable to local and international uncertainty. In addition, tourism enterprises do not involve a large section of the community and thus benefit spin-offs are much localized. Thus there is an urgent need to diversify enterprises with a view to increasing benefits from natural resource use as a way of reducing impacts of a tourism slump.

Wildlife based income to local community through groups like the group ranches have limited impact in influencing perceptions and appreciation of wildlife conservation. On the other hand, incomes reaching households directly is considered critical to convincing the community to support wildlife conservation efforts. Improved income from wildlife will not only create economic value for habitats and wildlife but will justify their preservation or sustainable use under very competitive land use options.

This objective seeks to enhance community benefits accruing from natural resource use and management and ensure that the benefits trickle down to the household level. To realize this, six management actions have been designed. These are set out in the following sections.

Action 3.1 Develop and implement benefit sharing systems in each group ranch

Community benefits from wildlife have customarily been through Community Based Institutions (CBI) such as a group ranch. Benefits include incomes accruing from leases, camping, donations and benefit sharing disbursements from KWS among others. Despite the fact that the group ranches receive a fairly significant amount of money annually[9], very little trickles down to the household level. Consequently, benefits from wildlife have not contributed to improved livelihoods and reduction of poverty.

Increasing poverty among the local community in the AE poses a serious threat to conservation. Hence a mechanism for ensuring tangible benefits trickle down to the household level is essential for any positive conservation impact to be achieved. To realize this and subsequently increase appreciation of conservation at the household level, group ranches will be encouraged to pay annual dividends to group ranch members from the total profits accruing to the group ranch. This will be paid from the amount that will remain after paying for development and maintenance of communal projects. In addition, group ranch officials will be trained in aspects of revenue collection and finance management to ensure that they are capable of collecting and managing all revenue that is due to them efficiently (refer to action 3.2 of this programme).

[9] Masinde G and Kio N. 2005 have given Ksh. 69 million as the approximate annual receipts accruing from various sources in the AE group ranches

Action 3.2 Improve the management and leadership of nature based enterprises

It is acknowledged that there is limited capacity in group ranches to initiate and manage income generating enterprises. Capacity building is therefore needed in areas of enterprise conception, business plan development, and project and finance management. Among the aspects that need looking at is the need for auditing group ranch accounts regularly. Further, there is need for auditing of leases that group ranches have entered with a view to making these leases favourable to both the community and investors (see action 2.1 of the Tourism Programme). As such, under this management action, the management teams of various group ranches will be trained in leadership, project management, and basic entrepreneurial skills, to enhance their capacity in business development and financial management.

Action 3.3 Strengthen the Amboseli/Tsavo Game Scouts Association (ATGSA) to increase tourism benefits within the community

Considerable benefits accrue to the local communities from wildlife-tourism in the ranches and the National Park. Since the early 1990s, KWS has been sharing a proportion of the tourism revenue from Amboseli Park with the local community. The community has also been benefiting from concession fees paid by tour operators for exclusive use of designated conservation areas and lease fees paid by hoteliers for development of tourist accommodation facilities. Additional, tourism related revenue is also derived from operation of cultural centers.

However, although significant revenues accrue to the community, very little of it trickles to the common group ranch member, most of it being consumed by management operation costs and community projects. In view of this there is general disillusionment with tourism benefits among the group ranch membership leading to increasing acts that are not supportive of conservation and tourism such as elephant spearing and lion killing. To enhance distribution of resources and increase support for wildlife-based tourism, KWS will collaborate with other stakeholders to strengthen the ATGSA to engage additional local youth in tourism and help build a large local constituency benefiting from wildlife-tourism. Towards this, additional scouts will be recruited for Selengei, Olgulului, Kimana and Rombo to bring the number of scouts in these ranches at par with Kuku and Mbirikani group ranches (see table 22). And to enhance the game scouts' skills in wildlife and tourism issues and prepare them adequately for wildlife conservation work, all the scouts will receive basic training in wildlife management skills and tour guiding. On completion of training, efforts will be made to designate the scouts as Kenya Police Reserve to make their policing work more effective. In addition, stakeholders will collaborate to ensure that the ATGSA is provided with essential tools such as vehicles and communication equipment to make it effective in addressing wildlife issues outside Amboseli National Park. And in an effort to promote sustainability of the activities of Amboseli Game Scouts, the ATGSA will be assisted to establish a tourist accommodation facility to generate income to support its activities.

The current distribution of the scouts is indicated in the table 22 below:

Table 22. Current Game Scout distribution in the Amboseli Group Ranches

Group ranch	Size (hectares	No. of Scouts
Olgulului	147,050	16
Kimana	25,120	12
Selengei	74,794	16
Mbirikani	125,893	62
Kuku	96,000	57
Rombo	38,000	10
Total	**506,857**	**173**

Action 3.4 Carry out a social-economic study to determine viable community based income generating activities that can be promoted in the AE

Apart from eco-tourism, the AE is endowed with natural resources that can be exploited to alleviate poverty that afflicts the community. The AE has a high bee keeping potential and plants of economic significance such as Aloe and acacia Senegal (the source of gum Arabica) grow here. However, information on the nature and extent of natural resources that can be exploited to generate income for the community is still patchy; hence few resources are being exploited. On the other hand, the unique Maasai culture is one of the reasons that tourists visit the AE. The fact that the culture has been commercialized has reduced its authenticity in some cases and damaged cultural presentation. There is therefore need to identify what defines and represents true Maasai Culture.

In order to discern the natural and cultural resource potential of the AE, a socio-economic study will be carried out to inventory spatial distribution of exploitable natural and cultural resources. This will include identifying areas with bee keeping potential, plants that have medicinal value, areas that have sand harvesting potential, and areas that have mineral resources. In addition, authentic Maasai cultural sites will be identified and described. Maasai culture and cultural artefacts will also be identified to prevent presentation of other cultures as Maasai culture. To expedite the study and ensure that detailed information on natural resources is available to support decision making, KWS will collaborate with other research NGOs to fund the study.

Action 3.5 Establish a Maasai cultural museum

The AE lacks a facility where the rich Maasai culture can be displayed in a professional way to educate visitors on various aspects of the Maasai culture. In order to fill this gap and at the same time ensure that important cultural artefacts are preserved for the present and future generations, a Maasai Cultural Museum will be constructed in Mbirikani Group Ranch. And to ensure that the cultural elements are professionally displayed, experts from the National Museums of Kenya will assist the community in the culture documentation and exhibition process.

Action 3.6 Develop management plans for identified Maasai cultural sites

The AE has a number of cultural sites that could be developed to attract tourists and showcase Maasai culture. However, little is known about these sites and their significance thus

hampering their marketing. Under this management action, management plans and business plans will be developed for the cultural sites that will be identified under action 3.4 of this programme. If there is a verified commercial value, activities at cultural sites will be controlled to ensure that the cultural properties of the sites are not degraded through over use by visitors.

Action 3.7 Support training of cultural centre managers

The cultural centers are places where individual Maasai are able to trade in artifacts and obtain direct income from tourism. However, the operators of the cultural centers are not trained in marketing, business management, and accounting putting them at a disadvantage when negotiating deals with customers. Business management skills are critical for the success of such businesses and indeed, cultural centre performance has been hindered by lack of such skills. Under this management action, a deliberate attempt will be made to improve the management of the cultural centers in financial and administration skills. Managers of each cultural centre will be trained in developing and implementing business plans. This action will however be carried out in line with action 2.2 and 2.3 of the Tourism Programme.

Action 3.8 Carry out an assessment of bird shooting potential in the AE

Although game hunting is banned in Kenya, hunting of game birds is allowed as it is non-controversial. Bird hunting is carried out in several parts of the AE including Mbirikani and Olgulului/Olorarashi generating significant income for the community.

In order to diversify wildlife related income, AE management will carry out an assessment of the potential for game bird hunting in the AE. An attempt will then be made to include the bird shooting areas within the conservation areas and conservancies that will be established in the AE. This will ensure that habitats that are suitable for game birds are maintained to continue supporting bird hunting.

Objective 4: Livestock productivity improved to enhance community livelihoods

The future desired state of Amboseli Ecosystem is where livestock production continues to play a major role in providing for the livelihoods of the local people and the economic development of the region. Pastoralism has traditionally been the main economic activity in the ecosystem and the main livestock reared in the area are cattle, sheep and goats while donkeys are kept as pack animals. The livestock production system is characterized by rotational grazing patterns, regular livestock movement, breed selection to increase chances of survival during drought periods and intensive range utilization through selective browsing and grazing.

Livestock production in the ecosystem faces many challenges chief among them being increasing loss of dry season grazing areas to farming. Most of the dry season grazing areas, such as swamps and riparian systems, in the ecosystem have been taken up by farming and settlements making the pastoral community very vulnerable as the only

available drought refuge areas are in the three protected areas, Amboseli, Tsavo and Chyulu National Parks.

This objective has therefore been designed to address challenges facing livestock production in the AE considering that livestock production is one of the main land uses in the ecosystem that is compatible with wildlife conservation. The two sub-objectives that have been designed to realize this objective focus on improving both the livestock grazing range and enhancing livestock breeding and husbandry systems. These sub-objectives and their respective management actions are elaborated in the following sections.

Sub-objective 4.1: Livestock grazing range improved for sustainable livestock production

Recurring drought is a common phenomenon in arid and semi-arid lands under which category Amboseli Ecosystem falls. Drought impacts on the livelihood of pastoral communities is however, exacerbated by lack of effective livestock grazing management regimes to ensure that adequate pasture is available for livestock when drought occurs. Drought has a direct negative impact on natural pasture growth, often resulting in lack of fodder and consequent economic loss for livestock owners that may reach disaster levels. This therefore calls for adoption of drought coping and mitigation strategies that will ensure that livestock loss is minimized when droughts occur.

With land privatization progressing gradually in Masailand and Kenya at large, formerly successful traditional pastoralist drought-coping strategies, such as mass movement of livestock herds to areas that are less prone to droughts is becoming untenable. In this context, drought contingency planning involving establishment of reserves of water and pasture is needed. This sub-objective is therefore designed to mitigate impacts of droughts and provide adequate livestock requirements during the dry and wet seasons.

Action 4.1.1 Support establishment of 'grass banks' in the group ranches

One of the major challenges facing wildlife conservation in the AE is the increasing loss of dispersal areas due to increased farming and settlement which is exacerbated by the on going subdivision of group ranches. The AE is increasingly being fragmented as wildlife corridors are cut off by development; a factor that could lead to concentration of wildlife in the Park and subsequent ecological degradation. For instance, the dispersal areas south of the park and the Kitenden wildlife corridor linking Amboseli to Kilimanjaro forest is threatened by increased settlement. Similarly, settlement along the Loitokitok Pipeline and farming on the lower slopes of the Chyulus threatens to severe migrations between Amboseli and Tsavo West through Mbirikani and Kuku group ranches, as well as access to the Chyulus. In addition, irrigated farms and fences around Namelok and Kimana and settlement and sedentarization elsewhere in the ecosystem threaten continued wildlife migrations and especially elephant movements to and from Amboseli.

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In order to secure critical wildlife dispersal areas and corridors in the AE, and to ensure that livestock has adequate grazing areas during droughts, under this management action, AE management will collaborate with group ranch members and other stakeholders in identifying and mapping critical wildlife dispersal areas and corridors required to maintain a minimum viable conservation area. These areas will then be set aside as dry season grazing areas for livestock i.e. 'grass banks', to be resorted to during extreme droughts. However, the grass banks will double as wildlife conservation areas and tourism enterprises to earn revenue to

the local community (see action 1.4 under the Tourism Development & Management Programme and actions 1.1, 1.2 and 1.3 of this programme).

Action 4.1.2 Support development of traditional grazing plans to secure dry season grazing areas

The Maasai community that surrounds Amboseli is traditionally pastoral and as a consequence the use and management of pasture has been regulated using the rich traditional knowledge and elaborate political structures. Communal Livestock grazing areas are controlled by elders, who zone the grazing land into two broad categories i.e. wet season and dry season grazing zones.

Restoration of traditional nomadic grazing patterns can help to restore livestock herds, which are declining partly due to increased competition for forage, and also provide wildlife with dispersal areas. Through this management action therefore, the community will be supported to zone the land for livestock production. In regard to this, AE management will collaborate with other stakeholders to provide funding support for organizing community meetings that will be required to develop effective grazing zoning schemes. In addition, water will be supplied to the Identified grazing zones in line with action 3.1 of the Ecosystems Operations Programme. Some of the dry season grazing areas will act as grass banks to be used in case of severe drought, but in order to exploit the tourism potential of such areas fully, these areas will be designated as grass banks in line with action 4.1.1.of this Programme.

Action 4.1.3 Support protection of critical water springs from degradation

Much of the water available in the ecosystem is mainly from springs that feed the expansive swamps and the few rivers in the ecosystem. However, there is little effort to protect the river and spring sources; hence most are degraded through tree felling and trampling by livestock. However, a few springs e.g. Lemongo springs which is central to wildlife use of Kimana Group Ranch, have been protected using stone wall erected around the main spring source.

In order to enhance the protection of the springs and avert further degradation of spring sources, all the major springs will be assessed to determine the level of protection required. Once the assessment is carried out, the spring sources will be fenced off, but livestock drinking points will be provided some distance from the spring source. The spring habitat will also be restored through planting of trees in the fenced areas.

Action 4.1.4 Initiate rainwater harvesting technology to improve livestock pasture

Rainwater harvesting can be a significant drought mitigation strategy at the local level. Rainwater is already being harvested for livestock drinking water in several dams that are distributed in the ecosystem. Captured rainfall can also be stored in the soil for pasture enhancement. The building of bunds parallel to elevation contour lines, in accordance with the topography, can capture much of this runoff rainwater, which will infiltrate in the soil, thus more pasture will emerge, even in a drought year.

As such, to improve pastures, the group ranches with technical assistance from the Ministry of Livestock, will initiate experimental pasture improvement plots in their ranches utilizing rainwater and if these experiments prove successful in enhancing range productivity, the plots will be expanded.

Action 4.1.5 Support establishment of Water Resource Users Associations (WRUAs) to enhance management of water sources

Farming and irrigation of the Kimana and Lenker Swamps threaten to cut off access to these two drought refuges critical to livestock and wildlife populations on Kimana, Kuku and Mbirikani Group Ranches. The wildlife refuges and tourism facilities on all three ranches are also threatened by the loss of both swamps. Also, water abstraction and farming of the Lolturesh River threatens to dry up the riverine habitat and Soit Pus Swamp, an important drought refuge at the base of the Chyulu Hills connecting the Tsavo, Kuku and Mbirikani wildlife populations.

In order to improve the sustainable use and management of water in rivers flowing into the AE, and at the same time ensure that drought refuges are maintained, KWS will collaborate with the Ministry of Water in the establishment of Water Resource Users Associations (WRUAs) of down stream users aimed at legally enforcing river flows and wetland regulations as specified in the Water Act (2002). KWS will co-fund community meetings that will be required to mobilize the community. In addition, the WRUAs will be provided with technical assistance to develop integrated management plans for the rivers and swamps.

Sub-objective 4.2: Livestock breeding and husbandry improved

The future desired state of the AE is where livestock production is enhanced to fully meet the social and economic needs of the local pastoralist community. However, this can only be achieved if the livestock breeds are improved to produce more meat and milk and if animal husbandry is enhanced to ensure that livestock loss from preventable diseases is minimised. In order to enhance returns from livestock production in the Amboseli ecosystem one of the strategies that has been adopted and which requires both financial and technical support, is crossbreeding the local livestock breeds for increased production of meat and milk. For instance, the local cattle are being crossbred with the dual purpose Sahiwal bulls for enhanced production of high quality beef and milk. In addition, a breeding strategy should be accompanied by improvements in management, animal health, and extension support from well-trained extension agents. This sub-objective is therefore designed to meet the community livestock production aspirations through improvement of livestock breeds and instituting animal husbandry measures that will result in healthy livestock herds. The management actions that will realise this sub-objective relate to establishing livestock crossbreeding programs, training local Para vets, assessing cattle dip needs, carrying out livestock vaccination campaigns, and establishing a Disease Free Zone (DFZ). These actions are elaborated in the following sections.

Action 4.2.1 Provide quality bulls, rams and bucks for crossbreeding with the traditional livestock

The AE has limited quality livestock for upgrading the traditional breeds. However, the traditional breeds are more resistant to diseases, well adapted to the environment and drought tolerant. To improve animal off takes, meat and milk, and hence income to the producers, crossbreeding of the traditional stock with breeds that have the desired traits is necessary.

The Group ranches, with funding and technical support from ACC and the Department of Livestock, have started a project to improve the milk and meat producing abilities of the local cattle. Towards this, 24 Sahiwal bulls have been purchased from Laikipia for breeding with the local cattle. In addition, there are plans to buy high meat yielding rams and bucks to crossbreed with the local sheep and goats respectively.

The breeding programme will however need to consider and address how equity in access to the bulls, rams and bucks will be achieved given that the breeding stock will be in the custody of Group ranch officials. To ensure equity and sustainability of the breeding programme therefore, each group ranch will develop guidelines on how individual group ranch members will participate in the breeding programme. In addition, group ranch officials will prepare and implement livestock husbandry programmes for the breeding stock to ensure that the breeding bulls, rams and bucks remain well fed and healthy. And to control inbreeding which can result in emergence of poor traits and low levels of productivity among the Maasai livestock, a rotational breeding programme will be implemented with quality breeding males being rotated in the group ranches.

Action 4.2.2 Train local Para vets in animal health care techniques

Crossbreeding of local livestock breeds with exotic types is likely to result in an increase in types and prevalence of diseases imposing significant costs to pastoralists and increasing requirement for animal health care. In view of this, husbandry interventions, diagnosis and treatment of diseases, and improved hygiene are essential in the effort to contain livestock losses. To enhance disease management and monitoring systems, local Para Vets from the group ranches will be trained in animal health care through training workshops which will be organised by the District Veterinary and Livestock Officers. The Para Vets will be the first line technical staff to respond to management and treatment of livestock diseases in the group ranches. They will be expected to monitor outbreak of notifiable livestock disease and promptly report to the Department of Livestock at Loitokitok. The Department will thereafter follow up by taking samples, carrying out laboratory confirmatory tests and instituting appropriate disease management measures as may be necessary.

Action 4.2.3 Carry out an assessment of cattle dip requirements

Cattle dips are the most effective tools for controlling tick infestation in livestock, especially cattle, and transmission of tick borne diseases such as east coast fever. However, if dips are not managed correctly, effectiveness is reduced. Out of the 19 cattle dips in the AE only two private dips are operational. Most of the non-operational dips were constructed by government agencies and other donors with minimal input from the community; hence they suffered neglect once dip maintenance support was not forthcoming from the donors.

To revive the non-functional cattle dips and help control tick borne diseases, a task force comprising of representatives from the local community, local administration, and Ministry of Livestock will be formed to carry out an assessment of the existing and required dips and recommend a strategy that will ensure that existing dips and those that will be constructed are maintained by the community.

Action 4.2.4 Carry out livestock vaccination campaigns

Prevention of livestock diseases through vaccination against preventable diseases, such as anthrax is an effective way of minimizing livestock loss. Routine management practices in the AE fall below the required standard for a profitable livestock enterprise. Vaccinations are done in case of disease outbreak some times when the economic injury level has been

reached. To ensure that preventable livestock diseases do not cause unacceptable livestock losses, the department of Livestock will draw a vaccination calendar annually, which will be used to implement the livestock vaccination program in the group ranches. Awareness on the vaccination calendar will be created through public meetings and posters that will be distributed in the market centers. Success of this action will however, require purchase of vaccines occasionally, training of Para vets (see Action 4.2.2 of this programme) and liaising closely with the veterinary office at Loitokitok.

Action 4.2.5 Establish a livestock Disease Free Zone(DFZ)

Kenyan livestock and livestock products currently cannot access many international markets due to challenges of disease and hence non-compliance with WTO-SPS standards. To facilitate increased access of livestock and livestock products to local, regional and international markets, the Kenyan Government has embarked on establishment of livestock Disease Free Zones in the ASAL regions as part of the implementation of the Medium Term Plan (2008-2012) of Vision 2030. The livestock Disease Free Zone (DFZ) is an area where certain trade-sensitive diseases[10] are eliminated in accordance with the OIE Terrestrial code for free status. The southern rift comprising of Kajiado, Narok and Transmara districts have been earmarked by government for the establishment of a disease free zone. Animals coming to the DFZ will be accompanied with vaccination certificates in order to ensure that the status of the DFZ is maintained.

To enhance awareness creation on livestock diseases and their control and help attain disease free status, the Loitokitok Veterinary Department will use a multipronged approach to reach as many pastoralists as possible. First, the department will use public Barazas organised by the local administration to educate the pastoral community on various ways of controlling and managing livestock diseases. Through such forums, the community will be informed about disease outbreaks and measures needed to prevent the diseases from spreading. Second, to ensure that intergeneration awareness is created, the Department will train the youth and school children through seminars and workshops that will be organised in the schools.

Objective 5: Livestock production and marketing focused on specific local and international markets

To increase returns from livestock production, it is important that the livestock production system be focused on specific markets. Currently, the local livestock producers have little influence on livestock prices as these are mainly determined by livestock traders who often buy from the producers at prices that are way below the market prices. Due to lack of alternative livestock markets, livestock producers continue to be exploited by the traders who operate like a cartel. As such, under this objective, strategies to cut-off or contain the middlemen who are currently receiving huge profits in the livestock marketing chain at the expense of the producers, will be adopted. Management actions that have been designed to realize this objective focus on re-establishing the gazetted livestock holding grounds, devel-

[10] Diseases targeted for surveillance and control include: foot and mouth, contagious bovine pleuropneumonia, *Peste des Petite Ruminants,* brucellosis, contagious caprine pleuropneumonia, Rift Valley fever, Others: tuberculosis, lumpy skin disease, trypanosomiasis and Sheep and Goat pox.

oping livestock marketing guidelines, establishing a local livestock marketing association, creating linkages with local and international markets, and constructing slaughter houses. These actions are elaborated further in the following sections.

Action 5.1 Re-establish gazetted livestock holding grounds in Loitokitok district and improve support infrastructure in the livestock markets

Livestock marketing infrastructure in form of livestock holding grounds are lacking in the ecosystem. The primary purpose of livestock holding grounds is to provide a quarantine area for livestock before it is taken to the market. In Loitokitok District, a livestock holding ground was located at Rombo and served livestock from Tanzania, Taita Taveta, and Loitokitok area. However, the holding ground has been encroached and it requires reclaiming as it is a gazetted facility. As such, under this management action, the Department of Livestock production will liaise with the District Administration to ensure that the livestock holding ground at Rombo is re-claimed. Towards this the Department will carry out an assessment of the status of the holding ground and make recommendations on the policy, administrative and management intervention measures that are needed to make the holding ground functional again.

On the other hand, the existing livestock markets at such as Kimana, lack basic support infrastructure to facilitate livestock trade in these markets. For instance, lack of livestock weighing machines at these markets has disadvantaged the livestock producers as the price of livestock is determined by visual assessment of the body condition and not actual weight as it ought to be. To address this problem, a livestock weighing machine will be provided at each of the livestock markets. In addition, water for both human and livestock will also be provided. At the same time, the Market centers will be fenced to enhance livestock security.

Action 5.2 Develop livestock marketing guidelines to prevent exploitation of pastoralists by middlemen

Livestock marketing in the ecosystem faces many problems the topmost being lack of organized and established livestock markets and inadequate market outlets. Hence the livestock marketing system is controlled by a livestock traders' cartel especially at the terminal markets. As a result of conniving amongst the livestock traders coupled with high costs of trekking livestock to markets, livestock producer prices are usually low.

To increase returns to the livestock producer, the Livestock Department will develop livestock marketing guidelines to streamline livestock marketing at the local level. In regard to this, the guidelines will explicitly spell out the methods that will be used to determine livestock prices to prevent exploitation of the pastoralist livestock producers by middlemen.

Action 5.3 Establish a local livestock marketing association

Livestock marketing in the country is carried out by the Kenya Livestock Marketing Council which is represented at the local level by the District Livestock Marketing Council (DLMC). The DLMC is supposed to bring together pastoralists so that they can negotiate better prices for their livestock. Towards this, the DLMC recruits members from the pastoralist community; an exercise that the Loitokitok DLMC has not been very successful at implementing as only a few pastoralists have joined the Loitokitok DLMC. Hence, there is no unity and no bargaining power among the livestock sellers.

In order to enhance livestock marketing capacity of livestock producers in the ecosystem and increase bargaining power resulting in better returns from livestock sales, livestock producers will be supported to form a livestock marketing association. The association will be the focal point for training in livestock marketing and dissemination of livestock marketing information. In addition the association will mobilise members to establish livestock transportation means to major urban markets where they can fetch better prices. Currently, most of the slaughter stock is transported to slaughterhouses through trekking due to high transport costs. The Association will buy its own trucks and provide transport services to members at reasonable costs. This will not only enhance returns to individual members but it will also be a means of generating additional revenue for the operations of the Association.

Action 5.4 Create linkages with local and international livestock markets

The primary victims of the cartel-type operations of middlemen and butchery owners are livestock producers and consumers. The off-take level of livestock is restricted by the cartels price control rather than by the demand and supply factors. This control of the market, in turn, deprives pastoralists from selling more livestock and an increasing number of the population from affording meat.

To correct this, the Association that will be established under Action 5.3 of this programme will source other established markets for the members' livestock. Locally, the Association will seek to sell livestock to the Kenya Meat commission (KMC) and in order to sell internationally, the Association will link up with the Kenya Livestock Traders and Marketing Society to reach the international markets. Export to the international market will however require that the area attains Disease Free zone status through implementation of Action 4.2.5 of this programme.

In addition, the Association will seek to have market information for the existing livestock markets (Kimana and Marue) incorporated in the KLMC marketing information system so that all potential customers can receive information on livestock prices at Loitokitok promptly.

Action 5.5 Construct slaughter houses in the Amboseli ecosystem

Ecological degradation in the ecosystem has partly been blamed on increasing overgrazing by livestock that is beyond the carrying capacity of the range. To stimulate increased livestock off take from the ecosystem and prevent overgrazing, the Department of Livestock Development will construct additional slaughter houses at Mbirikani, Rombo, Loitokitok and Illasit.

Objective 6: Awareness about the Park and ecosystem at the local and national level enhanced

The desired future state for the AE is one where the local community and the Kenyan public at large appreciate efforts being made to conserve AE's exceptional resource values for the present and future generations. This is in line with the KWS Conservation Education Strategy 2006-2011, which notes that educating the Kenyan public and international community on

the value of Kenyan's wildlife resources is vital if KWS is to win support for wildlife conservation in the wake of competing land uses.

To achieve this objective and gain the required support for conservation in an environment filled with discontent arising from human wildlife conflicts, three management actions focusing on development of interpretation materials; designing an outreach programme that targets different social strata in the Amboseli community; and promoting the AE through both local and international media, have been developed. These actions are elaborated in the following sections.

Action 6.1 Develop conservation education materials focusing on AE resources

Conservation education materials that are specific to the AE are lacking. However, materials targeting tourists such as maps and guidebooks are available, but they focus on the Park. These materials are therefore inappropriate for the local community which is not sophisticated enough to appreciate information presented in guidebooks and maps. In order to enhance appreciation of wildlife amongst the local community and Kenya at large, KWS will produce education materials in both English and Kiswahili. These will be in form of simple guidebooks and brochures elaborating on the key resources in the ecosystem. These materials will then be disseminated through the AE Community outreach activities, in order to increase local support for wildlife conservation

Action 6.2 Design a conservation education outreach Programme based on the local community's social stratification

Three social strata can be discerned in the local community at Amboseli. There is the elite group comprising of the wealthy and educated, the middle class comprising of less wealthy and those who have formal education of up to college level, and lastly the poor who are the majority and generally have low education. The perceptions of these social strata on wildlife conservation are very different with the elite and middle class being more accommodative of wildlife than the poor. This may be attributed to the fact that community leadership is mainly drawn from the elite and middle class strata which have been the focus of an intense conservation awareness Programme. In addition, the conservation and awareness education activities in the AE have focused mainly on the male gender with women, the youth and school children receiving minimal attention.

To gain conservation support across all the social strata in the AE, a robust outreach programme with education products designed for specific groups is required. Towards this, the education programme will develop educational materials and activities targeting various groups. In the case of school children, this will include giving wildlife lectures and video shows in local schools. Local schools will also be encouraged to visit the Park and use it to learn ecological principles and dynamics. The elephant enclosure at Kitirua area and the fenced premises, such as the lodges and the Park headquarters, will be used to demonstrate the role of elephants in habitat modification. The schools will also be sensitized to form wildlife clubs that will be used to liaise with KWS in organizing environmental activities such as Park cleaning, drama, and essay competition, to enhance conservation awareness amongst school children. In addition, in order to encourage school children to visit the park, KWS will avail transport to local wildlife clubs at a modest fee.

On the other hand, the other mature groups will be reached through seminars and workshops specifically targeted at a particular group (the youth, elders, and women). In addition to this, sponsored study tours to areas experiencing similar challenges as Amboseli e.g.

Maasai Mara and Samburu National Reserves, will be organized for these groups to help them appreciate challenges facing conservation in Amboseli and Kenya at large.

Action 6.3 Create awareness among the public on the importance of the AE through the mass media, Internet, and organizing and participating in conservation awareness events

Amboseli ecosystem faces challenges which require AE stakeholders to cultivate support from a large constituency of both local and international public. To do this, the public has to understand and appreciate the outstanding ecological as well as socio-economic significance of the ecosystem. Indeed the core area of the ecosystem, Amboseli National Park, was established by presidential decree as a consequence of lobbying from like minded stakeholders who feared for the loss of the AE's exceptional Resource values in the face of increased pressure from human activities.

In order to ensure that the public is aware of the importance of the AE and challenges facing it, AE management will work closely with the other stakeholders to continuously inform the public on the status of resource values and activities taking place in the AE. As such, AE management will liaise with the KWS headquarters Conservation Education Department to produce regular radio and TV programmes on Amboseli and have them aired in the main radio and TV stations. AE stakeholders will continue to produce films and write articles on Amboseli's exceptional resources such as elephants, in order to reach the international public. Also, a conservation education web page will be included in the Amboseli NP web page contained in the KWS web site. And in order to make the web page quite active, AE stakeholders will continuously provide content for this web page. This will include essay competitions, wildlife quizes, among others. This web page will also be linked to the web sites of the other AE stakeholders to increase internet visits.

In addition, AE stakeholders will actively support and participate in local, national as well as international events organized to create awareness on various aspects of the ecosystem. Such events include the World Environment Day, World Wetlands Day, and Agricultural Society of Kenya (ASK) shows. During these events, the community will be enlightened on the unique AE natural resources, and issues and challenges facing their conservation through exhibitions, drama and lectures.

Three Year Activity Plan 2008 – 2011

The following pages give an outline of the first 3-Year Activity Plan for the Community Partnership and Education Programme. The activity plan details the activities, responsibilities, timeframe and milestones necessary for implementation of each management action over the first 3-year timeframe of this management plan.

Management Action and Activities	*Persons Responsible*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
Objective 1: Wildlife dispersal areas around Amboseli NP and critical linkages to adjacent Tsavo and Kilimanjaro national parks are opened up and maintained														
Action 1.1 Support development and implementation of local level land use plans														
1.1.1 Provide technical and funding support for development of group ranch natural resource management plans	SRS-Southern, CWO-Amboseli, ACC, AWF													At least one group ranch management plan produced per year
Action 1.2 Support establishment of community wildlife conservation areas in the group ranches to safeguard wildlife corridors														
1.2.1 Hold community consultative meetings for purposes of establishing wildlife conservation areas	ATGRCA, SW-Amboseli,ACC, AWF													All community wildlife conservation areas established and functioning by June 2011
1.2.2 Solicit for tourism investors to invest in the community wildlife conservation areas	ATGRCA, SW-Amboseli,ACC, AWF													
Action 1.3 Support development of traditional grazing plans to secure wildlife and livestock dry season foraging areas														Guidelines for regulating livestock grazing in each group ranch developed by December 2009
1.3.1 Develop traditional grazing system guidelines for each group ranch	ATGRCA, SW-Amboseli,ACC, AWF													

Management Action and Activities	*Persons Responsible*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
1.3.2 Sensitize group ranch members on the traditional grazing system	ATGRCA, SW-Amboseli,ACC, AWF													
Action 1.4 Support the establishment of a land owners association to consolidate Kimana Individual land holdings into a viable conservation area														
1.4.1 Hold land owners consultative meetings	Kimana Land Owners, AWF,ACC, CWO-Amboseli													
1.4.2 Draw and agree on a constitution for the land owners' association	Kimana Land Owners, AWF,ACC, CWO-Amboseli													Kimana Land Owners Association registered by June 2009
1.4.3 Register the land owners' association	Kimana Land Owners, AWF,ACC, CWO-Amboseli													
Objective 2: Human-wildlife conflict in community areas reduced to minimum levels														
Action 2.1 Rehabilitate and maintain wildlife barriers														
2.1.1 Reconstitute the fence management committees at Namelok and Kimana	CWO-Amboseli													
2.1.2 Train fence management committees in fence maintenance	CWO-Amboseli													
2.1.3 Rehabilitate Namelok and Kimana wildlife fences	CWO-Amboseli													Namelok and Kimana fences rehabilitated and functional by June 2011
2.1.4 Monitor fence performance	CWO-Amboseli													

Management Action and Activities	*Persons Responsible*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
2.1.5 Rehabilitate Ol Tukai fence	SW-Amboseli													Ol Tukai fence rehabilitated by December 2009
Action 2.2 Reconstitute the conflict resolution committee (CRC)														CRC reconstituted and functioning by June 2009
2.2.1 Organise meetings to reconstitute the CRC	CWO-Amboseli													
2.2.2 Hold regular CRC meetings	CWO-Amboseli													
Action 2.3 Collaborate with Maasai Moran Conservation Network to reduce elephant spearing and lion killing														
2.3.1 Organise conservation awareness workshops for the Maasai Moran Conservation Network	CWO-Amboseli													Two workshops organised for the Moran in Conservation Network by June 2011
Action 2.4 Expand the conflict consolation scheme to cover the entire ecosystem														Consolation endowment fund operational by June 2011
2.4.1 Organise meetings to establish a consolation scheme endowment fund	ATE, ACC, AWF, CWO-Amboseli													
2.4.2 Solicit for funds to establish the consolation fund	ATE, ACC, AWF, CWO-Amboseli													
2.4.3 Verify wildlife related human and livestock injury or deaths	CWO-Amboseli													
2.4.4 Train game scouts in verification of wildlife caused predation	CWO-Amboseli													
Action 2.5 Train the local community on construction of predator proof Bomas														Two model predator proof Bomas constructed by June 2011
2.5.1 Construct a model predator proof boma for each group ranch	CWO-Amboseli													
Objective 3: Community benefits from natural resource use diversified and equity in benefit sharing improved														

Management Action and Activities	*Persons Responsible*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
3.1 Develop and implement benefit sharing systems in each group ranch														Revenue increased by 40% by December 2010 for each group ranch
3.1.1 Collect all revenues accruing to each group ranch	GR Committees													
3.2 Improve the management and leadership of nature based enterprises														At least all group ranch officials trained by June 2011
3.2.1 Train group ranch officials in leadership, project management, and basic entrepreneurial skills, to enhance their capacity in business development and financial management.	CWO-Amboseli, ACC, AWF													
3.3 Strengthen the Amboseli/Tsavo Game Scouts Association (ATGSA) to increase tourism benefits within the community														Game scouts provided with two additional vehicles by June 2011
3.3.1 Recruit community game scouts	ATGSA, ATGRCA													
3.3.2 Train game scouts in basic wildlife conservation and management skills and liaise with the Police to designate the scouts as Kenya Police Reserve	ATGSA, ATGRCA, CWO-Amboseli													
3.3.3 Procure two patrol vehicles for ATGSA	ATGSA, ATGRCA													
3.3.4 Procure communication equipment for ATGSA	ATGSA, ATGRCA													
3.3.5 Provide all scouts with uniforms	ATGSA, ATGRCA													
3.3.6 Establish ATGSA owned tourist tented camp	ATGSA, ATGRCA													
Action 3.4 Carry out a social-economic study to determine viable community based income generating activities that can be promoted in the AE														A socio economic study carried out by June 2010
3.4.1 Develop terms of reference for the socio-economic study	CWO-Amboseli													
3.4.2 Solicit for funding to carry out the study	CWO-Amboseli													
3.4.3 Commission a social scientist to carry out the study	CWO-Amboseli													
Action 3.5 Establish a Maasai Cultural Museum in Mbirikani Group ranch														Cultural Museum constructed by December 2010
3.5.1 Hold community meetings to establish the cultural museum management committee	ATGRCA, CWO-Amboseli, AWF													

Management Action and Activities	*Persons Responsible*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
3.5.2 Fund raise for the construction of the cultural museum	ATGRCA, CWO-Amboseli, AWF													
3.5.3 Construct the cultural museum	ATGRCA, CWO-Amboseli, AWF													
3.5.4 Collect cultural materials for exhibition at the museum	ATGRCA, CWO-Amboseli, AWF													
3.5.5 Train the museum management committee in business management skills	ATGRCA, CWO-Amboseli, AWF													
Action 3.6 Develop management plans for identified Maasai cultural sites														Each cultural center has a management plan and business plan by June 2011
3.6.1 Develop management plans for all the cultural sites	ATGRCA, CWO-Amboseli, AWF, ACC													
3.6.2 Develop business plans for cultural sites	ATGRCA, CWO-Amboseli, AWF, ACC													
Action 3.7 Support training of cultural centre managers														Cultural center managers trained by December 2009
3.7.1 Train cultural centre managers in business skills	CWO-Amboseli, AWF, ACC													
Action 3.8 Carry out an assessment of bird shooting potential in the AE														A bird shooting study carried out by September 2009
3.8.1 Develop terms of reference for the bird shooting study	CWO-Amboseli													
3.8.2 Procure technical assistance to carry out the study	CWO-Amboseli													
Objective 4: Livestock productivity improved to enhance community livelihoods														
Sub-objective 4.1: Livestock grazing range improved for sustainable livestock production														
Action 4.1.1 Support establishment of 'grass banks' in the group ranches														Final map of viable migratory routes com-

Management Action and Activities	*Persons Responsible*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
4.1.1.1 Map critical wildlife migratory routes and dispersal areas	ATGRCA, SRS-Southern, ATE,ACC/ARCP													piled by June 2009
4.1.1.2 Organise awareness meetings to sensitize land owners on the importance of the migratory routes	ATGRCA, CWO-Amboseli, ATE, ACC/ARCP													
Action 4.1.2 Support development of traditional grazing plans to secure dry season grazing areas														
4.1.2.1 Organise land use zoning meetings	ATGRCA, CWO-Amboseli, ACC													Traditional grazing plans prepared by September 2010
4.1.2.2 Supply adequate water to the dry season grazing zones	ATGRCA, CWO-Amboseli, ACC													
Action 4.1.3 Support protection of critical water springs from degradation														
4.1.3.1 Carry out an assessment of the status of key water springs	SRS-Southern, ATGRCA, CWO-Amboseli, ACC, WRMA													
4.1.3.2 Construct protected barriers around spring sources	ATGRCA, CWO-Amboseli, ACC SRS-Southern, WRMA													Barriers constructed around all major springs by June 2011
4.1.3.3 Restore trees around degraded spring sources	ATGRCA, CWO-Amboseli, ACC SRS-Southern, WRMA													
Action 4.1.4 Initiate rainwater harvesting technology to improve livestock pasture														One pasture improve-ment experimental plot established by 2011
4.1.4.1 Establish experimental pasture improvement plots in each group ranch	ATGRCA, MLD, CWO-Amboseli, ACC													

Management Action and Activities	*Persons Responsible*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
Action 4.1.5 Support establishment of Water Resource Users Associations (WRUAs) to enhance management of water sources														
4.1.5.1 Organise community meetings to discuss formation of WRUAs for the major water bodies	WRMA, SRS-Southern, CWO-Amboseli													WRUAs established by December 2009
4.1.5.2 Organise community planning meetings to develop management plans for the water bodies	WRMA, SRS-Southern, CWO-Amboseli													
Sub-objective 4.2: Livestock breeding and husbandry improved														
Action 4.2.1 Provide quality bulls, rams and bucks for crossbreeding with the traditional livestock														
4.2.1.1 Supply the community will quality bulls, rams and bucks	ATGRCA, MLD, ACC													Guidelines on access to quality breeding bulls available by December 2009
4.2.1.2 Prepare guidelines on access to the quality breeding bulls, rams and bucks	ATGRCA, MLD, ACC													
4.2.1.3 Prepare animal husbandry guidelines for the exotic crossbreeding stock	ATGRCA, MLD, ACC													
4.2.1.4 Prepare rotational breeding programme guidelines	ATGRCA, MLD, ACC													
Action 4.2.2 Train local Para vets in animal health care techniques														At least two trained Para vets operating in each group ranch by June 2011
4.2.2.1 Train local Para vets	ATGRCA, MLD, ACC													
4.2.2.2 Carry out routine livestock disease surveillance	ATGRCA, MLD, ACC													
Action 4.2.3 Carry out an assessment of cattle dip requirements														
4.2.3.1 Establish an AE cattle dip assessment task force	ATGRCA, MLD, ACC													

Management Action and Activities	*Persons Responsible*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
4.2.3.2 Carry out an assessment of the status of cattle dips in the AE	ATGRCA, MLD, ACC													Cattle dip status report prepared by December 2009
Action 4.2.4 Carry out livestock vaccination campaigns														
4.2.4.1 Prepare a livestock vaccination calendar	ATGRCA, MLD, ACC													
4.2.4.2 Create awareness about the livestock vaccination program	ATGRCA, MLD, ACC													At least one livestock vaccination campaign carried out each year
4.2.4.3 Procure essential livestock vaccines	ATGRCA, MLD, ACC													
4.2.4.4 Carry out routine livestock vaccinations	ATGRCA, MLD, ACC													
Action 4.2.5 Establish a livestock Disease free zone														
4.2.5.1 Create awareness among the local community on the DFZ status	ATGRCA, MLD, ACC													Livestock DFZ status attained by June 2011
Objective 5: Livestock production and marketing focused on specific local and international markets														
Action 5.1 Re-establish gazetted livestock holding grounds in Loitokitok district and improve support infrastructure in the livestock markets														
5.1.1Carry out an assessment of the status of gazetted livestock holding grounds	ATGRCA, MLD, ACC													Livestock holding grounds re-claimed by June 2010
5.1.2 Re-claim encroached livestock holding grounds	ATGRCA, MLD,													
5.1.3 Provide livestock weighing machines at livestock markets	ATGRCA, MLD, ACC													
5.1.4 Provide piped water supply at all livestock markets	ATGRCA, MLD, ACC, WRMA													

Management Action and Activities	*Persons Responsible*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
Action 5.2 Develop livestock marketing guidelines to prevent exploitation of pastoralists by middlemen														Livestock marketing guidelines prepared by June 2010
5.2.1 Develop livestock marketing guidelines	ATGRCA, MLD, ACC													
Action 5.3 Establish a local livestock marketing association														A local Livestock Marketing Association operational by June 2011
5.3.1 Sensitize the livestock producers on the need for a local livestock marketing association	ATGRCA, MLD, ACC													
5.3.2 Recruit members to the Association and register it	ATGRCA, MLD, ACC													
5.3.3 Procure an Association owned truck for transporting livestock to far off markets	ATGRCA, MLD													
Action 5.4 Create linkages with local and international livestock markets														Trading agreements drawn with KMC by June 2011
5.4.1 Liaise with KMC to source livestock markets locally	ATGRCA, MLD													
5.4.2 Liaise with KLMC to receive livestock market information														
Action 5.5 Construct slaughter houses in the Amboseli ecosystem														At least one new slaughter house constructed by June 2011
5.5.1 Construct slaughter houses at Mbirikani, Rombo, Loitoktok and Illasit.	ATGRCA, MLD													
Objective 6: Awareness about the Park and ecosystem at the local and national level enhanced														
Action 6.1 Develop conservation education materials focusing on AE resources														New conservation educational materials produced and disseminated by June 2011
6.1.1 Identify conservation themes and produce conservation educational materials	SW-Amboseli													
Action 6.2 Design a conservation education outreach programme based on the local community's social stratification														A school outreach programme established by March 2011
6.2.1 Initiate a school outreach programme	SW-Amboseli													
6.2.2 Provide transport to school groups and other organised local groups intending to visit the Park	SW-Amboseli													

Management Action and Activities	*Persons Responsible*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
6.2.3 Organise conservation seminars and workshops for various social strata of the local community	SW-Amboseli													
Action 6.3 Create awareness among the public on the importance of the AE through the mass media, internet, and organizing and participating in conservation awareness events														At least two TV coverages per year
6.3.1 Produce educational films and radio programmes for Amboseli	SW-Amboseli													
6.3.2 Include educational content in the KWS Amboseli web page	SW-Amboseli													
6.3.3 Participate in local, national and international environmental awareness events	SW-Amboseli													

Security Programme

Programme Purpose and Strategy

Programme Purpose: AE wildlife and visitor security is enhanced through close collaboration with stakeholders

Traditionally, AE has not had serious security threats. Wildlife poaching is currently limited to bush meat and mainly affects the ungulates. AE management is however on the alert to ensure that bush meat poaching does not escalate and trophy poaching remains insignificant in the ecosystem. The low security threats notwithstanding, the safety of wildlife, visitors and property remains an important management issue. To enhance security in the wildlife-tourism sector, KWS has adopted several strategies some of which have involved expanding the intelligence network and anti-poaching operations to ensure that wildlife crime is prevented.

Collaboration with the local communities, local security agents and Tanzanian wildlife authorities in intelligence gathering has been very helpful in bringing down wildlife crime. Involvement of Game Scouts in wildlife security, through the Amboseli Game Scouts Association, has complemented KWS security work immensely leading to improved wildlife security in the AE. With the anticipated significant growth in tourism, after the implementation of the Tourism programme of this plan, and as wildlife sanctuaries continue to be established in the ranches, the role of game scouts in AE security will continue to gain prominence.

The AE security program aims to ensure that AE management will be able to counter any security threats, in order to achieve the program purpose. The guiding principles that will be taken into consideration in implementing the security programme are briefly highlighted in the following sections. These guiding principles describe key factors taken into account in the development of the security programme and which influence the way the program is implemented to achieve the program purpose.

In implementing the AE's Security Programme, AE Management will strive to ensure that:

Security of natural resources expanded to cover the entire AE

Currently, AE security network is able to comfortably confront wildlife security challenges in the AE as attested by the low poaching levels and negligible visitor security incidents. However, with the anticipated growth in tourism in the AE during the plan duration, it is important that the security is expanded to cover the entire AE. This is in recognition of the fact that any incident affecting visitors anywhere in the AE can adversely affect the attractiveness of the entire area as a tourist destination. To ensure that the entire AE is secure, KWS will adopt a multi-pronged security strategy that involves the following: increasing the security staff strength, enlisting the involvement of stakeholders in security activities, and increasing application of technology in gathering and processing information.

Stakeholder collaboration in delivery of effective wildlife, visitor, staff and asset security is strengthened

The AE faces several major security challenges that threaten the integrity and continued preservation of its exceptional resource values. The challenges include wildlife poaching for bush meat or trophy, highway robberies, and theft of assets. Since KWS security cannot be everywhere in the vast ecosystem, stakeholder collaboration in security matters is vital if effective security that ensures a thriving environment for wildlife conservation and tourism development is to be realized. Considering that most of the illegal activities take place outside the park, in community land, it is paramount that the local community is incorporated in the overall security strategy. In addition, much of the bush meat poaching takes place along the Kenya-Tanzania border and is perpetrated by locals from either side of the border. It is therefore vital that cross-border cooperation in anti-poaching operations be enhanced to stem the problem.

To ensure that the entire AE is safe for wildlife and visitors, management activities in this programme will focus on enhancing local and cross-border collaboration in security matters. KWS will work closely with its Tanzanian counterparts, local security agents, and the local community to minimise wildlife and visitor threats. By enlisting the support of AE stakeholders, it is hoped that the security programme will be successful in turning the tide against wildlife related crime.

The above guiding principles are intended to guide the implementation of the Security Programme's three management objectives that, when taken together, achieve the Programme Purpose. These objectives are:

MO 1. Security operations for the protection of AE's wildlife resources enhanced
MO 2. Effectiveness of resource protection improved
MO 3. Security of visitors, staff, revenue and KWS assets enhanced

The following sections describe these management objectives and provide an outline of the management actions needed to achieve them. Under each management objective there is a brief description of the relevant management issues and opportunities, which provides the specific context and justification for the management actions. The final section of the programme contains the 3-Year Activity Plan for the Security Programme, and details the activities, responsibilities, timeframe and milestones necessary for the delivery of each management action over the first 3-year timeframe of this management plan.

Management Objectives

Objective 1: Security operations for the protection of AE's wildlife resources enhanced

The future desired state of the AE is one where wildlife poaching is minimised to a level that does not pose any threat to the survival of targeted species. Wildlife poaching, especially for bush meat, is a major security concern in the AE. The problem is getting worse as the local community, who traditionally abhorred eating or killing wildlife, are also getting involved in the bush meat trade. The most commonly poached wildlife species are the Maasai giraffe, Burchell's zebra, Thomson's gazelle and Grant's gazelle. The meat is either sold locally, or it is ferried to markets in Kajiado and Nairobi in Kenya, or across the border, in Tanzania. However, poaching can be checked if there is increased presence of KWS security agents in the poaching prone areas to deter poachers.

This objective has been developed to strengthen the AE resource protection operations in the entire AE, and particularly in the poaching hotspots along the Kenya-Tanzania border. The actions needed to achieve this objective are elaborated below.

Action 1.1 Strengthen the capacity of AE security units

The importance of the AE as a major tourist destination and a biodiversity important area makes it one of the focal areas for security operations. This is to ensure that these two exceptional resource values are not threatened by criminal activities leading to their degradation. KWS has therefore deployed a Wildlife Protection Unit (WPU) to deal with the security threats in the area. The unit is responsible for wildlife protection, controlling livestock incursion in the Park, and providing visitor security along the major access roads to the Park.

Currently, the major security related threat is bush-meat poaching which mainly occurs along the Kenya-Tanzania border. Trophy poaching, particularly of elephants, is scarce as only two confirmed cases of elephant poaching have been recorded in the last 5 years. However, due to increase in poverty locally, cases of bush meat poaching have increased necessitating a boost in the capacity of the AE security team. As such, in order to deal with wildlife security threats effectively, security in the AE will be enhanced through equipping the security team with the necessary security surveillance equipment[11] to effectively detect security related wildlife threats. The team will also receive basic training in use of the surveillance equipment that will be provided.

Action 1.2 Intensify patrols in the AE

The main illegal activities currently taking place within the AE include livestock grazing in the Park and poaching. Although legally livestock is not allowed in the Park, frequent breakdown of the Amboseli water supply and lack of alternative water sources outside the park has led to park-adjacent communities being allowed to bring their livestock in the Park to drink water during designated periods of the day (10.30 am-2pm). However, in some cases the commu-

[11] GPS and night vision goggles,

nity misuses this goodwill gesture from the park administration and instead of taking out their livestock from the Park immediately after drinking, they graze the livestock in the Park leading to livestock-wildlife conflicts and erosion of visitor experience.

Poaching for bush meat and trophies takes place in the AE and is mostly carried out outside the Park. The poaching hotspots include areas such as Kitirua, Namelok, Lengisim, and Isinya, and along the Kenya-Tanzania border. In order to curb illegal grazing in the park and poaching in the surrounding areas, AE management will expand and intensify both ground and aerial patrols. This will involve carrying out of at least two aerial surveillance flights per month to improve aerial coverage. Regular foot and vehicle patrols will also continue to be carried out across the AE, and relevant data collected and incorporated in the new security database to be established under action 1.1 of this programme.

Action 1.3 Support AE stakeholder-led de-snaring operations

The increase in the country's urban population, coupled with poverty is fuelling a thriving trade in bush meat which is sold at a cheaper price than livestock meat. The Amboseli ecosystem is under siege from the demand, and the common mode of wildlife capture is by snaring the animals. Target species are mainly the plains game including both small and large antelopes, and giraffes. There are three main routes to the trade: across the international border southwest through Namanga to Arusha; southeast to Moshi; and north to Nairobi.

This management action therefore, targets to control poaching of wildlife products specifically bush meat. Towards this, AE management will support community game scouts and other partners such as conservation groups, in carrying out regular organized de-snaring operations in the bush meat poaching hotspots. And to ensure that the de-snaring operations are effective in minimizing bush meat poaching, at least two de-snaring operations will be organized by stakeholders every month.

Action 1.4 Liaise with Tanzania's wildlife authorities on cross-border natural resource protection

AE wildlife move to Tanzania during the dry season and this is of concern as the wildlife is often poached along the way. The Amboseli elephants cross over the borders through the Amboseli – Kilimanjaro corridor and the Longido Game Controlled area where Amboseli elephants move some 25 km south of the border and need protection while on transit. There is therefore need for enhanced cross border operations between Kenya and Tanzania with respect to anti poaching operations to curb poaching in the greater Amboseli-Kilimanjaro ecosystem.

In order to address cross border security issues, the AE management has been holding cross border meetings and conducting synchronized security operations with its Tanzanian counterparts along the common border. Under this management action, AE management will continue with these initiatives and develop additional activities aimed at strengthening cross border partnerships for effective wildlife security at the Kenya-Tanzania border region. This will include holding joint security seminars and meetings semi-annually to discuss cross-border natural resource management issues. In addition to this, wildlife authorities from both countries will share wildlife intelligence to enhance security patrols along the border.

Objective 2: Effectiveness of natural resource protection improved

The future desired state of the AE is where environmental crime is minimised through security intervention measures that pre-empt crime, averting possible resource degradation. This calls for a strong, efficient and effective intelligence network that sufficiently covers all the corners of the AE. This objective will therefore focus on strengthen the AE security capacity to enhance the effectiveness of AE resource protection operations. This will involve a number of actions aimed at improving intelligence gathering and analysis, establishing an AE security database and collaborating with other law enforcement agencies. These actions are elaborated below.

Action 2.1 Establish an AE security database

The AE lacks a security database and as such, all the security information is sent to KWS HQ where it is included in the centralised security database that covers all KWS security operations in the country. The AE security staff is therefore denied an opportunity of having quick access to AE security information that is crucial in developing an informed security strategy for the AE. The development of an AE specific security data base would facilitate planning, monitoring and evaluation of AE security through identification of hot spot areas, optimal location of security bases and in planning of security operations.

This management action will thus seek to develop an AE security database to address specific information needs of the AE. The key information in the database will include the details of patrols carried out, observations made, number and location of arrests made and prosecution outcome. The database will also incorporate a Geographic Information System (GIS) to facilitate the use of digital maps in the analysis of security issues. To facilitate the establishment of the database, a computer and associated accessories will be procured. In addition, a security officer who will be in charge of the database will be trained in database management and maintenance.

Action 2.2 Expand the wildlife intelligence network

A good intelligence network is important in detecting and reacting to potential security threats in and around the AE. The AE Intelligence network is distributed throughout the AE and its activities include carrying out surveillance and monitoring of illegal activities. Specifically this involves collecting, collating and analyzing intelligence information to support decision making.

The AE is an expansive area thus there is need to enhance the intelligence gathering system to effectively cover the poaching prone areas such as Namanga, Maili Tisa, Kisanjani, Pipeline and Enkii. As such, additional intelligence capacity will be deployed to the AE to cover the area effectively.

Action 2.3 Improve success of prosecution of wildlife cases

The police and the judiciary can be very instrumental in deterring wildlife crime in the ecosystem if they are aware of the adverse consequences of poaching on the survival of targeted species. Due to lack of appreciation of the impacts of poaching among the police, who prefer

charges and prosecute wildlife offenders, and the judiciary that convicts and sentences offenders, these convicts usually get away with light sentences or penalties that do not prevent repeat or new offences

To ensure that offenders get penalties that are deterrent, the AE management, through this management action, will collaborate with the police and the judiciary to improve on the prosecution of wildlife related cases and create awareness on the effects of wildlife offences to the integrity of the AE wildlife biodiversity. This will involve liaising with the police to train the AE security staff on drafting of charge sheets and court procedures to enhance success of prosecution processes. In addition, the four recently gazetted KWS prosecutors will also be used to prosecute wildlife cases and train KWS staff in arrest and prosecution procedures. The AE Management will also organize wildlife sensitization study tours for the Oloitokitok police and judiciary to expose the police and judiciary to the conservation importance of the AE, and threats faced by wildlife such as elephant spearing and lion killing.

Action 2.4 Coordinate the activities of community game scouts to enhance wildlife security outside the Park

The AE has six ranches surrounding the Park. The ranches have established community game scouts who among other duties patrol the AE to detect poaching activities. These game scouts operate under the aegis of the Amboseli Tsavo Game Scout Association (ATGSA) which is funded by the Maasai land Preservation Trust. The game scout association is equipped with vehicles and surveillance equipment to assist the scouts to monitor illegal activities in the ranches. They are also linked to the KWS radio communication network to facilitate timely reporting of wildlife related incidents.

Since the community game scouts have been very effective in putting off illegal activities in the AE, it is vital that their activities are supported and strengthened to further boost the security presence in the AE. However, since the scouts do not have any legal mandate as regards wildlife management, it is important that their work is coordinated by KWS, the national custodian of wildlife. Towards this, AE management will work closely with ATGSA to establish a programme of work for the game scouts. AE management will ensure that KWS rangers are involved in all sensitive security operations that the game scouts will be carrying out e.g. anti-poaching operations. In addition, game scouts will receive basic wildlife security training to enhance their wildlife protection skills.

Action 2.5 Liaise with local communities to enhance security operations

The communities surrounding the AE have well developed structures that govern their social life and most of the crimes that are committed in the AE are known to their leaders or elders. Influential members of the community, such as elders can be very instrumental in countering the escalation of the observed wildlife injury or killing, particularly of elephants and lion, if they subscribe to conservation principles. This is because the elders are responsible for making decisions and issuing penalties to offenders in the society; hence command respect among the community members including those who engage in wildlife crime.

This management action aims to improve the relations and linkages between the community and the AE managers to ensure close collaboration in dealing with wildlife security issues. Firstly, the community elders will be sensitized through security seminars on the importance of cooperating and sharing wildlife intelligence with the AE wildlife security unit. Secondly,

members of the local communities will also be sensitized on security matters through community Barazas.

Objective 3: Security of visitors, staff, and KWS assets enhanced

The AE encompasses vast tracts of land that are either under communal or private ownership and it also shares an international boundary with Tanzania. This poses a number of serious and significant security threats and risks which need to be addressed and managed. A major aim of this objective is thus to ensure effective visitor, staff and asset safety measures. This will ensure that tourist perceptions are maintained in order to protect the AE's high premium wildlife safari brand, the AE's reputation, and Kenya's tourism industry at large. Most potential threats are linked to other illegal activities in and around the core of the AE, the ANP, including illegal entry and trespassing, theft and vandalism, robberies along the Park access roads, and poaching.

As such, the desired future state of the AE is therefore one where staff and visitor safety, and security of KWS assets is guaranteed. This objective has therefore been developed to bring about this desired future state through the two management actions elaborated in the following sections.

Action 3.1 Improve staff and visitor security

The security of tourists is vital since AE is highly visited. Any incident of insecurity involving tourists promptly leads to adverse effects including mass cancellations. Unless visitor security is guaranteed, tourist development will not expand over the entire AE. The AE also hosts a large number of researchers who due to the nature of their work, often require security when operating in dangerous areas. In addition some departments at the AE e.g. civil works require security when carrying out work in areas with high concentration of dangerous wildlife. It is therefore imperative that security interests of visitors, staff and researchers are addressed to ensure that implementation of the other management programmes is not hampered.

This management action therefore, aims to enhance visitor security by ensuring that illegal entry into the Park and especially in the lodge facilities is curbed. Towards this, all tourist facilities will be required to maintain manned barriers at the entry of their premises to control entry by outsiders. And in order to enhance the security of visitors while they are filming, AE management will provide ranger escort for such visitors. In addition, KWS will liaise with the tourist police to ensure that no tourist vehicle leaves the park for Tsavo without police escort. On the other hand, to ensure security of KWS staff and researchers who at times operate in risky areas, ranger escort will be made available. However, the staff or researchers requiring escort services will have to notify the security section well in advance to help in planning.

Action 3.2 Provide adequate security for KWS assets

Ensuring safety of KWS assets is one of the key functions of the Security Division. At the AE security is provided at all KWS facilities both day and night. It is therefore critical that sufficient resources are provided to ensure that security is not compromised. Thus, under this management action and in line with action 2.1 of the Ecosystems Operations Programme, adequate security resources will be provided at key KWS facilities including the AE workshop, Canteen, Health center, Amboseli Primary School and the gates.

Three Year Activity Plan 2008 – 2011

The following pages give an outline of the first 3-Year Activity Plan for the Security Programme. The activity plan details the activities, responsibilities, timeframe and milestones necessary for implementation of each management action over the first 3-year timeframe of this management plan.

Management Action and Activities	*Persons Responsible*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
Objective 1: Security operations for the protection of AE's wildlife resources enhanced														
Action 1.1 Strengthen the capacity of AE security units														
1.1.1 Procure security equipment for the Amboseli WPU	SW, WS													At least 90% of the WPU staff are able to use GPS units effectively
1.1.2 Train the WPU in use of the security equipment	SW, WS													
Action 1.2 Intensify patrols in the AE														Patrols carried out as per the security strategy
1.2.1 Carry out aerial patrols	WS													
1.2.2 Carry out ground patrols	WS													
1.3 Support AE stakeholder-led de-snaring operations														De-snaring operations carried out monthly
1.3.1 Carry out de-snaring operations	WS													
1.4 Liaise with Tanzania's wildlife authorities on cross border natural resource protection														Cross-border wildlife security meetings held annually
1.4.1 Hold cross border wildlife security meetings	SW, WS													
1.4.2 Share intelligence information on wildlife security	SW, WS													

Management Action and Activities	*Persons Responsible*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
Objective 2: Effectiveness of natural resource protection improved														
2.1 Establish an AE security database														Security database functional by June 2010
2.1.1 Procure computers and accessories	SW, WS													
2.1.2 Procure a GIS based security database system	SW, WS													
2.1.3 Train security officers in database management	SW, WS													
2.2 Expand the wildlife intelligence network														The AE has adequate intelligence staff always
2.2.1 Deploy adequate intelligence staff to the AE	SW, WS													
2.3 Improve success of prosecution of wildlife cases														All Security staff in the AE trained in arrest and prosecution procedures by June 2011
2.3.1 Train security staff in arrest and prosecution process	SW, WS													
2.3.2 Organise sensitization study tours for the local police and judiciary	SW, WS													
2.4 Coordinate the activities of community game scouts to enhance wildlife security outside the Park														A game scout programme of work developed and transmitted to the Senior Warden quar-
2.4.1 Develop a programme of work for the game scouts	ATGSA, WS													
2.4.2 Organise regular game scout patrols	ATGSA, WS													
2.5 Liaise with the local communities to enhance security operations														At least one security Seminar organised annually
2.5.1 Organise wildlife security seminars for local leaders	WS													
2.5.2 Organise security public meetings	WS													
Objective 3: Security of visitors, staff, and KWS assets enhanced														
3.1 Improve staff and visitor security														All tourist have manned barriers by December 2009
3.1.1 Coordinate the establishment of manned barriers at all tourist facilities	WS													

Management Action and Activities	*Persons Responsible*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
3.1.2 Provide ranger escort to filming parties	WS													
3.1.3 Provide ranger escort to KWS researchers	WS													
3.2 Provide adequate security for KWS assets														KWS assets are have adequate security always
3.2.1 Deploy adequate security to all KWS facilities	WS													

Ecosystem Operations Programme

Programme Purpose and Strategy

Programme Purpose: AE wildlife conservation and management activities are efficiently and effectively executed in collaboration with other stakeholders

The Ecosystem Operations Programme is geared towards improving service delivery by KWS staff and collaborators within and outside Amboseli National Park. The AE management challenges can only be achieved through a rationalized process that promotes active engagement and partnership with KWS, landowners and other key stakeholders in the ecosystem. The program targets the stakeholders, management personnel and the support services.

The following sections set out the strategic principles that will guide AE Management in the implementation of the Ecosystem Operations Programme and the achievement of the Programme Purpose. Wherever appropriate, guidance has been drawn from the following policies:

- KWS Strategic Plan 2005 – 2010
- KWS draft Park Management Manual
- KWS Human Capital Manual

In implementing the Ecosystem Operations Programme, AE Management will strive to ensure that:

Collaboration with key stakeholders is enhanced

ANP is a small fraction of the entire Amboseli ecosystem. Its importance as a tourism destination and for nature conservation largely depends on the adjacent community land. Wildlife associated with ANP is known to make seasonal movement into and out of the park. This means a constant interaction between management of ANP and the local people. In the face of increasing human population, land use and tenure changes, KWS and other stakeholders need to invest more and solicit the support of the local people in order to ensure that the wildlife dispersal area remains viable. The AE has an array of stakeholders with diverse interests such as tourism investors, researchers, local administration and security agents, conservationists and land owners. There is currently weak coordination among these stakeholders, at times resulting to duplication of efforts. It is therefore important that working relations between stakeholders are strengthened and coordinated to generate synergy and strengthen unity of purpose.

Resources needed for effective management of the ecosystem are adequate and well-allocated

The operations of all the management programs depend on the availability of resources to undertake those programs. Motivated staff and adequate funds determine the levels of program success. Currently, there are inadequate personnel within the ANP and other adjacent ecosystems to effectively address conservation related issues. The KWS Strategic Plan

(2005 – 2010) stresses the need to build the capacity of staff through training and other incentives. These staff improvement measures aim to improve the staff capacity and morale and ultimately their performance. The branding of ANP improved the facilities for the protected area staff, but there is still need for continuous improvement of staff facilities.

Management infrastructure and services are adequate and effective

The main issues regarding AE infrastructure relate to inefficient water supply system, shortage of accommodation and office facilities, and development and maintenance of roads. The Amboseli community water supply pipeline has deteriorated with time resulting in frequent failure of the system. As a result livestock has to drink in the park conflicting with tourism interests. Accommodation facilities for KWS staff are far below the required number. In addition, the road network within ANP is well developed but it requires routine maintenance to keep it in a good condition. Outside the Park, the road network is in a poor state making many areas inaccessible during the wet season. There is therefore need to link all the existing tourism investments outside the Park with all weather roads.

However in regard to telecommunication, the area has recently witnessed marked improvement in telecommunication through adequate coverage by the major mobile telephone networks that are currently operational in the country.[12] There is, however, need to improve the radio-network to link all the stakeholders. The improvement should target the security hot spots for wildlife and visitors and the remote parts of the Ecosystem where there is no mobile phone network.

These guiding principles are intended to guide the implementation of the three ecosystem operations programme objectives. These objectives relate to enhancing stakeholder collaborations, improving staff welfare and enhancing management infrastructure. The three objectives are:

MO 1. Institutional collaborations formalized and strengthened
MO 2. AE Staff welfare and performance improved
MO 3. AE Management infrastructure enhanced

The following sections describe these management objectives and describe the management actions needed to achieve them. Under each management objective there is a brief description of the relevant management issues and opportunities providing the justification for the actions. The final section of the programme contains the 3-Year Activity *Plan* for the Operations Programme, and details the activities, responsibilities, timeframe and milestones necessary for the delivery of each management action over the first 3-year timeframe of this management plan.

[12] Safaricom, Zain and Orange

Management Objectives

Objective 1: Institutional Collaborations Formalized and Strengthened

The future desired state for the AE is one where there are strong and effective working relationships between AE management and other stakeholders in the ecosystem. This is in view of the fact that wildlife management challenges cuts across many disciplines, necessitating interventions by diverse players. Challenges that can be addressed effectively through structured collaboration with other stakeholders include Park management issues such as curbing pollution from poor waste disposal and control of unplanned developments. Moreover, wildlife and visitor security can be enhanced markedly through liaisons with other security agencies and the local community.

This objective is therefore designed to develop and enhance supportive stakeholder relations aimed at minimizing resource use conflicts and enhancing wildlife management in the ecosystem. In order to achieve this objective, a series of management actions have been developed. These are elaborated in more detail in the following sections.

Action 1.1 Establish Amboseli Ecosystem Trust

In an environment that has land uses that can out compete conservation, it is important that a mechanism be established to bring a balance between conservation and development. Currently a mechanism that can be used to coordinate implementation of conservation related activities, including implementation of this plan, is lacking. In order to ensure that management actions specified in this plan are implemented and hence achieve the AE's conservation purpose, a Trust named 'Amboseli Ecosystem Trust' will be established. The primary purpose of this Trust will be to promote conservation of wildlife and its habitats in Amboseli Ecosystem. Another key function of the Trust will be to mobilise resources to support implementation of this 10-year general management plan. The founders of the Trust will be key stakeholders in the Amboseli ecosystem including KWS, Amboseli Group Ranches, Oloitokitok County Council, conservation NGO's operating in Amboseli, and representatives from the tourism industry. A draft trust deed has been prepared with support from ACC and what is remaining is for stakeholders to review and finalise it, and thereafter register it. Once the Trust is registered, a ceremony will be organised in Amboseli to launch it.

Action 1.2 Enhance the functions of the Park Management Committee

An AE stakeholders' forum, the Park Management Committee, with members drawn from the major tourist accommodation facilities and research NGOs has been functional, albeit intermittently, as it largely functions at the pleasure of the Warden in Charge of the Park. As such, if the Warden does not organise meetings, the forum ceases to function. In order to enhance the role of this forum as an adviser on tourism development and management issues and make it effective in lobbying for controlled and planned development of visitor facilities in the AE, the forum will be revamped. The forum will be reconstituted to include all the key tourism sector players in the ecosystem. Clearly defined terms of reference to guide

the forum will be prepared, discussed and agreed upon by the stakeholders. The forum will hold regular quarterly meetings, which will be organised by the Park Warden who will also be the secretary to the forum. The forum will address emerging tourism issues in the AE, and catalyze and monitor implementation of management actions under the Tourism Development and Management Programme. This forum will also take the lead in the identification and development of diverse tourism products and services outlined in this plan.

Action 1.3 Enter into formal agreements with key stakeholders to strengthen collaboration and ensure coordination of the AE wildlife management sector

KWS has the leadership mandate over wildlife conservation and it is therefore fitting that it coordinates all wildlife related activities in the AE, as it is the only institution that is accountable to the public as regards wildlife matters. The AE has several active stakeholders in the wildlife conservation sector. These include large NGOs[13] that are wildlife research and Community Conservation oriented, and smaller NGOs and CBOs, which focus on community conservation issues. The research organizations have been carrying out long-term research, which has played a key role in enhancing understanding of elephant behaviour and ecological dynamics, which in turn have been used to market the ecosystem both locally and internationally. It is therefore prudent for KWS not to duplicate what these NGOs are doing, but instead to support their efforts within an agreed collaborative framework. Similarly, the community conservation NGOs have done a commendable job of sensitizing the community on conservation leading to establishment of community conservation areas that are reserved primarily for wildlife tourism. Some CBOs have also formed a game scouts association whose members have been actively involved in controlling human-wildlife activities and poaching in the ecosystem.

In order to streamline the AE wildlife sector activities, KWS will enter into formal agreements with the conservation NGOs so that their work can complement the efforts of KWS. The MOUs will specify an individual NGOs conservation work in the AE, expected outputs, and the role, obligations and expectations of KWS.

Action 1.4 Negotiate a formal agreement with the local community on provision of domestic and livestock drinking water outside the Park

One of the major issues facing AE management relates to livestock watering in the Park. At the inception of the Park, the government agreed to provide domestic and livestock drinking water outside the Park to maintain the integrity of the Park. A 90Km water supply system was designed and implemented, but over the years it has failed to meet the community water demands because of frequent bursts along the pipeline and subsequent high maintenance cost. It has therefore become more practical to allow livestock to be brought to the Park to drink at designated times because of shortage of water outside the Park. This however conflicts with Park regulations and degrades the aesthetic appeal of the Park necessitating a careful balancing of community, Park and tourism industry interests.

In order to ensure that conflicts between KWS and herders arising from grazing in the Park are minimised, KWS will negotiate a formal agreement with the local community to regulate and control livestock access to drinking water in the park. The agreement will spell out clearly obligations of KWS as regards supply of water to communities, conditions that may warrant

[13] ACC, AWF and ATE

the community to bring livestock to the Park, time of day livestock can be brought in, and specific points where livestock can drink. In addition, the obligations of the community will be spelt out including not grazing livestock in the Park or harassing tourists. KWS will strive to provide water to the community as specified under action 3.1 of this programme and it is only when the water supply system is not functional that livestock will be allowed in the Park. On its part, the community will be expected to honour the agreement and adhere to regulations stipulated there in. In particular, community leaders will be required to sensitize the community on the importance of sticking to watering schedules and designated watering points to minimize conflicts with wildlife.

Action 1.5 Participate in District administrative forums

Participation of KWS in the administration of the District increases KWS's visibility and provides opportunities where it can lobby other government agencies and win support for its core mandate, wildlife conservation. The District is administered through a number of committees that have been formed to address specific economic, social, management, or administrative sectors. KWS, being a prominent government agency in the District, is a member of many of these committees.

Under this management action, KWS will be represented in all the relevant District Committees. The Community Wildlife Officer based at Oloitokitok Station will participate in the District Development Committee, District Agricultural Committee, District Livestock Production Committee, District Environment Committee, and the District Wildlife Compensation Committee, while the Senior Warden-Amboseli and the Security Warden will participate in the District Security Committee. The Senior Warden will also represent KWS in all District functions and in case the Senior Warden is not available, the Community Wildlife Officer will attend.

Action 1.6 Liaise with honorary wardens to enhance wildlife conservation and management in the AE

KWS has appointed six AE conservationists as Honorary Wardens. The powers of Honorary Wardens as provided by the Wildlife Act (Cap 376) are similar to those of a KWS Warden. These wardens can therefore be very helpful to KWS by providing quick response to human-wildlife conflict issues and controlling poaching in the ecosystem. Some of the Honorary Wardens are doing a superb job of enhancing the capacity of game scouts to effectively address human-wildlife conflicts and minimizing bush meat poaching outside the Park. In recognition of the importance of Honorary Wardens as key close allies in wildlife management, AE management will design a framework for working with the Honorary Wardens. To begin with, the Senior Warden will assess the strengths and areas of interest of each honorary warden and identify the wildlife issues they can address effectively. The honorary wardens will thereafter be assigned tasks and they will be reporting on progress regularly to the Senior Warden.

Action 1.7 Liaise with competent land owners to secure KWS land parcels and strategic operation sites in the AE

There are 8 KWS outposts [14] in the greater Amboseli Ecosystem located on plots without title deeds. Since some of these outposts are currently not operational, there is danger of encroachment and eventual litigation unless the plots are secured. Currently there is a dispute between KWS and the Oloitokitok County Council on the ownership of the Loitokitok Station plot. Given that these plots are strategically located to facilitate KWS delivery of services to the public, it is vital they are surveyed and title deeds issued to KWS to avert encroachment. Therefore, under this action, the AE management will liaise with relevant local authorities and KWS Corporate Services Division to ensure that these plots are surveyed and title deeds issued.

Objective 2: AE Staff Welfare and performance Improved

The future desired state for the AE is one where staff morale is high, and staff are effective and efficient in performance of their duties. There are currently challenges that hinder the realisation of this desired state. For instance, some administrative sections are understaffed, some staff are sharing houses and others are accommodated in uniports. Also, recreation facilities need to be improved.

As such, this objective has been developed to promote staff motivation, training and optimum staffing to ensure that staff can deliver on their assigned tasks. In order to achieve this objective, a number of management actions have been developed. These actions are set out in more detail in the following sections.

Action 2.1 Liaise with KWS Headquarters Human Capital Department to deploy relevant staff in the AE

Amboseli National Park has 114 permanent staff members and 10 casual staff. The staff are however, not sufficient in some essential cadres. For instance, the position of Research Scientist has not been filled resulting in poor coordination of research in the ecosystem. Similarly, the mechanical workshop lacks critical support staff such as panel beaters. The ranger cadre is also not sufficiently staffed to adequately address the diverse and challenging security tasks.[15]

In order to have an effective staff, AE management will liaise with the Human Capital Department to ensure that staff is deployed according to the already determined optimum staffing levels for the AE.

[14] Nguruman outpost, Loitokitok Station, Loitokitok warden's house, Rombo outpost, Namanga outpost, Emali outpost, Selengei outpost and Konza outpost

[15] controlling livestock grazing in the park, problem animal control, patrolling the Namanga-Amboseli access road, ticket inspection, and maintaining security at ANP headquarters and gates

Action 2.2 Liaise with the Ministry of Medical Services to enhance the management and delivery of medical services by the Amboseli health clinic

The Amboseli health clinic is located at the edge of the Park in community land and it provides health care to both Park staff and the community. The Ministry of health has posted a Clinical Officer at the health centre while KWS has provided a nurse attendant. The clinic is however, short of basic equipment needed to provide quality health care to patients as it lacks laboratory equipment to carry out diagnostic tests. This prompts patients to seek lab services at Loitokitok or Mbirikani hospitals about 40Km away. In addition, the clinic lacks cool storage facilities to store drugs and vaccines that require being stored way below room temperatures. These drugs are currently stored at the Serena clinic which is more than 10km away implying that a patient who needs these drugs has to wait for a while for the drug to be fetched from Serena. Due to these shortcomings, the clinic is not very effective; hence most patients prefer to be attended at the Serena Clinic or Loitokitok hospital where they are sure of getting better services.

Through this action, AE management will liaise with the Ministry of Medical Services, through Loitokitok Hospital, to establish a simple medical laboratory at the Amboseli clinic and post a Laboratory technician to the clinic to be carrying out essential medical tests. In addition, AE management will collaborate with the clinic in ensuring that appropriate drug storage facilities are procured. And in order to maintain a high level of AIDS awareness among staff and the adjacent community at all times, AE management in collaboration with the clinic staff will conduct regular semi-annual AIDS awareness seminars to sensitize the Amboseli community on this disease. Aids awareness materials will also be strategically displayed at key meeting points such as staff canteens, gates and offices.

Action 2.3 Collaborate with the Ministry of Education and Olgulului/Olorarashi group ranch committee to improve the standard of education at the Amboseli Primary School

The children of Amboseli National Park staff attend the Amboseli Primary School located 200 metres from the staff quarters, at the community centre. The school has 163 pupils majority of who come from the surrounding villages. However, this number fluctuates because of the nomadic way of life of the local community. The school has two permanent classrooms that were built by KWS and six semi-permanent timber classrooms built by parents. It has no staff houses; hence teachers are provided accommodation by KWS at its staff quarters. In addition, KWS has employed one teacher for the school as the school is understaffed. However, unlike the KWS staff quarters, which are enclosed by an electric fence keeping off elephants, the school is not fenced exposing pupils and teachers to danger as the school is sited in an area frequented by elephants.

In order to ensure that Amboseli primary school pupils receive quality education, KWS will collaborate with the Ministry of education to ensure that adequate teachers are posted to the school. Efforts will also be made to support the school to convert into a boarding school so that children who could have dropped out of school when their parents relocate can board and continue learning uninterrupted. For a start, the former staff canteen, which is currently used as a nursery school, will be rehabilitated and converted into a dormitory to cater for the first group of boarding pupils. In addition, essential classroom furniture such as desks will be provided. The school compound will also be fenced to keep off elephants.

Since substantial funds are required to upgrade the school, KWS will collaborate with the Olgulului/Olorarashi group ranch committee to ensure that part of the revenue sharing funds received by the ranch is used to upgrade the school.

Action 2.4 Streamline the management of ANP Staff Welfare Association

To enhance staff welfare and boost morale, especially in a hardship area like Amboseli, KWS is increasingly encouraging establishment of staff welfare associations in its field stations. At Amboseli, a staff welfare association, which is run by an elected management committee, has been in operation for sometime. However, the modus operandi of this association is not clear, yet it receives proceeds from a public building, the staff canteen. In view of the fact that staff are often transferred, it is not uncommon to find cases of staff that abscond paying loans advanced by the welfare association. In order to streamline the functions of the association and ensure that it achieves its goal of advancing personal growth of individual staff members by providing financial support readily, AE management will facilitate the review of rules and regulations of the association. The revised rules will spell out clearly terms for joining and leaving the association, benefits accruing to members, procedure for election of office bearers and their term of office, and frequency of meetings. In addition, AE management will ensure that the association opens a bank account and that proper account records are kept at all times.

Action 2.5 Refurbish the ANP staff canteen

ANP has a staff canteen comprising of a bar, a shop, a butchery, a small café, and a small room that is used as an officers' mess. The canteen is managed by the staff welfare association, which has rented the businesses to private entrepreneurs. Currently, the canteen requires refurbishment, as it was not renovated during the branding of Amboseli National Park. Through this management action, the canteen will be refurbished to the same standard as the other staff buildings. In regard to this, the canteen will be painted and it will also be furnished with quality furniture.

Objective 3: AE Management infrastructure Enhanced

The future desired state of the AE is one where sufficient, efficient and effective management infrastructure is provided to facilitate conservation related activities. To achieve this, a few management challenges have to be overcome. Adequate staff housing is required in the Park to accommodate all cadre of staff as there are no rental houses in the Park-adjacent areas. And although the wildlife viewing roads and park access roads are currently in a fair condition despite the heavy use especially in certain sections of the park, these roads will require major rehabilitation work during the second half of the plan period to repair road sections that will require restoration. Water supply, particularly to the local community, is also another challenging infrastructure related issue in the ecosystem. The community water supply system, established in the 80s, is prone to frequent breakdowns, which are expensive to repair; hence an overhaul of the water supply system is essential.

This management objective has therefore been designed to ensure that sound management infrastructure is developed and maintained in the AE. The management actions developed to realize this objective are discussed in the following sections.

Action 3.1 Rehabilitate the Amboseli water supply system

The Amboseli water supply system consists of the Amboseli water pipeline and a series of boreholes and dams that supply water to the Park and the surrounding community. The Amboseli water supply pipeline is over 25 years old and seems to have surpassed its expected lifespan. The pipeline is therefore currently prone to frequent bursts that require at least Ksh.30, 000 monthly to repair, and as the pipeline deteriorates with time, these maintenance costs are bound to escalate. Due to its unreliability the water pipeline is not effective in supplying water to the community as intended and therefore the local community are forced to bring their livestock to the park swamps to drink water. In order to ensure that the community has adequate water for domestic and livestock use and that the high water pipeline maintenance costs are minimised, efforts will be made to replace the entire pipeline fittings with new ones. In addition, the current generators at five community boreholes[16] are old and prone to frequent breakdown. These generators will therefore be replaced with new ones. And to further boost water resources outside the park, five dams[17] will be desilted.

To ensure that the rehabilitated water supply system is sustainable, the community will be supported to establish water committees to manage the water points and ensure that they are not neglected. These committees will be trained on borehole maintenance, record keeping and tariff setting.

On the other hand, a water requirement study will be carried out to assess water demand for the community and inform further development of water resources in the area. In carrying out this study and other improvements on the water supply system, KWS will work closely with the Ministry of Water and Oloitokitok County Council to ensure that the necessary legal requirements for management of water resources are met.

Action 3.2 Construct and rehabilitate residential and non-residential buildings

The main staff accommodation facilities are located at the Park headquarters and the gates. However, decent accommodation is not available to all staff and consequently some staff members are accommodated in temporary uniports impacting negatively on staff morale. In addition, there is shortage of office space at the Park headquarters prompting the conference room to be used as the procurement store and the compressor room, which is very noisy, to be used as the mechanical workshop office. Storage of documents is also a challenge as there is no designated document storage room; hence archival documents are stored haphazardly.

In addition, most buildings in the Park and at Loitokitok station are old having been built in the early 1980s. Most of the buildings in the Park were rehabilitated during the recent branding exercise, but Loitokitok station was left out. Buildings at this station have been neglected and are therefore currently in a deplorable condition. The station also lacks sufficient decent toilets and bathrooms. These buildings require regular maintenance in terms of painting and replacement of worn out fixtures to restore them to a decent condition. Through this man-

[16] Marba, Kitenden, Ormoti, Ole Mbaa and Emotoroki,
[17] Risa, Loormogi, Kitenden, Marite, and Selengei

agement action therefore, AE management will strive to ensure regular maintenance of existing buildings both at the Park and Loitokitok station. In case of major rehabilitation works and construction of new buildings such as extension of the office, AE management will liaise with the KWS Headquarters IDM department to have this work carried out. Table 23 gives a summary of buildings that will be constructed and rehabilitated at ANP during the plan period.

Table 23. Construction of buildings at ANP

Type of Structure	Current Number	Total Number Required	Number to be constructed
Office block	1	1	Extend current office
Senior wardens	1	0	0
Deputy Warden	3	0	0
Senior support staff	0	7	7
Married rangers and support staff	15	45	30
Single rangers and support staff	65	75	10

Action 3.3 Maintain the road network in good motorable condition

There are two major classes of roads in the ecosystem i.e. classified roads and unclassified roads. The total road network in the Park is 214km of which 53 km is classified. The Ministry of Roads maintains classified roads while KWS maintains the unclassified ones (wildlife viewing roads).

The road network in the Park is currently in a satisfactory state due to periodic rehabilitation and routine maintenance. The last major rehabilitation of the road network was carried out under World bank funded PAWS (Protected Areas And Wildlife) programme in the late 90's and since then road works have mainly focussed on routine maintenance. This has meant that even the network that was rehabilitated in the 1990s has now deteriorated to a level where it requires rehabilitation or periodic maintenance

In order to ensure that the road network in the Park is in good condition, routine road maintenance work involving light grading, spot gravelling of isolated failed sections, bush clearing, drainage improvement and culvert cleaning, and maintenance of bridges, will continue during the first half of the plan period. This is the most important aspect of maintenance as it is the most cost effective activity. Its benefit to cost ratio is normally far higher than for rehabilitation or periodic maintenance and therefore it will always be given top priority. Thereafter periodic road maintenance, which involves continuous gravelling works and the construction of new drainage structures, will be carried out at a rate of 16 KM annually, while rehabilitation work involving restoration of the road network will be carried out at a rate of 5km annually.

In order to, curb off-road driving; ditches will be dug across the junction of the existing off-roads to dissuade drivers from using these tracks. And to prevent over speeding along the long straight road sections, earth bumps will be installed at intervals of one Kilometre.

Action 3.4 Design and develop a tourism road network in the Amboseli ranches

One of the problems that hinder tourism development in the Amboseli ranches is lack of game viewing tracks. However, since road construction and subsequent maintenance is a very expensive investment, it is critical that a thorough justification of any road construction project be carried out. This management action will therefore be implemented after the regional wildlife-tourism study envisaged under action 1.3 of the Tourism programme and the group ranch tourism development plans to be prepared under Action 1.4 of the same programme, have been implemented. The outcome of these actions will be used to support tourism road development plans in the Amboseli ranches. The Trust envisaged under action 1.1 of this programme will steer the road design studies and the eventual road construction in the ranches.

Action 3.5 Construct and renovate park entry gates

The entrance gate is the first feature the park visitor uses, giving him the first impression of the park. For this reason, entrance gates should be functional, inviting places, where the visitor feels welcome and where they can find basic facilities such as toilets. Entrance gates in the ANP are faced with several challenges such as lack of adequate toilets and water. In addition, entrance through Kitirua gate is regulated using a steel pipe barrier, as there is no standard gate. To enhance the services at the gates, construction and rehabilitation works will be carried out as outlined in table 24.

Table 24. Required Construction and rehabilitation works at ANP gates

Gate	Construction or Rehabilitation work required
Ol Kelunyiet	Construct toilets for visitors and fence the compound
Meshanani and Iremito Gates	Provide larger Water storage cisterns (1200litres) for the toilets, and fence the compound
Kitirua	Construct a gate, provide water to the residential houses, and fence the compound

Action 3.6 Install and maintain signage throughout the AE

Effective signage demonstrates a commitment to improved communication among locals and visitors. Signage educates and minimizes confusion. Confusing, obsolete or hard-to-find information leads visitors to question the quality of other services or products in the ecosystem. Signage should therefore be clear, accurate, and strategically placed. Directional signage in Amboseli can mislead and confuse a visitor as the signposts are not numbered and, in some cases, two place names on a signpost refer to the same destination e.g. Ol Kelunyiet and Kimana. In order to enhance visitor experience, signposts in the Park will be numbered and this numbering will be depicted on the tourist map to be produced under action 4.3 of the tourism programme. The wording on signposts will be checked for mistakes and rectified as appropriate. In addition, quality and highly visible signposts will be installed at the junctions of the major trunk roads and the three park access roads.

Action 3.7 Liaise with KWS Headquarters IDM department to upgrade the mechanical workshop and associated facilities

The current mechanical workshop was constructed in the 1980s when the vehicle and plant maintenance workload was low. The AE now boasts a fleet of over 20 vehicles and an assortment of plant and machinery most of which require regular maintenance because they are far beyond their economic life. The workshop is small lacking appropriate space for welding, tyre repair, and panel beating.

In addition, fuel is currently stored in two-4000 litre sheltered steel tanks that are a fire hazard. There is need to upgrade the mechanical workshop including the fuel storage system to meet modern workshop standards to facilitate efficient repair and maintenance of the AE vehicles, plant and machinery.

Through this management action, AE management will liaise with IDM department to redesign the mechanical workshop so that appropriate space is provided for each of the activities that is carried at the workshop. Moreover a mobile workshop, equipped with standard workshop tools, will be procured to facilitate maintenance of plant and vehicles that breakdown in the field and cannot be towed to the workshop easily. A new fuel filling station will be constructed to replace the current system of storing fuel in above ground steel tanks. The fuel storage system will consist of an under ground fuel tank large enough to store about 30,000 litres of diesel which is the amount of fuel used at the Park monthly. Currently the storage tanks are refilled about three times in a month with fuel transported from Loitokitok using plastic drums. Due to poor handling, the fuel is often contaminated with dust and sand particles, which lead to frequent malfunctioning of engines. To avoid fuel contamination, avert frequent engine problems and reduce fuel transportation costs, AE management will negotiate with one of the major oil companies to be refilling and servicing the new fuel storage system. In addition, to further enhance the working conditions of the workshop staff and safeguard their health, they will be provided with appropriate workshop tools and protective gear such as industrial gloves and welding goggles.

Action 3.8 Collaborate with AE stakeholders to connect key AE facilities to the Loitokitok-Kimana mains electricity

The ANP is located about 40km from mains power (which is at Loitokitok town); hence all facilities in the ecosystem have resorted to diesel fuelled generators to produce electricity. The use of diesel generators causes both air and noise pollution, which impinges on the wilderness quality and serenity of the area. The generators are also expensive to run given the current worldwide escalating fuel cost. A project is currently in progress to supply Kimana Trading Center with electricity by linking it with the Loitokitok grid. The power line is aligned along the Loitokitok-Emali road, which is about 20Km from the ANP. In order to minimize fuel costs and adopt clean energy sources, AE stakeholders will collaborate among themselves to connect key AE facilities with the mains electricity. The interested stakeholders will form a committee, which will spearhead negotiations and enter into a power supply agreement with the Kenya Power and Lighting Company. This committee will meet regularly to review progress and assign tasks to members to ensure that the power supply project is always on course. It will also ensure that the EMCA (1999) requirements for an environmental impact assessment for the ANP power line is carried out and recommendations are implemented to mitigate any identified negative impact.

Action 3.9 Carry out regular maintenance of the airstrips

The Park has two airstrips. One is gravelled while the other has a bitumen surface. The gravelled airstrip is located at the Park headquarters and it is mainly used for park administration, while the bitumen airstrip caters for visitors. The volume of the air traffic at the visitor airstrip has increased over the years and the size of aircraft landing has increased too. A few crash landing incidents have been reported at the airstrip, but luckily there have been no fatalities. Through this action, and in line with action 3.10 of this programme, AE management will make the provision of fire fighting equipment a priority to enhance emergency preparedness at the airstrip. A windsock, which is currently lacking, will be provided to aid aircraft landing. AE management will also conduct regular maintenance of the airstrip through filling the cracks on the runway and removal of encroaching vegetation. To facilitate smooth landing of aircrafts, the airstrip staff will collaborate with tour operators to ensure that animals that are at the runway are driven away as an aircraft approaches to avert accidents. In addition, the administration airstrip will be gravelled and maintained in serviceable condition always.

Action 3.10 Install fire fighting appliances at the ANP offices, mechanical workshop, and airstrip and train staff in fire preparedness

The Park has inadequate emergency plans to deal with fire hazards. Fire extinguishers are not available nor are there any procedures to be followed in case of accidental fires. In order to enhance emergency preparedness, fire-fighting appliances will be procured and installed at sites where accidental fires are likely to occur given the activities carried out at these sites. Priority will be given to the ANP office, mechanical workshop and the airstrip. The fire fighting appliances at all these sites should be effective on the four types of fires that are likely to start in the Park i.e. electrical, gaseous, flammable liquids, and fires fuelled by thatching materials, timber or linen. Apart from the fire extinguishers, the Park will be provided with a water browser that can be used to transport water to put out fires.

In addition, fire-fighting equipment is not helpful if there are no trained staff that can competently use the equipment when needed. To ensure that Park staff are competent in fighting fires, AE management will liaise with the KWS headquarters security division to have staff trained on basic fire fighting procedures and use of fire fighting appliances.

Action 3.11 Upgrade the radio network to improve communication among KWS, Game scouts and tourist establishments

In a vast ecosystem such as Amboseli, an effective and efficient communication system is a requisite for effective coordination of wildlife related issues and activities. Security related information, such as poaching incidents or banditry, is supposed to be relayed quickly to KWS so that timely security intervention measures can be taken. Routine administrative information needs to be relayed between the outposts and the headquarters frequently. As such, radio communication is the communication mode of choice because it is fast and cheap to operate. All the KWS outposts are already linked with ANP headquarters by radio. The community game scouts are also linked to the radio network to facilitate timely relaying of intelligence information and reporting human-wildlife incidents. To enhance wildlife and visitor security in the ecosystem, the radio network will be expanded to cover the group ranches that are currently not covered. Hoteliers and key research organisations operating in the Park will also be included in the radio network. With regard to this, these stakeholders will be expected to procure radio sets and then KWS will assign them a radio channel that they ill use to communicate.

Three Year Activity Plan 2008 – 2011

The following pages give an outline of the first 3-Year Activity Plan for the Ecosystem Operations Programme. The activity plan details the activities, responsibilities, timeframe and milestones necessary for implementation of each management action over the first 3-year timeframe of this management plan.

Management Action and Activities	*Responsibility*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
Objective 1: Institutional Collaborations Formalized and Strengthened														
1.1 Establish Amboseli Ecosystem Trust														The Amboseli Ecosystem Trust is fully operational by December 2009
1.1.1 Organise stakeholder meetings to discuss the draft trust deed	SW-Amboseli, ACC, AWF, ATGRCA, ATE			■	■									
1.1.2 Launch the Amboseli Ecosystem Trust	SW-Amboseli, ACC, AWF, ATGRCA, ATE						■							
1.1.3 Establish the Trust administrative structures	SW-Amboseli, ACC, AWF, ATGRCA, ATE					■								
1.2 Enhance the functions of the Park Management Committee														Park Management meetings held quarterly
1.2.1 Hold regular Park management committee meetings	SW-Amboseli	■	■	■	■	■	■	■	■	■	■	■	■	
1.3 Enter into formal agreements with key stakeholders to strengthen collaboration and ensure coordination of the AE wildlife management sector														At least two MOUs signed by June 2011
1.3.1 Sign collaborative research agreements with the major Conservation NGOs in the AE	SW-Amboseli									■	■	■	■	

Management Action and Activities	*Responsibility*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
1.4 Negotiate a formal agreement with the local community on provision of domestic and livestock drinking water outside the park														A formal agreement negotiated by December 2009
1.4.1 Organise community meetings to discuss conditions for live-stock incursion in the Park	SW-Amboseli													
1.4.2 Draw a formal agreement regarding provision of water to the Park-adjacent community	SW-Amboseli													
1.5 Participate in District administrative forums														AE Management attends all District level administrative meetings
1.5.1 Attend all District level meetings	SW-Amboseli													
1.6 Liaise with honorary wardens to enhance wildlife conservation and management in the AE														Tasks and responsibilities of each honorary warden are clearly defined
1.6.1 Define the tasks and responsibilities of honorary wardens and assign them tasks	SW-Amboseli													
1.6.2 Monitor the performance of honorary wardens	SW-Amboseli													
1.7 Liaise with competent land owners to secure KWS land parcels and strategic operation sites in the AE														All KWS plots are surveyed by June 2011
1.7.1 Survey all KWS plots in the AE	SW-Amboseli													
1.7.2 Liaise with the Ministry of Lands for issuance of Title deeds for the KWS plots	SW-Amboseli													
Objective 2: AE Staff welfare and performance improved														
2.1 Liaise with KWS Headquarters Human Capital Department to deploy relevant staff in the AE														Staff are deployed to AE according to needs
2.1.1 Assess staff needs and deploy adequate staff to the AE	SW-Amboseli													
2.2 Liaise with the Ministry of Medical Services to enhance the management and delivery of medical services by the Amboseli health clinic														At least one AIDS awareness event is organised for AE staff per year
2,2.1 Liaise with the Ministry of Medical Services to establish a small medical laboratory at the Amboseli Health Clinic	SW-Amboseli													
2.2.2 Organise AIDS awareness meetings for KWS staff and the community	SW-Amboseli													

Management Action and Activities	*Responsibility*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
2.3 Collaborate with the Ministry of Education and Olgulului/Olorarashi group ranch committee to improve the standard of education at the Amboseli Primary School														The former staff canteen is converted into a boarding facility by September 2009
2.3.1 Rehabilitate the former staff canteen and convert it into a boarding facility for children from Amboseli Primary School	SW-Amboseli				■	■								
2.3.2 Fence the school compound to keep out elephants	SW-Amboseli				■	■								
2.3.3 Deploy additional teachers to Amboseli Primary School	SW-Amboseli									■	■	■	■	
2.3.4 Procure classroom furniture	SW-Amboseli					■	■							
2.4 Streamline the management of ANP Staff Welfare Association														The staff welfare Association has clear rules and regulations by June 2009
2.4.1 Hold staff meetings to review the rules and regulations of the staff welfare association	SW-Amboseli			■	■									
2.4.2 Open bank account to support the operations of the staff welfare association	SW-Amboseli			■	■									
2.5 Refurbish the ANP staff canteen														The staff canteen is refurbished by December 2009
2.5.1 Paint the staff canteen	SW-Amboseli					■	■							
2.5.2 Procure quality furniture for the canteen	SW-Amboseli					■	■							
Objective 3: AE management infrastructure enhanced														
3.1 Rehabilitate the Amboseli water supply system														At least 2 dams are desilited, and all boreholes are functional by June 2011
3.1.1 Carry out an overhaul of the Amboseli water supply pipeline	SW-Amboseli					■	■	■	■	■	■	■	■	
3.1.2 Procure generators for pumping water from boreholes	SW-Amboseli					■	■							
3.1.3 Desilt dams	SW-Amboseli									■	■	■	■	
3.1.4 Carry out a community water requirement assessment study	SW-Amboseli, SRS-Southern, CWO-Amboseli							■	■					

Management Action and Activities	*Responsibility*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
3.2 Construct and rehabilitate residential and non-residential buildings														
3.2.1 Construct staff houses	SW-Amboseli													
3.2.2 Construct additional offices to house research and procurement sections	SW-Amboseli													
3.2.3 Rehabilitate buildings at Loitokitok station	SW-Amboseli													
3.3 Maintain the road network in good motorable condition														All wildlife viewing roads are motorable through the year
3.3.1 Carry out routine road maintenance	SW-Amboseli													
3.4 Design and develop a tourist road network in the Amboseli ranches														
3.4.1 Develop tourist road development plans for areas outside the Park	ATGRCA, SW-Amboseli													
3.5 Construct and renovate park entry gates														All gates are renovated by December 2009
3.5.1 Construct a gate at Kitirua entry point	SW-Amboseli													
3.5.2 Construct visitor toilets at Ol Kelunyiet gate	SW-Amboseli													
3.5.2 Provide adequate water at the gates	SW-Amboseli													
3.6 Install and maintain signage throughout the AE														Signage is well maintained throughout the year
3.6.1 Carry out routine maintenance of sign posts	SW-Amboseli													
3.6.2 Install directional and information sign posts at the main junctions to the Park	SW-Amboseli													
3.7 Liaise with KWS Headquarters IDM department to upgrade the mechanical workshop and associated facilities														
3.7.1 Redesign the mechanical workshop	SW-Amboseli													
3.7.2 Provide the AE with a mobile workshop	SW-Amboseli													
3.7.3 Construct a new environmentally friendly fuel storage tank	SW-Amboseli													

Management Action and Activities	*Responsibility*	*Timeframe*												*Milestones*
		FY 2008-09				FY 2009-10				FY 2010-11				
		1	2	3	4	1	2	3	4	1	2	3	4	
3.8 Collaborate with AE stakeholders to connect key AE facilities to the Loitokitok-Kimana mains electricity														Funds are available by June 2011 to implement the electricity project
3.8.1 Hold stakeholder meetings to discuss the electricity supply project	SW-Amboseli													
3.8.2 Solicit for funds to implement the electricity supply project	SW-Amboseli													
3.9 Carry out regular maintenance of the air strips														The airstrips are well maintained throughout the year
3.9.1 Carry out routine maintenance of the airstrips	SW-Amboseli													
3.10 Install fire fighting appliances at the ANP offices, mechanical workshop, and airstrip and train staff in the preparedness														Fire fighting appliances available at the mechanical workshop and the visitor airstrip by March 2010
3.10.1 Carry out an assessment of the required fire fighting appliances	SW-Amboseli													
3.10.2 Procure and install fire fighting appliances as per the assessment carried out under 3.10.1	SW-Amboseli													
3.11 Upgrade the radio network to improve communication among KWS, Game scouts and tourist establishments														Key stakeholders are can communicate with KWS by radio by March 2010
3.11.1 Procure radio communication sets	ATGRCA, Hoteliers, SW-Amboseli													
3.11.2 Include key stakeholders in the radio communication network	ATGRCA, Hoteliers, SW-Amboseli													

Plan Monitoring

The Plan Monitoring Framework

The plan monitoring framework set out in the following tables has been designed to provide guidance for the assessment of the potential impacts resulting from the implementation of each of the five management programmes. The framework sets out the desired positive impact of each programme's objectives, as well as any potential negative impacts that may possibly occur. The framework also includes easily measurable and quantifiable indicators for assessing these impacts, and potential sources of the information needed (see tables 25, 26, 27, and 28).

Table 25. Ecological Management Programme Monitoring Plan

Objective	*Potential Impacts (Positive and Negative)*	*Verifiable Indicator*	*Sources and means of verification*
Objective 1: Critical Wildlife dispersal areas and corridors within the Amboseli Ecosystem are secured	**ANP's Wildlife dispersal areas are maintained**	**Area set aside for conservation**	**Land use surveys**
Objective 2: Swamps and river systems managed and protected in collaboration with stakeholders	**Sufficient water is available for people, livestock and wildlife**	**Water quantity and quality**	**Water quantity and quality monitoring data**
Objective 3: Conservation of AE threatened large mammal species is enhanced	**Elephant, lion and rhino populations in the AE are increasing**	**Population numbers**	**Wildlife monitoring and surveillance data**
Objective 4: Ecological monitoring and research information dissemination is strengthened	**Ecological research and monitoring is being carried out**	**Research studies, wildlife census and vegetation monitoring studies carried out**	**Research and monitoring reports**

*Table 26. **Tourism Development and Management Programme Monitoring Plan***

Objective	*Potential Impacts (Positive and Negative)*	*Verifiable Indicator*	*Sources and means of verification*
Objective 1: AE tourism developed and managed in a coordinated and sustainable manner	Tourist facility development in the AE is not chaotic	Tourist facilities developed in various visitor use zones	AE Tourism development and management reports
	Increased collaboration between KWS and AE tourism investors	Number and participation at the AE tourism development and management committee meetings	Meeting minutes
	Environmental degradation from new tourist activities and/or supporting infrastructure	Evidence of pollution/litter or habitat degradation at sites where activities or infrastructure are located	Targeted inspections by AE and NEMA staff
Objective 2: Tourism returns to local communities enhanced	Increased tourism revenues	Community projects funded using revenue accruing from tourism	AE community wildlife service reports
Objective 3: Tourism in AE diversified and visitor experience enhanced to boost visitor satisfaction	Increase in the number of tourists visiting the AE	Tourist numbers in the park and community conservation areas Numbers visiting the AE visitor centre	Park and the AE community conservation areas visitation data
Objective 4: Tourism in the AE promoted and marketed to attract high end local and international tourists	Increase in eco-tourists	Number of visitors to the eco-resorts located in the community conservation areas	Visitor records from the eco-resorts

*Table 27. **Community Partnership and Education Programme Monitoring Plan***

Objective	*Potential Impacts (Positive and Negative)*	*Verifiable Indicator*	*Sources and means of verification*
Objective 1: Wildlife dispersal areas around Amboseli NP and critical linkages to adjacent Tsavo and Kilimanjaro national parks are opened up and maintained	Decreased conversion of critical wildlife corridors and dispersal areas to agriculture	Area covered by permanent agriculture, and trends in rate of conversion	AE land use/cover surveys
Objective 2: Human-wildlife conflict in community areas reduced to minimum levels	Enhanced relationships between AE management and surrounding communities	Human-wildlife conflict incidences	Community Wildlife Service records
	Reduced costs of wildlife to AE adjacent communities	Incidents of human-wildlife conflict around the AE	Community Wildlife Service records
Objective 3: Community benefits from natural resource use diversified and equity in benefit sharing ensured	Conservation related projects are increasing	Number of conservation-related community based income generating	Community Wildlife Service records
	Enhanced positive community attitude towards conservation of wildlife and other natural resources	Number of people who are benefiting directly from conservation-related enterprises	Community knowledge and attitudes surveys
Objective 4: Objective 4: Livestock productivity improved to enhance community livelihoods	Livestock grazing pastures improved	-Extent of rehabilitated grazing areas -Availability of livestock drinking water	Department of Livestock records
	Livestock breeds and animal husbandry improved resulting in better financial returns to livestock producers	-Number of livestock lost to diseases -Average weight of livestock sold at the livestock market	Department of livestock records
Objective 5: Livestock production and marketing focused on specific local and international markets	Financial returns from livestock production increased	Livestock sale prices at the local livestock markets	Department of livestock records

Objective 6: Awareness about the Park and ecosystem at the local and national level enhanced	**Increased community awareness and appreciation of the park as a national heritage**	**Number of local tourists visiting the Park**	**Tourism section reports**
	Reduced illegal natural resource use in the AE	**Number of local community members arrested for illegal natural resource use the in AE**	**AE Security Section Records**

*Table 28. **Security Programme Monitoring Plan***

Objective	*Potential Impacts (Positive and Negative)*	*Verifiable Indicator*	*Sources and means of verification*
Objective 1: Security operations for the protection of AE's wildlife resources enhanced	**The AE is safe for both visitors and wildlife**	**-Number of visitor security incidents in the AE -Number of poaching incidents**	**AE Security Section records**
Objective 2: Effectiveness of resource protection improved	**Reduced impact of poaching on wildlife**	**Number of poaching related arrests and number of snares collected**	**AE Security Section records**
Objective 3: Security of visitors, staff, revenue and KWS assets enhanced	**Increased safety of KWS assets**	**Number of security incidents related to visitors, KWS assets, revenue or KWS staff**	**AE Security Section records**

*Table 29. **Ecosystem Operations Programme Monitoring Plan***

Objective or Sub-objective	*Potential Impacts (Positive and Negative)*	*Verifiable Indicator*	*Sources and means of verification*
Objective 1: Institutional collaborations formalized and strengthened	Enhanced management collaboration between KWS, the local authority ,and the group ranches	Percentage of joint responsibility 3-year activity plan milestones achieved	AE monthly, quarterly and annual reports
	Increased stakeholder support for management of the AE	Number of AE park management committee meetings or other stakeholder collaboration events held	Meeting minutes or AE monthly, quarterly and annual reports
Objective 2: AE Staff welfare and performance improved	Improved efficiency of AE staff undertaking their roles	Staff performance against 3-Year Activity Plan "milestones"	AE annual reports
	Improved morale of AE staff	Number of poor morale related incidences	AE annual reports
Objective 3: AE Management infrastructure enhanced	Reduced livestock incursion in the Park	Number of livestock brought to drink in the Park	AE security section reports
	Reduced energy costs at the Park headquarters and tourist facilities in the HUZ	Funds spent on electricity	ANP and visitor facility electricity bills

Plan Annexes

Annex 1. Stakeholder participation in plan development

Name	*Position and Organisation*	*Core Planning Team*	*Stakeholder's Planning Workshop #1*	*Stakeholder's Planning Workshop #2*	*Expert Working Groups*	*GR Plan Endorsement Meetings*[18]
1. A. Ibrahim			X			
2. A. Melita			X			
3. Alfred Kikoti	Kili Elephant Research Program (Tanzania)			X		
4. Alice Owen	Born Free Foundation			X		
5. Andrew Muchiru	ACC	X				
6. Apollo Kariuki	Senior Resource Planner, KWS	X				XX
7. Bart Lever	Tortilis Camp			X		
8. Beatrice A. Obado	PPD Kajiado			X		
9. Bernard Ngoru	Kenya Wildlife Service			X		
10. Bernard Tulito	Olgulului Ranch Trust		X	X		
11. Betty Buyu	Director, ACC					X
12. C. Kitoko			X			
13. C. Muathe			X			
14. Charles Lengete	Kuku Group Ranch			X		X
15. Chief Samana	Oloolopon					X
16. Chris Biwott	DCIO Loitoktok			X		
17. Christopher Saigos	Mailua Group Ranch			X		
18. Collins Ochieng'	AWF, Kili Heartland			X		
19. D. Metoe			X			
20. D. Mukoma			X			
21. D. Nina			X			
22. D. Titi			X			X
23. Daniel Lekeni	Entonent					X
24. Daniel Leturesh	Chairman, Olgulului Group Ranch	X		X		XX
25. Daniel M. Were	Rapporteur, Peniel Development Consult			X		
26. Daniel P. Manyara	Mbirikani Group Ranch			X		

[18] Two Group Ranch endorsement meetings were held. Attendance in both meetings is indicated by **XX** while a single X indicates that the participant attended one meeting.

Name	*Position and Organisation*	*Core Planning Team*	*Stakeholder's Planning Workshop #1*	*Stakeholder's Planning Workshop #2*	*Expert Working Groups*	*GR Plan Endorsement Meetings*[18]
27. David A. Lenemiria	MoL&FD			X		
28. David Gitonga	Ministry of Tourism	X				
29. David K. Maitumo	African Conservation Centre			X		
30. David Kitasho	Chairman ATGSA			X		X
31. David P. Ngida	Mbirikani Group Ranch			X		
32. David Salaash	Eselenkei Group Ranch		X	X		XX
33. David Western	African Conservation Centre			X	X	X
34. Dickson Korir	Warden, Kajiado			X		X
35. Dominique Connan	Student, University of Paris			X		
36. E. Lampat			X			
37. E. Njogholo			X			
38. Edith A.Bosire	Eco-Tourism Kenya					X
39. Elizabeth Leitoro	Kenya Wildlife Service-CWS			X		
40. Emmanuel Kanai	Chairman, Kuku Group Ranch			X		X
41. Emmanuel ole Onetu	Lewett Kenya Trust			X		
42. Eunice N. Sikelpei	NAWODEN Women Group			X		
43. Fiesta Warinwa	AWF, Kilimanjaro Heartland	X				XX
44. G. Saruri			X			
45. G.O. Otieno	District Commissioner, Loitokitok District			X		
46. Geoffrey Lonina	Entarara					X
47. George Opiyo Juma	District Officer, Loitokitok Central Division			X		
48. George Osuri	Senior Warden - Amboseli	X				XX
49. Gofrey Masinde	African Conservation Centre	X	X	X	X	XX
50. Hamisi Mutinda	AWF, Kili Heartland	X	X	X		
51. Harvey Croze	Director Amboseli Trust for Elephants			X	X	X

Name	*Position and Organisation*	*Core Planning Team*	*Stakeholder's Planning Workshop #1*	*Stakeholder's Planning Workshop #2*	*Expert Working Groups*	*GR Plan Endorsement Meetings*[18]
	(ATE)					
52. Henry Olekana	Kuku B Chairman					*X*
53. Hon.Katoo Metito	Area MP			*X*		*X*
54. Humphrey Kariuki	KTF					*X*
55. Isaac Nkirrimpa	Chairman, Mbirikani Group Ranch			*X*		*X*
56. Isaiah ole Samana	Chief, Kuku Location			*X*		
57. J. Bernard	KWS HQs		*X*			
58. J. Kwambai			*X*			
59. J. Miaron			*X*			
60. J.Weru	SNV					*X*
61. Jackson K. Okiroi	A/Chief, Olchorro Sub-Location			*X*		
62. Jackson Kirruti	ATGSA Co-ordinator		*X*	*X*		*XX*
63. Jacob L. Logela	Treasurer Rombo					*XX*
64. Jacob Ole Morintat	Secretary Imbirikani GR					*XX*
65. Jacob Partinio Munke	Chief, Entonet Location			*X*		
66. James Likampa	Oltiasika					*X*
67. James Moonka	Olgulului Ranch Trust			*X*		*XX*
68. James Nina	Kimana					*X*
69. James Sayianka Oloitipitip	Chief, Lenkism Location		*X*	*X*		*X*
70. Jane W. Gicharu	District Information Officer			*X*		
71. Joachim Kagiri	Deputy Director, Kenya Wildlife Services			*X*		
72. Joel K. Oseni	Mbirikani Treasurer					*XX*
73. Joel Poreka	Eselenkei					*X*
74. John G. Mule	Land Adjudication Officer (Reg. Group Ranches)			*X*		
75. John Kioko	SFS	*X*	*X*		*X*	*XX*
76. John Lalaito	Kimana					*X*
77. John M. Kamau	OCPD, Loitokitok			*X*		
78. John Muli	Olgulului Treasurer					*XX*
79. John Nkipapai	Rombo Group Ranch			*X*		
80. John Sesen	Kuku Group Ranch			*X*		*XX*
81. John Sitelu	Secretary Rombo					*X*

Name	*Position and Organisation*	*Core Planning Team*	*Stakeholder's Planning Workshop #1*	*Stakeholder's Planning Workshop #2*	*Expert Working Groups*	*GR Plan Endorsement Meetings*[18]
82. Johnson Ole Sipitiek	African Conservation Centre			X		
83. Jonah L. Parteyie	Rombo					X
84. Jonathan Lekanaiya	Coordinator ATGRCA	X		X		XX
85. Joseph K. Patiat	CDF Manager					X
86. Joseph Lemomo	CDF Manager			X		
87. Joseph M. Munyua	District Development Office, Kajiado			X		
88. Joseph Melombuki	Manager Olgulului Public Camp Site			X		
89. Joseph Molinka	Olorika					X
90. Joseph Nkanoni	Rombo					X
91. Joshua K.Kilitia 92.	Mbirikani.G.R Chairman					XX
93. Joshua L. Leyian	ATGSA					X
94. Joyce Poole	Director Amboseli Trust for Elephants (ATE)			X		
95. Julius Kitesho	Kuku					X
96. Juugen Pietz	Zebra Lodge, Kimana Wildlife Sanctuary			X		
97. K. Laon			X			
98. K. Orikoi			X			
99. Kaanka Laon	Kimana Chairman					X
100. Kasaine Nakutiti	Kimana Group Ranch			X		
101. Kasaine Oloitipitip	Chairman, Olgulului Ranch Trust			X		XX
102. Ken Ngari	NEMA					X
103. Kenduiwo, A. Kipng'eno	DAO's Office Kajiado			X		
104. Kenyatta Oloitipitip	Olgulului Ranch Trust			X		XX
105. Keturai Babu	Eselenkei Group Ranch			X		X
106. Keturai ole Murere				X		
107. Kidoku ole Kasharo	Kimana Group Ranch			X		
108. Kilelo ole Seta	Olgulului Ranch Trust			X		
109. Kilelo ole Simamai	A/Chief Kimana Sub-Location			X		
110. Kilena Tarayia						X
111. Kirapash Lepau	Kimana Tiko Treasurer					XX
112. Kitipai Mpete	Kuku A Treas-					XX

Name	*Position and Organisation*	*Core Planning Team*	*Stakeholder's Planning Workshop #1*	*Stakeholder's Planning Workshop #2*	*Expert Working Groups*	*GR Plan Endorsement Meetings*[18]
	ure					
113. Koki Mbulu	Koki M Mbulu & Co. Advocates		*X*		*X*	*X*
114. Korduni Metui	Chairman Kuku GR					*X*
115. Leah Manto						*X*
116. Ledikai Parlole	Eselenkei					*X*
117. Lemaron Munyepera	Chairman, Rombo Group Ranch			*X*		
118. Lemomo Lonina	Oloolopon					*X*
119. Lengete Kamete	Kuku-Treasurer					*X*
120. Leonard ole Mpaayo	Amboseli Serena Lodge			*X*		
121. Lucy S. Sayiore	NAWODEN Women Group			*X*		
122. M. Sarika			*X*			
123. Martha Nzisa	Kenya Wildlife Services, Headquarters			*X*		
124. Martine Olkirrao	Snr A/Chief, Amboseli sub-Location			*X*		
125. Masare ole Laon	Chairman, Kimana Group Ranch			*X*		*X*
126. Masikonde Ole Tamai	Chairman, Mailua Group Ranch			*X*		
127. Matayo Nkoja	Mbirikani Group Ranch			*X*		
128. Melita Sitelu	Vice Chairman Rombo					*X*
129. Mike McCartney	Ker & Downey Safaris/Kitirua Wildlife Conservancy			*X*		
130. Miseyeki Mentui	Chairman Kuku A					*X*
131. Moses Kaipoon	Imbirirkani					*X*
132. Moses Kenana	SRS-Southern					*X*
133. Moses M. Ntiwuasi	Ag. Chief Rombo Location			*X*		
134. Musopir ole Sereka				*X*		
135. Muteleu Lewugua	Member Eselenkei					*X*
136. Muyantet Kapaito	Chairman, Eselenkei Group Ranch			*X*		*X*
137. Naftaly Kio	KWS HQs		*X*		*X*	
138. P. Maundu			*X*			
139. Parsanga ole Ndapa	CBO TZ West Kilimanjaro			*X*		

Name	*Position and Organisation*	*Core Planning Team*	*Stakeholder's Planning Workshop #1*	*Stakeholder's Planning Workshop #2*	*Expert Working Groups*	*GR Plan Endorsement Meetings*[18]
	(Tanzania)					
140. Partimo Male	Entonent					X
141. Paul Ntiati	Director, AWF Kilimanjaro Heartland	X		X	X	
142. Paul S. Meiliara	South Rift Association and Land Owners (SORALO)			X		
143. Pekei ole Slioke	Chairman, Lemono Hill Conservation Project			X		
144. Peter Murimi	Resource Planner, KWS	X				
145. Philip Murithi	Ecotourism Kenya			X		
146. Philip Muruthi	AWF	X				X
147. R. Mbaluka			X	X		
148. R. Mbugua			X			
149. R. Parmuat	Kimana Ward		X	X		X
150. R.M. Rashid	District Commissioner, Kajiado District			X		
151. Raphael M. Sinkira	Chief, Mailua			X		
152. Richard T. Oloitiptip	Olgulului R. Trust					XX
153. Robert Kihara	Lenkism					X
154. S. Gachago	KWS HQs		X			
155. Sambu Munyapera	Chairman Rombo					X
156. Sammy Nkii	Vice Chairman Olgulului					X
157. Samwel Muiruri	Manager, Oltukai Lodge			X		
158. Sarika Ntawuasa						X
159. Sayainka Oloitiptip	Lenkism					X
160. Sayianka ole Kosei	Mbirikani Ward			X		X
161. Senewa Ene Timaiyo	Nomadic Integrated Development and Research Agency (NIDRA)			X		
162. Serah Saiyalel	Baboon Research Project			X		
163. Simon Gitau	Senior Warden, Amboseli National Park			X		
164. Simon K. ole Seno	School for Field Studies			X		
165. Simon Metito	Nominated					X
166. Simon ole Nasalei	VGS Coordinator – Enduimet			X		

Name	*Position and Organisation*	*Core Planning Team*	*Stakeholder's Planning Workshop #1*	*Stakeholder's Planning Workshop #2*	*Expert Working Groups*	*GR Plan Endorsement Meetings*[18]
	(Tanzania)					
167. Sitonik David	Amboseli Tourism Association		X	X	X	
168. Situma Mwichabe	SNV/Netherlands Development Organisation			X		
169. Soila Sayialel	Amboseli Trust for Elephants	X		X	X	XX
170. Solomon Kotoke	Imbirikani Group Ranch			X		
171. Stanley Kongoley	Manager, Amboseli Serena Lodge			X		
172. Stephen Kamenje	African Wildlife Foundation			X		
173. Stephen Kipaa	Olgulului Ranch Trust			X		
174. Stephen Manegene	Kenya Wildlife Service	X	X	X		
175. T. Mailu			X			
176. Taiko Lemayian	Coordinator KECOBAT			X		
177. Tarayia Kores	Chairman Olkejuado County Council			X		
178. Thomas Chege	Livestock officer					X
179. Timothy Saigilu	Imbiririkani					X
180. Tuqa Jirmo	KWS/Amboseli National Park			X		
181. Tuineki ole Leposo				X		
182. Velma Okoth						X
183. Vipul Kumar	Airborne African Safaris			X		
184. Wilfred Ngonze	Senior Warden, Kimana Wildlife Sanctuary			X		
185. Wilfred Osumo	District Environmental Officer, NEMA, Kajiado	X				X
186. Willi Arntz	Osero House, Kimana Gate			X		
187. William Kina	Rombo					X
188. Wilson K. Korir	Kenya Wildlife Service	X		X		XX
189. Wilson N. Tikwa	ATGSA					X

Annex 2. Principal Documents Used to Compile the Amboseli Ecosystem Management Plan

1. ACC. 2007. Amboseli Stakeholders Feedback Workshop [11th -12th April 2007]. Workshop Proceedings. ACC.

2. AWF. 2005. Draft Report of the Legal Study for the Proposed 5 Year General Management Plan for the Amboseli National Park and Adjacent Community Areas.

3. AWF. 2005. Infrastructure: Amboseli National Park and the Surrounding

4. Croze, H. Sayialel, S. And Sitonik, D. 2007. What's On In The Ecosystem. Amboseli As A Biosphere Reserve. A Compendium of Conservation and Management Activities in the Amboseli Ecosystem. ATE

5. Hicks, R. 2007. Tourism Development Plan. Amboseli/Tsavo West Tourism Region [Draft Report]. AWF

6. Kioko, J. M. 2005. Spatial-Temporal Distribution Of African Elephants (*Loxodonta africana Africana,* Blumenbach) And Their Interactions With Humans In Kuku – Kimana Area Of Tsavo-Amboseli Ecosystem, Kenya. Msc Thesis, University Of Greenwich, UK.

7. KWS. 2008. National Strategy for the Conservation of Lions and Spotted Hyenas in Kenya 2008-2013

8. KWS. 2005. KWS Strategic Plan [2005-2010]

9. KWS. 2008. Rhino Conservation Strategy.

10. KWS. 1991. Amboseli National Park Management Plan (1991-1996). KWS Planning Department

11. KWS. 2008. National Action Plan for the Conservation of Cheetahs and African Wild Dogs.

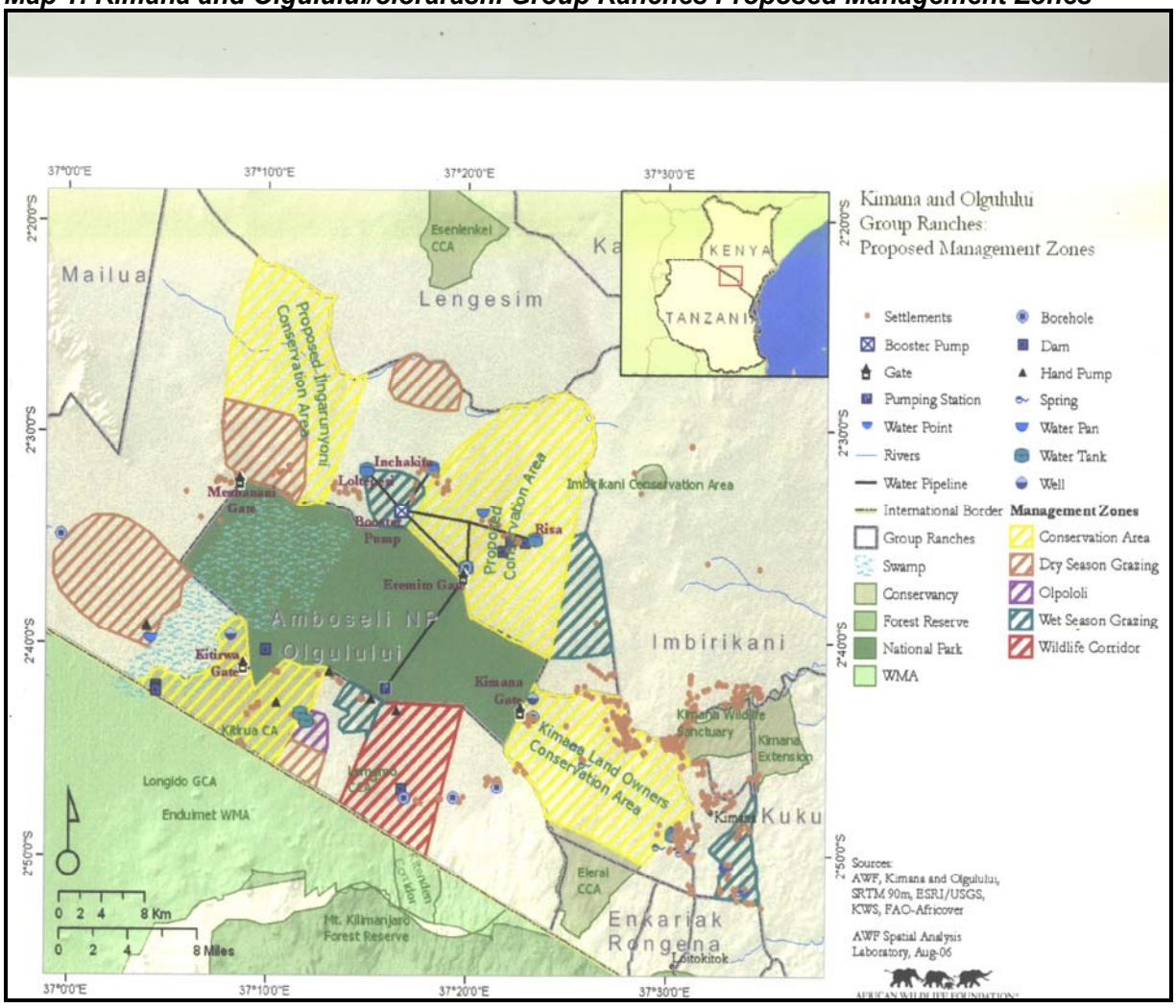
12. Masinde, G. And Kio, N. 2005. Transboundary Conservation in the Amboseli-Longido-West Kilimanjaro Landscape [Final Report]

13. Mutinda, H. Mwongela, B. Ntiati, P. And Mayienda, R. 2007. Participatory Natural Resources Management (PNRM) Plans, Kimana and Olgulului Group Ranches [2000 – 2011]. AWF.

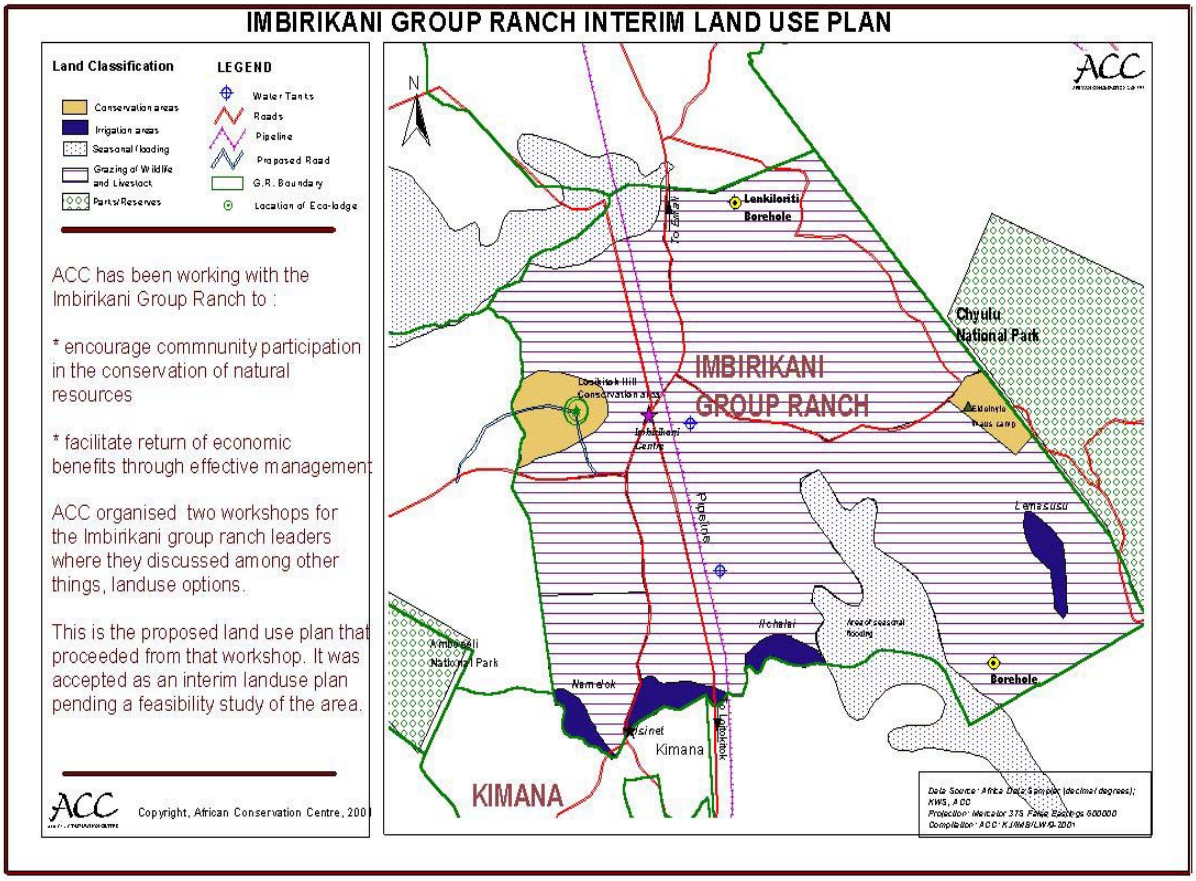
14. Western, D. 2005. The Ecology and Changes of the Amboseli Ecosystem. Recommendations for Planning and Conservation. ARCP

Annex 3. AE Maps

Map 1: Kimana and Olgulului/olorarashi Group Ranches Proposed Management Zones



Map 2: Mbirikani Group Ranch Land Use Zoning



Map 3: Elerai Ranch Land Use Zoning

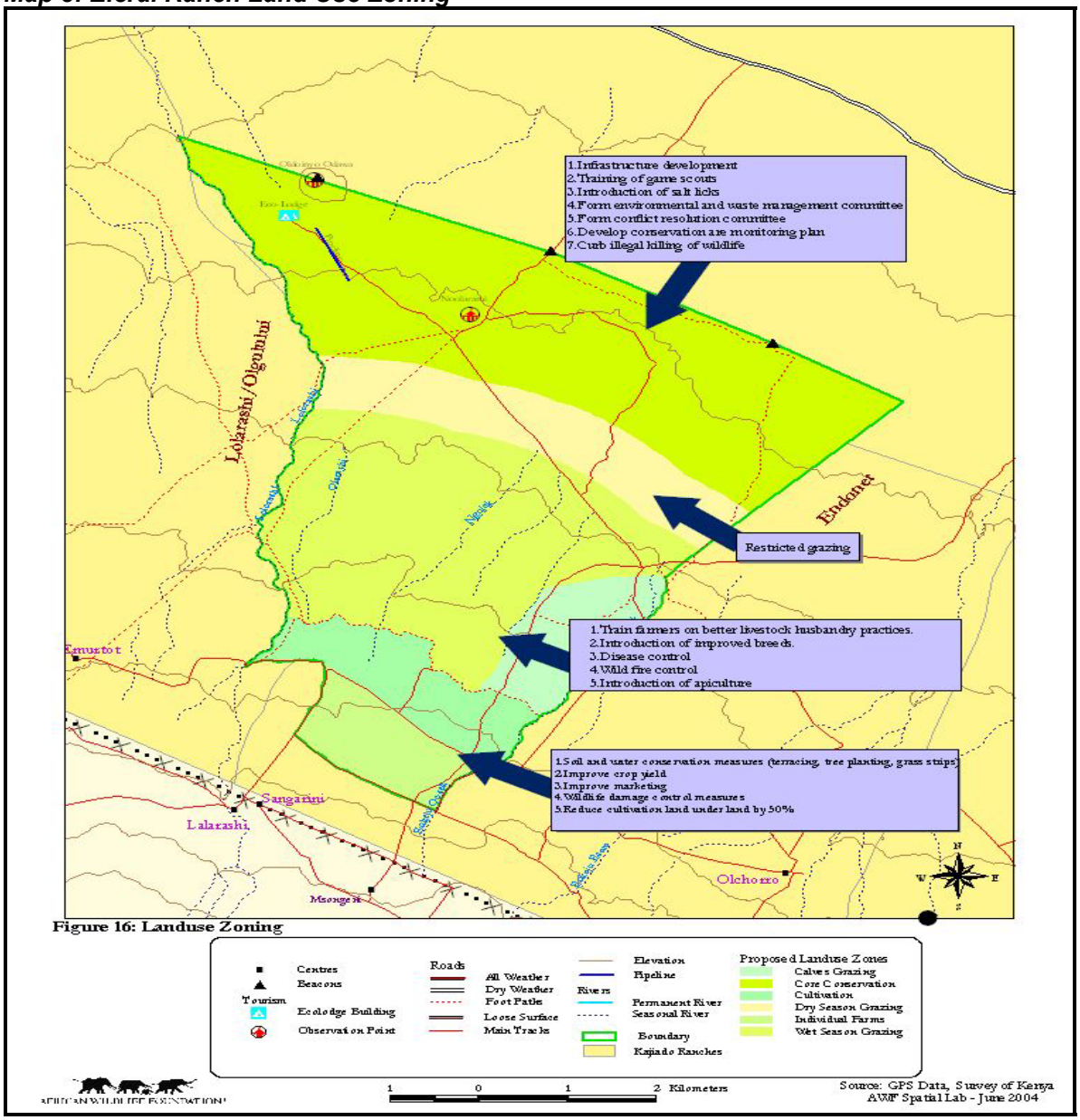
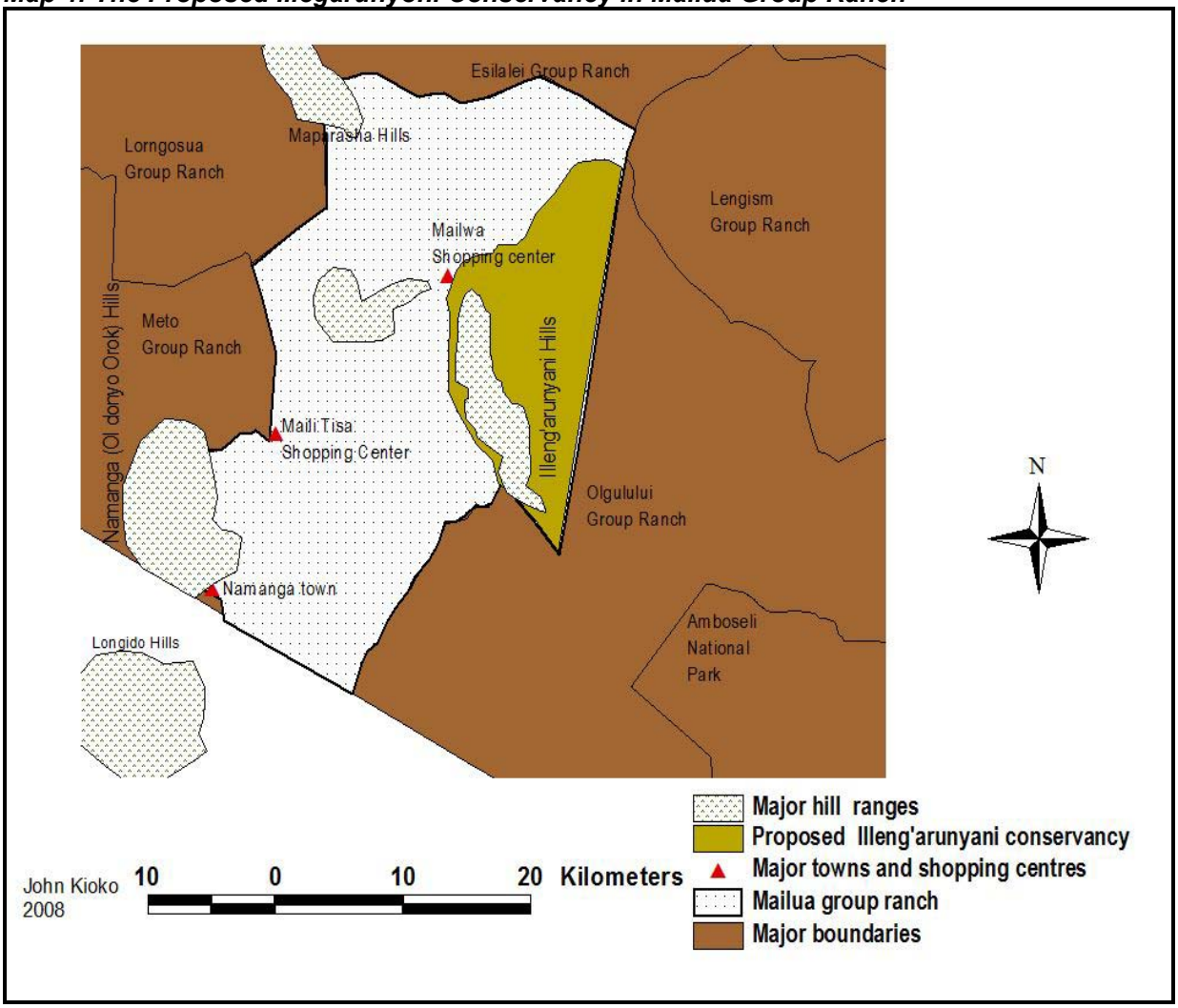
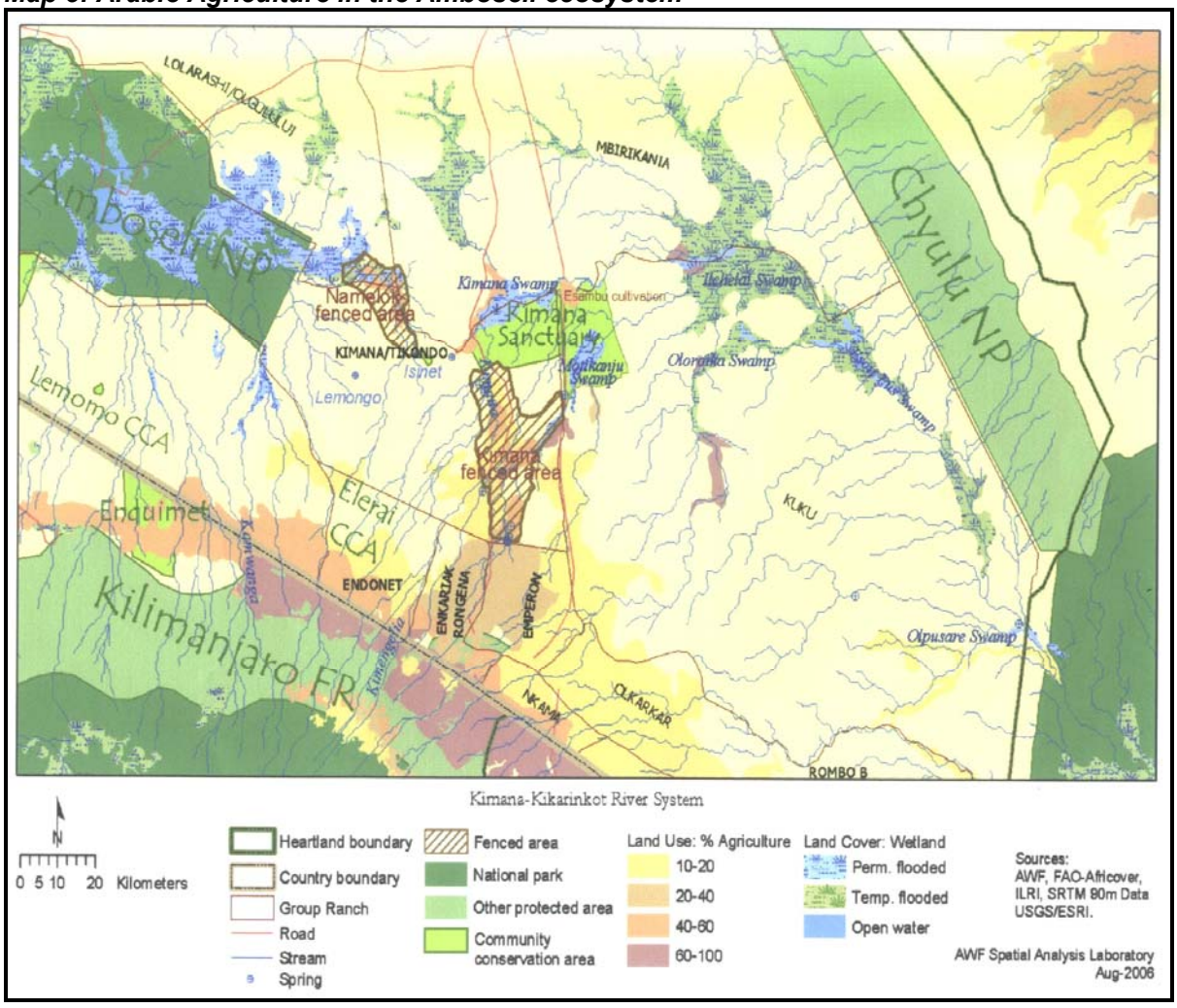


Figure 16: Landuse Zoning

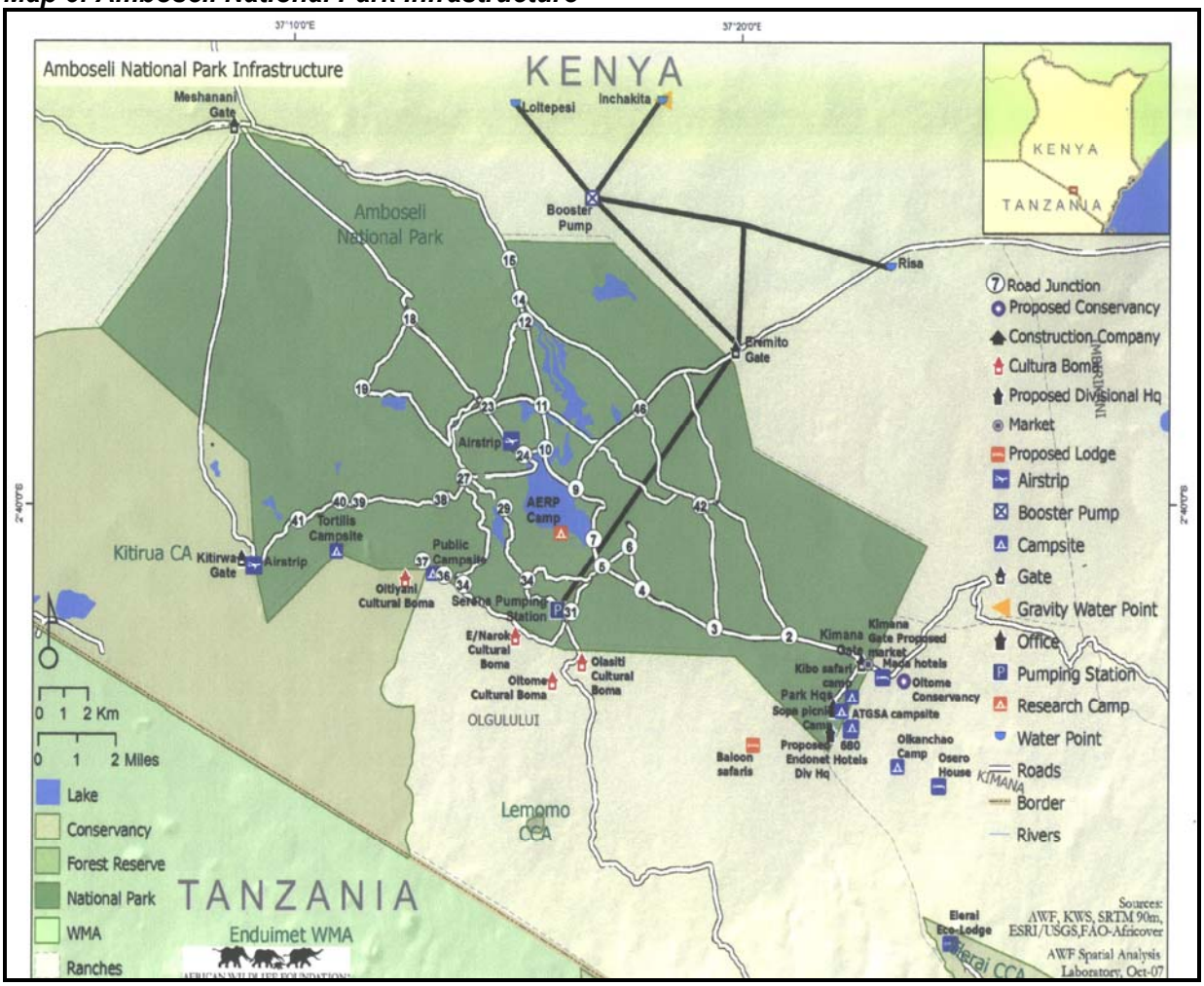
Map 4: The Proposed Illegarunyoni Conservancy in Mailua Group Ranch



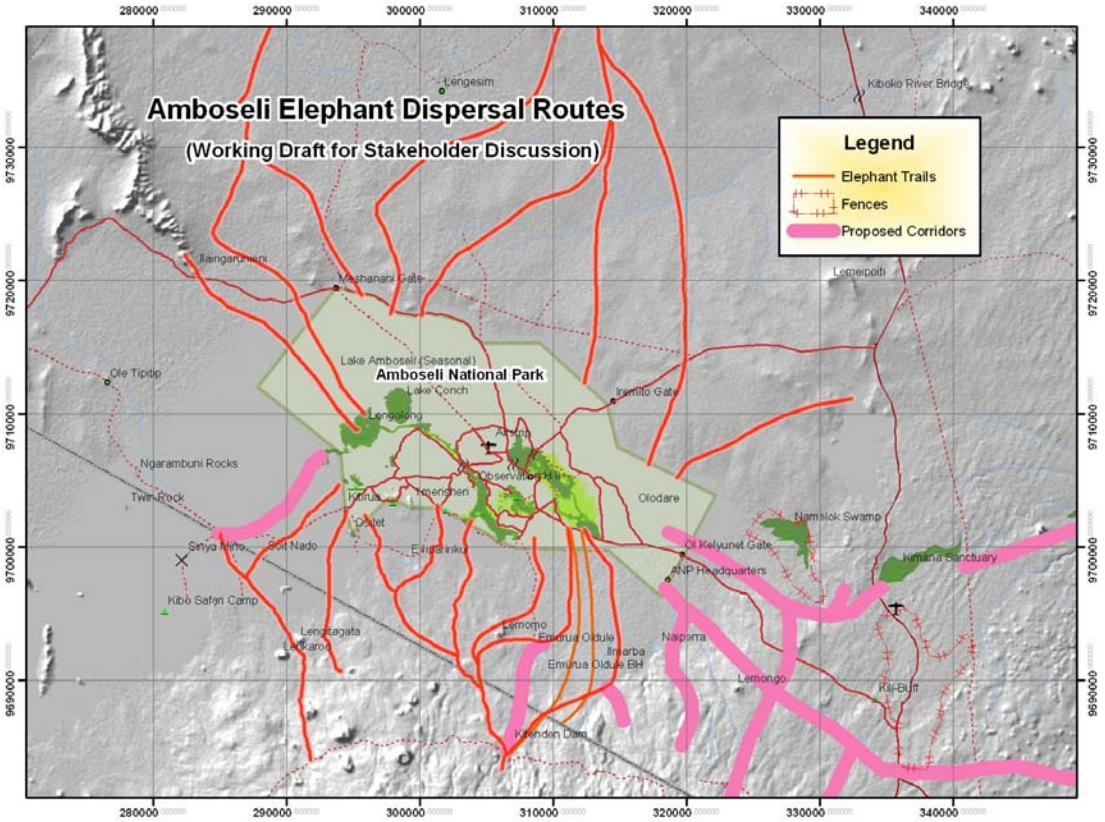
Map 5: Arable Agriculture in the Amboseli ecosystem



Map 6: Amboseli National Park Infrastructure



Map 7: Amboseli Elephant Dispersal Routes



Map source: ATE