

Gishwati Forest Reserve Three Years Interim Management Plan 2015-2018



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This Interim management plan for the Gishwati Forest Reserve was submitted to Rwanda Natural Resources Authority to approve its implementation

The Gishwati Forest Reserve, Three Years Interim Management Plan has been developed by **Forest of Hope Association (FHA)** in collaboration with **Rwanda development Board (RDB)/ Tourism & Conservation Department** and **Rwanda Natural Resources Authority (RNRA)/ Forestry and Nature Conservation Department** through a participatory planning process involving all Gishwati Forest Reserve stakeholders.

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Executive Summary

The Gishwati Forest Reserve is a secondary mountain rainforest fragment located just south of Volcanoes National Park in western Rwanda, within the altitudes 2000 – 3000 meters above sea level. It is part of the Congo-Nile Divide forest complex that includes Mukura Forest Reserve, Nyungwe National Park in Rwanda and the contiguous Kibira National Park in Burundi.

The GFR is located in Rutsiro District, and neighbors four sectors within the district: Kigeyo, Ruhango, Nyabirasi and Mushonyi.

The Gishwati Forest Reserve is located in one of the most densely populated areas of Rwanda, where unsustainable agricultural practices have led to reduced crop yields, and forest-adjacent communities have been driven to seek out alternative livelihoods. This has led to increasing pressure on the natural forests in the form of growing encroachment, poaching and other types of illegal resource extraction.

The GFR has witnessed dramatic deforestation over the last century from conversion to settlements, agricultural lands and pasture, and as well as for timber and energy usage. The forested area stood at about 70,000 ha in 1930, 28,000 ha in 1960 and 8,800 ha in 1990. Inappropriate land use management policies in the early 1980s that sought to establish a forestry industry alongside cattle ranching led to the conversion of 70% of the forest through the 1990s, and by 2008, the residual natural forest amounted to only 600 ha remained.

The remnant Gishwati natural forest is the last remaining stand of natural forest situated within the former Gishwati Forest Reserve. Natural regeneration and extension of the Core Forest through the Gishwati Area Conservation Program (GACP) from 2008 to 2011 increased the size of the Core Forest from 600 to 1,484 hectares.

Importance of GFR

The core GFR has recorded 58 species of trees and shrubs, including numerous indigenous hardwoods and bamboo. A wide range of fauna can be found within the forest. This includes four species of primates (Eastern chimpanzee, and golden, blue, and L'Hoest's monkeys). The chimpanzee population increased from 13 to 20 during GACP's operation, and current estimates put the number around 30. Other mammals in the reserve include the red river hog, the black front duiker, the southern tree hyrax, the serval, and *felis aurata*. In addition, 209 species of birds, 20 of which are endemic to the Albertine Rift, and 10 of which are on the IUCN Red List (White-backed Vulture, Hooded Vulture, White-headed Vulture, Bateleur, Martial Eagle, Crowned Eagle, Pallid Harrier, Dwarf Honeyguide, Lagden's Bushshrike, Shelley's Crimsonwing) and a number of amphibians and reptiles have been recorded in the reserve.

Management Planning for GFR

This planning Process has been commissioned by FHA as part of its support to the conservation of Gishwati Forest Reserve (GFR). The GFR together with Mukura Forest Reserve (MFR) is in the process of being established as Rwanda's newest National Park. This Three-Year Interim Management Plan of Gishwati Forest Reserve was developed to support the transition from the Forest Reserve to National Park. GFR has had no Management Plan in the past, so this is an important step forward for forest reserve.

It is envisaged that a plan will be developed for the management of the whole National Park under the World Bank-GFE funded LAFREC Project. The Draft Management Plan for GFR will be FHA's contribution to the long-term General Management Plan for GMNP.

This transitional MP (2015 – 2018) builds upon the work and past experience in the management of GFR. The planning process was carried out between January and June 2015 with the participation of a wide range of stakeholders.

The implementation of this plan will strengthen management and accelerate ecological restoration in support of upgrading to national park status and to improve the protection of key biodiversity refugia within the Nile-Congo crest.

The transitional Management Plan addresses the ecological restoration and biodiversity conservation needs, based on identification of the most critical threats. The Plan however goes well beyond the core forests, by focusing on the larger landscape within which it is located. Through the landscape approach, the plan situates the GFR within the context of the broader landscape, in order to effectively address the twin goals of enhancing both production and conservation values. A critical element to the application of this approach is *restoration of degraded natural habitats* within and around GFR. This will involve natural regeneration of degraded portions, planting of native species, and where necessary removal of exotics.

The plan also addresses the needs of the local populations, in particular, with regard to provision of alternative resources which were previously accessed from the forest reserves, co-management and sustainable use arrangements for the buffer zones and biological corridors, and benefit-sharing arrangements, including local participation in tourism development.

I. The GFR Zonation Plan

For GFR, the primary factors in establishing the zonation plan are the need to **protect especially fragile and vulnerable habitats and biodiversity**, and the need to **manage and mitigate human impacts**, both within the forest itself, for example from visitor use, as well as from neighbouring community areas. The zonation plan set out in this management plan responds to these two major factors.

Four potential management zones have been identified:

- ***Ecologically Sensitive Zone:*** Comprises habitats featuring high biodiversity and a variety of rare and endemic species and fragile ecosystems that require special conservation measures.

Primary Purpose: Protection of critical habitats and species as well as ecological functions and services

- ***Wilderness Zone:*** Comprises of areas that are rich in biodiversity but limited low-intensity use can be allowed. The Zone may features both primary and secondary forest with medium biodiversity richness and endemism, and has critical water catchment functions serving parts of Rwanda.

Primary Purpose: Conservation of biodiversity and protection of nationally and internationally important water catchment functions alongside careful development of low impact adventure tourism activities.

- ***Buffer Zones and Corridors:*** A Buffer Zone is a strip of land of varying width around a protected area, which should be formally established under the law to protect the PA. The Buffer Zone

will be under the overall authority of RDB. Land use in the buffer zone should be compatible to conservation and contribute to the conservation of the core area of the forest. Buffer zones will be established around both GFR and MFR.

Primary Purpose of Buffer Zone: To set up a transition and protective zone between the neighbouring land and the PA. It provides economically viable forest and food products according to sustainable and socially-responsible agro-forestry practices, alongside mitigation of the negative impacts on forest biodiversity and habitats.

- **Sustainable Development Zone / Tourism Development Zone:** The Sustainable Development Zone is a band of land 800 – 1000 metres wide around the GFR. It comprises of areas currently already intensively by communities and individual land owners for settlement and productive use. These areas have high potential for future tourism development. Due to the small size of the GFR, it is proposed that the no major Tourism infrastructure may be located inside the core forest reserve. Most of the infrastructure required for tourism development will be located in this zone.

Primary Purpose: To demonstrate the application and benefits of sustainable land use and conservation based business, including ecotourism development. Together, these activities will generate income for conservation and community development.

II. The GFR Management Programmes

The four management programmes proposed consist of a set of 3-year management objectives and their component management activities. Annual Operations Plans provide for management interventions as part of managing the transition to NP status. Each Programme is broken down into a set of Management Objectives and into specific activities required to achieve the set objectives; the timeframes and responsibility for their implementation are also set out.

A. Ecological Management and Monitoring Programme

The purpose of the Ecological Management and Monitoring Programme is to enhance the conservation and understanding of the ecological services and conservation values through targeted ecological management, research and monitoring. To achieve this, the Nature Conservancy's Conservation Action Planning (CAP) methodology was used to help identify the most important conservation values, their ecological requirements, and the threats impacting on them.

The Ecological Management Programme aims to:

- ▶ Sustainable management of ecosystems, habitats and key species
- ▶ Minimize the impacts of fire on GFR ecological values
- ▶ Minimize the impacts of mineral extraction, illegal agriculture and infrastructure development
- ▶ Control invasive and alien species
- ▶ Undertake applied research, in particular focusing research that addresses priority forest conservation issues

B. Conservation Partnership Programme

This Programme is aimed at generating and sustaining support by local, national, regional and international stakeholders who support conservation in general and conservation of GMNP and GFR in particular. Through these partnerships, financial and technical resources can be mobilized to fund priority programmes and activities in the NP.

Stakeholder communication and collaboration mechanisms appropriate for each category of stakeholders will be developed and consistently applied.

a. Community Partnership

This Programme addresses the need to ensure that communities neighbouring the NP share the benefits generated by the park in return for their support and participation in its conservation and in maintaining its ecological integrity. The communities will be empowered to achieve sustainable livelihoods through resource use practices beneficial to both the park and the communities themselves. As the GFR is located in one of the most densely populated areas of Rwanda, this presents major challenges. The main economic activity of forest adjacent communities is subsistence agriculture, and agricultural practices are generally poor and affected by low soil fertility. This increases already intense pressures for land and resources.

An important goal of the Community Partnership Programme is to provide communities with positive economic and social benefits from the national park, thereby encouraging them to support conservation.

The Community Partnership Programme aims to:

- ▶ Enhance community livelihoods and sustainable resource use
- ▶ Reduce human-wildlife conflicts
- ▶ Explore and pilot appropriate models benefit sharing with communities (e.g. the CI Conservation Agreement Model)
- ▶ Strengthen conservation education and awareness
- ▶ Draw up a Plan of Activities to be jointly implemented by the park and the communities (e.g. community monitoring, species identification and interpretation).

b. Other Conservation Partnerships

The Gishwati Landscape has been under intense pressure for many years and the threats posed to the new NP remain. The development, resourcing and consistent implementation of this programme is vital for the long-term survival of the Rwanda's newest National Park.

i. National level Partnerships

There are several categories of national stakeholders who can be actively engaged to provide financial, technical and other support to GMNP. These include national institutions, the Private Sector and volunteers.

ii. Regional and International Partnerships

Potential regional partners include IGCP, Lake Victoria Basin Commission (of the EAC), the Nile Basin Initiative - the proposed Congo Basin Initiative and others that can be identified in future.

iii. International Partnerships

Potential International Partners include the Great Ape Trust (already on board), WCS, WWF, MacArthur Foundation, UNEP, UNDP, GEF, CI. Several others can be identified and engaged in future.

C. Tourism Development Programme

This programme deals with the vital need to generate significant economic returns to meet the costs of park management and make significant contributions to the national and local economies. It also addresses the need to build and maintain community support and participation in conservation of the park through benefit sharing schemes. This management programme will seek to establish the GFR/GMNP as one of Rwanda's unique ecotourism and adventure destinations. The new NP has the potential to complement other leading Rwandan destinations such as Volcanoes, Akagera and Nyungwe National Parks by officering new premium ecotourism products and services inside and around the park.

The Tourism Management & Development Programme aims to:

- ▶ Develop the GFR's ecotourism and adventure tourism product
- ▶ Improve the park's visitor services and experience
- ▶ Develop and promote the tourism value chain for park-adjacent communities
- ▶ Promote private sector investment in tourism products and services in GMNP

It is noted that tourism in GFR/GMNP will need to be developed almost from scratch. The participation and role of local communities and their contribution to various components of its **value chain** need to be appreciated from the very beginning. Community participation will not only bolster the reputation and attractiveness of the ecotourism products and services; increasing economic benefits to adjacent communities, which is crucial to strengthening community support for the park's conservation. The promotion and support of community-based tourism is a high priority for this management plan, and for the long-term achievement of the park's conservation goals.

D. Park Operations Programme

This programme deals with management systems that are critical to the effective conservation of the national park. This includes day-to-day management activities such as law enforcement, human resources management, administration and finance and infrastructure and equipment. Due to the historical threats that the park has and continues to face due to high population density and poverty around the park, the law enforcement efforts will have to be established, maintained and strengthened over the lifespan of this management plan in order to ensure the parks integrity and minimize adverse environmental impacts.

The Park Operations Programme aims to:

- Establish and strengthen park monitoring, patrolling and law enforcement operations
- Develop and maintain basic infrastructure including the improvement of the standards and management of the main transit roads
- Allocate and prudently manage financial, technical and human resources,
- Provide adequate and appropriate office and field equipment in line with priority management needs
- Design and implement sustainable financing mechanisms

- Establish effective communication systems for detecting, reporting and responding problems and emergencies
- Develop and maintain basic infrastructure and resources (including human as well as financial) required for the implementation of the proposed programs.

Proposals for Sustainable Land Use around GFR:

Proposals for Sustainable Land Use are strictly not part of the Management Plan. These proposals are therefore presented in the Annex (**Annex 3**).

The main thrust of these proposals is the application of the landscape approach to forest restoration and conservation for the improvement of ecosystem functions and services in the broader GFR landscape. The approach aims to arrest and eventually reverse the ongoing land degradation and declining productivity through ecological restoration. The approach comprises of various components all of which combined to maximize ecological integrity, biological connectivity, hydrological functions and increased agricultural diversification and productivity in the landscape.

The landscape approach is in turn based on the application of sustainable land management principles. Sustainable land management is an integral part of the process of harmonizing agriculture and food production with the often conflicting interests of environment and social equity.

Past separation of environmental conservation and production functions of land are no longer appropriate nor adequate. They have to be managed together to achieve the goals of both. That is why “protected areas” have to be managed within the broader land use contexts, which is achieved through the landscape approach.

The former Gishwati Forest Reserve was once an important source of goods and services ranging from wild fruit, wild vegetables, wild animals, foods and medicinal herbs. Inappropriate land use management policies and practices have led to the conversion of 70% of the natural forest cover, land degradation and declining productivity. Deforestation has also resulted in the loss of biodiversity and ecological services. Apart from a drastic reduction of endemic flora, fauna and avifauna, negative environmental impacts of this land conversion culminated in flooding in the neighboring low lying areas.

The survival of the GFR as part of the MGNP will partly depend on the development of land-uses that are compatible with conservation and provision of alternative resources that reduce pressure on the protected areas. This means that the GFR /MGNP will have to be managed within the broader context of land-uses within the landscape.

To save this forest while still safeguarding human livelihoods, there is a need to re-establish a balance between its economic and environmental functions in the use of these forest resources. Previous land-use plans were inadequate as they only focused on soil erosion as the driving factor for planning land use. There is therefore urgent need for more comprehensive planning and management that integrate socio-economic and environmental goals (including climate change).

The proposed sustainable land-use in GFR landscape will comprise of the following components:

- 1) Management of the core forest reserve, which includes the Ecologically Sensitive and the Wilderness Zones;
- 2) Management of the Buffer zone, which is the transition zone between the core conservation area and other land-uses;
- 3) Restoration of degraded areas outside the forest reserve (watersheds, forest patches, hillsides, river banks, habitats etc.);

- 4) The Agro-ecological component – which includes conservation of agro-biodiversity;
- 5) The Agro-forestry component; and
- 6) The proposed Biological Corridors linking GFR with MFR and NNP

Conclusion

There is no doubt GFR/GMNP constitutes a valuable addition to Rwanda's network of NPs. Hence, this Management Plan 2015 – 2018 is timely since it will establish the management systems for the new NP and guide their implementation in a consistent way over time. It will in particular help in managing the transition from Forest Reserve until it is fully established as a National Park. The plan sets out management options that will lead to balanced development, in terms of ecological integrity and generation of economic benefits for the adjacent communities and the country as a whole.

It is to be noted that GFR is now part of a larger entity, the GMNP. This management therefore forms only part of the Management Plan required for the whole national park. Additional work is therefore still required to formulate a MP for the whole of the GMNP

It behooves the GOR and its partners to mobilize the necessary resources to make this happen.

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List of Acronyms

ANICO	Community Conservation Facilitator (Animateur de Conservation)
ANP	Akagera National Park
ANR	Assisted Natural Regeneration
AOP	Annual Operations Plan
ARCOS	Albertine Rift Conservation Society
BZ	Buffer Zone
CA	Conservation Agreement
CAP	Conservation Action Planning
CBD	Convention on Biodiversity
CI	Conservation International
CND	Congo Nile Divide
DRC	Democratic Republic of Congo
EAC	East Africa Community
EDPRS	Economic Development and Poverty Reduction Strategy
EIA	Environmental Impact Assessment
ESZ	Ecologically Sensitive Zone
FHA	Forest of Hope Association
GDP	Gross Domestic Product
GEF	Global Environment Fund
GL	Gishwati Landscape
GAT	Great Ape Trust
GACP	Gishwati Area Conservation Project
GFR	Gishwati Forest Reserve
GMNP	Gishwati Mukura National Park
GOR	Government of Rwanda
HWC	Human Wildlife Conflict
ICRAF	International Centre for Research in Agroforestry
IGCP	International Gorilla Conservation Programme
IUCN	International Union for the Conservation of Nature
JADF	Joint Action Development Forum
KCCEM	Kitabi College of Conservation and Environment
KEA	Key Ecological Attributes
KNP	Kibira National Park
KWS	Kenya Wildlife Service
LAFREC	Landscape Approach to Forest Restoration and Conservation
NGO	Non-Governmental Organization
MEA	Multilateral Environmental Agreement(s)
MFR	Mukura Forest Reserve
MINAGRI	Ministry of Agriculture
MINALOC	Ministry of Local Government
MINCOFIN	Ministry of Finance
MINICOM	Ministry of Commerce
MOU	Memorandum of Understanding
MINIRENA	Ministry of Environment and Natural Resources
NBI	Nile Basin Initiative

NNP	Nyungwe National Park
NTFP	None Timber Forest Product(s)
ORTPN	Office Rwandais pour Tourisme et des Parcs Nationaux
PA	Protected Area(s)
PAPF	Protected Areas Planning Framework
PES	Payment for Ecosystem Services
RAB	Rwanda Agricultural Board
RDB	Rwanda Development Board
REMA	Rwanda Environment Management Authority
RNRA	Rwanda Natural Resources Authority
TNC	The Nature Conservancy
TPT	Technical Planning Team
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
VNP	Volcanoes National Park
WASAC	Water and Sanitation Company
WCS	Wildlife Conservation Society
WWF	World Wildlife Fund

PART 1: INTRODUCTION AND BACKGROUND

Chapter 1: Description of Gishwati Forest Reserve (GFR)

1.1 Introduction

The GFR is a secondary montage rainforest fragment located just south of Volcanoes National Park in western Rwanda, within the altitudes 2000 – 3000 meters above sea level. It is part of the Congo-Nile Divide forest complex that includes NNP Rwanda and the contiguous KNP in Burundi. The GFR is found in Rutsiro District, and neighbours four sectors within the district: Kigeyo, Ruhango, Nyabirasi and Mushonyi. It is one of several large patches of natural forests that also include Mukura Forest Reserves.

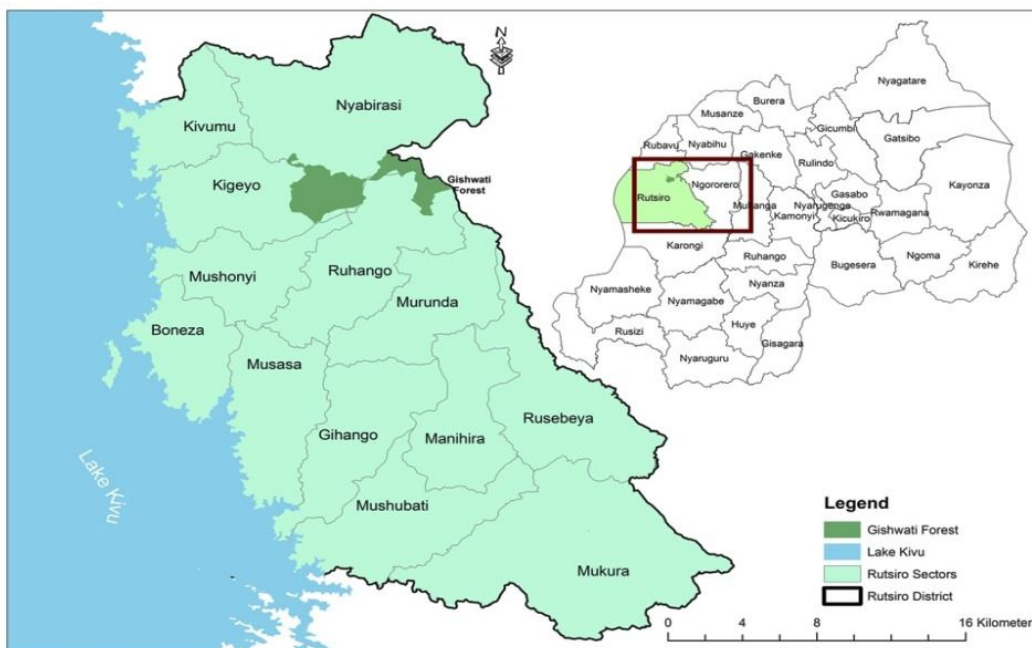


Figure 1: The location of GFR

One hundred years ago, GFR was Rwanda's second largest indigenous forest that covered approximately 100,000 hectares. By the 1970s, it had been reduced to about one fourth of that size, covering only about 28,000 ha. By the 1990s it had been further depleted to about 61.7 % of this size because of human encroachment, large-scale cattle ranching projects, cattle grazing within the forest, resettlement of new refugees after the 1994 Genocide, clearing of the forest for small-scale farming, and the establishment of plantations of non-native trees. Only 2% of what the forest was in 1970s was remaining in 2002. In an effort to stem the destruction of GFR the GOR demarcated legal boundaries and removed inhabitants from the government lands, measures that resulted in an increase in size from 600 ha to 1,484 ha.

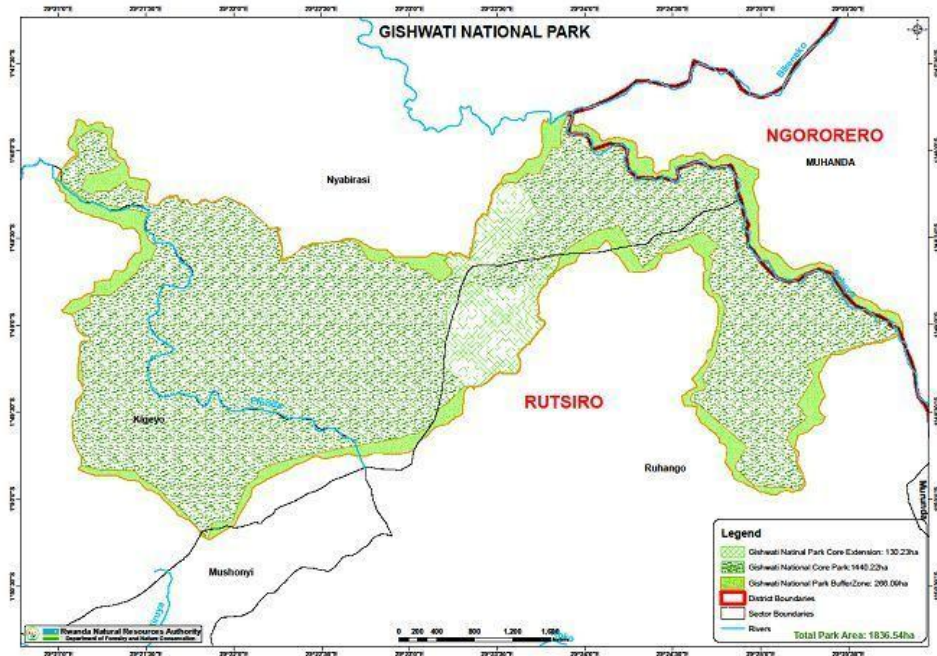


Figure 2: The Current Size of GFR

1.2 Importance of GFR

As part of the Albertine Rift and the Congo-Nile Divide, GFR is very rich in biodiversity, though the majority of it has been lost through deforestation and loss of habitat. With its establishment as part of Gishwati-Mukura National Park (G MNP), conservation of the rich biodiversity, habitats and threatened species is going to be enhanced in future.



Figure 3: A Section of Gishwati Forest

1.3 Biodiversity

Due to the deforestation of the GFR, serious loss of biodiversity has been the result. Fauna alone has declined by 99.7%. Flora that play an important role in the lives of the local people have also seen significant decline.

However, GFR does still host significant biodiversity. The forest reserve has recorded 84 species of trees and shrubs, including numerous indigenous hardwoods and bamboo. A recent study of carbon sequestration of the forest indicated *Macaranga kilimandscharica* to be the most common species of tree in areas of the forest that have not been disturbed. Previously disturbed regions of the forest experiencing regeneration show colonization of *Carapa grandiflora*, *Entandrophragma excelsum*, and *Symphonia globulifera*. Other floras of the reserve include giant tree ferns and blue lichen.

A wide range of fauna can be found within the reserve. The GFR is a home to species that are listed as threatened or endangered. These include the eastern chimpanzees (*Pan troglodytes schweinfurthii*, listed as Threatened on the IUCN Red List); golden monkeys (*Cercopithecus mitis kandti*, listed as Endangered); mountain monkeys (*Cercopithecus lhoesti*, listed as Vulnerable). A preliminary biodiversity assessment carried out in the Gishwati forest recently confirmed the presence of the three primate species and more than 200 species of birds. There are currently estimated to be 25 East African chimpanzees in the forest and this shows an important increase in population size from the 13 chimps in 2008, when the Gishwati Area Conservation Program (GACP) first started. 20 of the bird species are endemic to the Albertine Rift, and 10 of them are on the IUCN Red List (White-backed Vulture, Hooded Vulture, White-headed Vulture, Bateleur, Martial Eagle, Crowned Eagle, Pallid Harrier, Dwarf Honeyguide, Lagden's Bushshrike, Shelley's Crimsonwing) and a number of amphibians and reptiles have been recorded in the reserve.

Other mammals include the red river hog (*Potamochoerus porcus*), the black front duiker (*Cephalophus nigrifrons*), the southern tree hyrax (*Dendrohyrax arboreus*), the serval (*Felis serval*), and *Felis aurata*. The brown forest frogs along with multiple species of toads are some of the amphibian life found in the forest. With respect to reptiles, the great lakes bush viper and multiple species of chameleons are also found live in the Gishwati forest.

The Gishwati Forest Reserve (GFR) and Nyungwe National Park (NNP) are the only remaining habitats for eastern chimpanzees (*Pan troglodytes schweinfurthii*). The protection of this forest is therefore vital for the survival of the species. It is noteworthy that, despite the loss of most of its habitat and severe degradation, GFR still has the highest density of chimpanzees of any of the sites. It is, however, possible that these animals have been crowded into much smaller areas. It is crucial that potential habitat is expanded; otherwise, we might see a decline in their numbers over the coming years.

1.4 Ecological Functions

The Gishwati Forest Landscape plays vital roles intercepting precipitation and channeling run-off into the headwaters of Africa's two largest hydrological systems: The Nile and Congo Drainage systems. The forests regulate river flow and ensure that water is available throughout the year. The high number of streams and riverbeds encountered shows that GFR has many seasonal rivers. A few rivers, such as Sebeya and Pfunda River are perennial and flow throughout the year.

The ecosystem services that GFR generates are enormous. It has been estimated that the value of the carbon sequestered in the core forest of 886 hectares alone has the potential to contribute \$3,000,000 per year to the Rwandan economy. In addition this reserve serves local farmers, by absorbing and slowly releasing rainwater, preventing loss of topsoil, preventing sometimes-disastrous landslides, and stabilizing microclimate.

The Gishwati Forest landscape provides crucial ecosystem services to the sustainability of the farming systems and primary industries such as tea and coffee production and to the national economy through the provision of water and hydroelectricity.

The forest filters and purifies septic tank discharge and agricultural runoff. It produces organic material that enriches soil, and recycles vital soil nutrients – without the need for expensive chemical inputs. The forest is a continuing source of birds, bats, and insects that pollinate crops and aid in bio-control of

insect pests. Conversely, with massive deforestation, these benefits are not just lost locally but impacts are also felt miles downstream. Sebeya River on which Gisenyi town and its environs depends for water and electricity and BRALIRWA brewery (the main beer brewery in the country) depends on for beer production has its water sources in Gishwati hills.

For example, unchecked soil erosion turns the river and its tributaries coffee-brown, and the hydroelectric and water-dependent factories must close for months each year to clean the mud out of equipment. Such is the case for the Gihira Water Treatment Plant located in Rubavu District. Conservation of this Reserve and restoring ecosystem services in the area will reduce these issues

1.5 Socio-economic values

Gishwati forest is provides livelihood for thousands of Rwandans who live around Gishwati. The forest helps maintain the topsoil's fertility and keeps it from eroding away helps sustain the productivity of the land. Communities obtain many wood and non-wood products from the forest. Timber, rope, bamboo, and other traditionally used forest plants are still important to people for weaving, medicines, building and more, and need to be harvested sustainably to protect the forest's integrity. In addition, these remaining forest fragments are particularly important for their cultural value to the neighbouring communities.

The natural forest has been exploited by humans for as long as they have existed. Over the years, people living in surrounding villages have often encroached upon and grazed their cattle. In the future the forest may generate even more benefits to the national and local economies through the development of tourism. The forested landscapes and the species and habitats create substantial potential for this economic activity.

1.6 Conservation Challenges and Priorities for GFR

GFR has a long history of deforestation which reduced its area from a record of 100,000 ha to as low as 600 ha. Even if the reforestation efforts increased the forest reserve to 1,484 ha from 2008 to 2011, Demographic pressure and heavy dependence on agriculture and natural resources poses many challenges to GFR. GFR continues to meet challenges of human pressure in search of minerals, poaching, firewood collection, animal grazing, charcoal making and timber harvesting. Such pressures are likely to continue impacting on the chimpanzee as well as many other wildlife species.

To mitigate the adverse impacts of fragmentation, it is vital wherever practical; there is a need to:

- Establish a community participation approach that allow equitable sharing of conservation costs and benefits through Conservation Agreements, Biodiversity Easements to address Human Wildlife Conflicts
- Build business base for income-generating to improve local livelihoods
- Establish a buffer zone around GFR
- Expand the very narrow Twabugezi Corridor which links the core forest with the extended zone. This corridor is frequently used by the chimps to move between different forest patches
- Demarcate and incorporate into the GFR government owned lands that are currently occupied by exotic forest plantations neighbouring the GFR across the Sebeya River to increase the size.
- Investment in Vital Infrastructure and Management Systems

1.7 Past Conservation Programmes in GFR

In the recent past, several conservation landscape restoration projects have been executed in the region around the Gishwati forest, to stem the serious land degradation and the loss biodiversity and soil fertility. Gishwati together with Mukura are the last remaining large patches of natural forest in the

wide landscape. Because of the location of the landscape in the high biodiversity Congo-Nile Crest, the Government of Rwanda has taken and/or promoted measures and investment aimed at their restoration and protection.

a. The PAFOR Project

Gishwati Forest was first established as a forest Reserve in 1933. A combination of factors including encroachment by human populations, deforestation and conversion forest land uses has seen the forest area decline drastically over the years. In 2002, the remnant forest was covering only 600 hectares.

On a positive note, there has been growing interest to restore Gishwati Forest has been growing since 2002, when floods and landslides killed people in this area. Several projects have been initiated in the area in support of reforestation and restoration using such techniques as agro-forestry techniques, radical terracing, progressive terracing and live mulches. As a result of these efforts, GFR is under different stages of regeneration. From 2005 to 2008, PAFOR increased the size of the Gishwati Forest Reserve from 600 hectares to 886 hectares.

b. Gishwati Water and Land Management Project

In 2010 the Gishwati Water and Land Management Project was launched by MINAGRI under the funding of the government. The aim of the project is to restore the fragile ecosystem of Gishwati and to sensitize the local people on a sustainable use of the land through improved agriculture and animal husbandry techniques. The restoration practices include rehabilitation of range land (e.g. canal and terrace building), forest plantation, ecosystem restoration and rehabilitation of roads. To secure a sustainable land use in the future the landscape has been divided in 3 land use zones according to their fragility; crop land, range land and forest land (MINAGRI 2010).

c. Gishwati Area Conservation Program (GACP)

From 2008 to 2012 a restoration project, the Gishwati Area conservation Program, was started to extend the core area of Gishwati through natural regeneration. This program was supported by the Great Ape Trust in collaboration with Rwanda Environment Management Authority (REMA).

The significance of this project was twofold – the restoration of forests and biodiversity in Gishwati and the improved livelihood of people living around the GFR.

The GACP had four goals:

- Create Rwanda National Conservation Park, defined as conservation of biodiversity in an extensively degraded landscape, populated with low-income small-scale agriculturalists.
- Restore ecosystem services in the form of improved water quality, reduced soil erosion and flooding, fewer landslides and increased sequestration of carbon.
- Restore natural biodiversity with special emphasis on chimpanzees as a keystone and flagship species.
- Generate income through ecotourism, investment opportunity and local employment.

During four years of GACP operations, impressive conservation impacts have been achieved: illegal use of the forest has declined sharply, the chimpanzee population has grown from 13 to 20. From 2008 to 2009, GACP extended this forest up to 1,484 hectares. The 336 hectares added in 2008 have been reforested from late 2009 to early 2010 and the 262 hectares added in 2009 to stabilize steep hillsides in Kinyenkanda area, which has been plagued by landslides and severe erosion into the Sebeya River. The

two added parts are under natural regeneration. The project involved communities as eco-guards in the project to promote new sustainable livelihood practices. Social impacts have also been felt: the organization has generated jobs to local people; 13 school eco-clubs have been established, and the capacity of 10 local cooperatives has been increased.

d. *The Forest of Hope Association (FHA)*

Forest of Hope Association (FHA) is a National Rwandan Non Government Organization (NGO) focusing on the conservation of the GFR. Established in January 2012, FHA emerged from – and builds on the GACP, an International NGO that worked on conservation of the Gishwati Forest Reserve from 2008 through 2011. FHA took over the work of the GACP and is taking the GACP mission forward by continuing engaging local communities in conservation of the GFR. The Mission of FHA is: “Engaging local communities in conservation and restoration of the GFR, to build a sense of ownership and responsibility for its management”. FHA’s main activities are conservation education, mitigating crop raiding, improving local livelihoods and facilitating research on the biodiversity of the GFR.

The Association has four objectives:

- 1) Sensitize local people about the importance of conserving GFR
- 2) Improve local livelihoods through income generation and capacity building;
- 3) Reduce conflicts between local people and the forest;
- 4) Facilitate research on GFR

FHA works with local farmers who have plots adjacent to the Gishwati Forest Reserve. The main collaboration is about mitigating crop raiding and reducing illegal activities within the forest (the most frequent one is cattle grazing). It also works with local Cooperative created by GACP to continue the partnership on crop raiding mitigation. Today FHA is supporting JYAMBERE Cooperative to start a beekeeping business. It is also working with Drake University to test the best strategies to mitigate crop raiding problems around GFR.

FHA’s notable conservation achievements:

- With the support of the Community Forest Protection Initiative Agents, the forest is better patrolled and monitored; consequently, illegal activities have gone down drastically
- The local chimpanzee population has grown and is currently estimated to 25 individuals;
- Many research and conservation initiatives have been undertaken in partnership with West Chester University and Drake University. This includes research on the Gishwati natural forest dynamics, Behavioral Ecology of chimpanzees and Golden monkey, the role of food availability on feeding competition in eastern chimpanzees and the study on how crop raiding should be mitigated.
- Local awareness about the importance of conserving the GFR and the environment in general is increased. This includes support to eco-clubs in 13 schools around the forest in environmental education.

The greatest achievement however, Government of Rwanda is in the process of up-grading the conservation status of GFR (together with Mukura Forest Reserve (MFR)) from Forest Reserve to National Park.

1.8 Establishment of GMNP

GFR along with other Congo-Nile Divide forests need to be given top priority for biodiversity conservation in Rwanda. As part of the Albertine Rift, it is considered a biodiversity hotspot containing more endemic mammals, birds, butterflies, and amphibians than anywhere else in Africa. Habitats supporting such an array of biodiversity are very varied. Massive loss of habitat over the years as a result of forest conversion and fragmentation has contributed to enormous loss of biodiversity. GFR itself used to host a big number different species of primates and other fauna. Nowadays most, if not all, has disappeared.

In recent years there has been growing interest to restore GFR by evicting illegal, squatters, and reforestation through natural or assisted regeneration. These efforts have been supported through policy responses to the threats faced by its montage forest, the Rwanda. The Government has taken some measures to reduce pressure including eviction, compensation and resettlement outside the forest reserve.

In addition Government through its own efforts or in partnership with donors has supported several reforestation and restoration projects in Gishwati Landscape. Even more importantly, Government has taken a bold policy decision to upgrade the conservation status of GFR (together with MFR) into a National Park. This makes GMNP the fourth National Park in the country.

2.1 The Planning Process

This planning Process has been commissioned by FHA as part of its support to the conservation of Gishwati Forest Reserve (GFR). To ensure that the interests, perspectives and concerns of key stakeholders are properly addressed and articulated, a multi-disciplinary Technical Planning Team (TPT) was set up to guide the planning process. The Consultant worked very closely with the Technical Planning Team and GFR management throughout the assignment. This engendered confidence in the process and also created a sense of ownership of the resulting proposals and commitment to their implementation. It also ensured that any arising issues are addressed promptly. In addition to this, the process engaged and consulted a wide range of stakeholders and it was as participatory as possible. Those consulted represent a range of opinions / views / perspectives in relation to the conservation of GFR / National Park. Recommendations and proposals for the sustainable management of GFR/NP were based on the interests, perspectives and needs of all stakeholders.

The Planning Process included the following steps:

1. *Agreement on the Planning Process*

The first duty of the established Technical Planning Team was to agree on a transparent and objective planning process. The Team developed its own procedure of work, workplan from start to the delivery of the final product.

2. *Definition of the Planning Area*

The unit for planning have been described and defined and in this case this means GFR. This involved several issues: the actual area that needs to be managed, including a buffer zone and /or corridor, that may include the surrounding settled lands. An essential input in the planning process was local knowledge and experience - based on anecdotes, recollections and past history of the area. This came from local people and from records of the past made by official, unofficial and scientific observers as well as the reports of meteorological, hydrological and land-use departments of government. The designation or definition of ecosystem types allowed the development of management systems for different ecosystems.

3. *Stakeholders in Natural Resource Management, identification and analysis*

The legitimacy of the planning process and eventually, the acceptability and implementation of the resulting management plan depends on the extent (actual and perceived) of stakeholder participation. Several approaches are in use or being developed and piloted in order to bring about effective stakeholder participation in conservation.

All the relevant stakeholders were identified and brought into the process of developing a management plan as early as possible, so that their needs and aspirations are addressed within the plan. A detailed analysis of the identified stakeholders was then undertaken to determine their "stake" in GFR: their present role and / or impacts, their potential level of participation in the planning process and the implementation of the resulting plan. Since it not possible to bring all stakeholders together, a representational system was worked out and all interested parties have had the opportunity to influence the management plan development process and to be consulted about its workings.

4. *Defining the Management Objectives*

Deciding upon management objectives is probably the most difficult part of the planning process - because, all planning should be derived from these objectives.

The development of objectives was based on two essential items of information:

- Evaluation of the resources of the ecosystem from a technical and environmental viewpoint (hydrological values, biodiversity values, environmental values, conservation values, etc.) and
- Evaluation of the forest resources from the users' point of view.

There have been *consultations and sectoral considerations* of issues and activities arranged among the sectors of interest in the ecosystem. Among possible sectors include: water use, watershed management, forest biota, plant products, research, inventories, beekeeping, tourism infrastructure (access paths and roads, buildings, tourism trails), species conservation, restoration and management.

The established TPT discussed and agreed on the selected objective(s) of the management plan. This has been worthwhile to reach a compromise on planning objectives which are suited to different stakeholders needs. This was necessary because, as the plan develops, every action should be compatible with the management objective(s).

5. *Zoning and Land Use*

Zoning was used to define the primary purpose of a given area within the reserve or ecosystem, and set out the facilities and services that are appropriate for that zone. This was based on the fact that resource management regimes that are appropriate for one kind of goal may not be appropriate if another goal is considered paramount. Zoning recognized that different, equally legitimate goals can best be met in different parts of the conservation area. The number of zones within GFR depends upon the range of goals to be achieved, activities to be accommodated, levels of compatibility of those activities and size of the planning unit or ecosystem.

6. *Protected Areas Planning Framework*

The process used to develop the Gishwati Component of the GMNP management plan, has been significantly influenced by the **Protected Areas Planning Framework** (PAPF), applied by KWS and other PA Agencies in the Region. PAPF provides a practical framework for the formulation of management plans for the national PA systems.

The PAPF planning process incorporates a high level of **stakeholder participation**. PAPF -based plans are primarily designed to be a **practical management tool** supporting PA managers in carrying out their duties. It has been used to ensure that the management plan produced is both realistic and appropriate, and to build wider stakeholder understanding and support for implementation. This is realized through a variety of mechanisms designed to enable stakeholders to meaningfully contribute their ideas, needs and perspectives throughout the plan's development.

The heavy reliance of the PAPF on participatory, stakeholder driven planning, working closely with experts, as opposed to planning carried out by experts on their own is a very crucial part of the planning framework. The PAPF planning process helped to achieve the participation through a variety of stakeholder engagements, including specialist stakeholder working groups on particular aspects of the management plan, and a Technical Planning Team overseeing the entire planning process.

The structure of the management plan itself been designed to maximize ease of implementation by PA managers. This was achieved through a rigorous application of the **Logical Framework Approach** in the plan's management programmes, and the development of **Annual Operations Plans** to provide the bridge between the long-term perspective (3 years and over) of the plan and the annual work planning and budgeting cycles for plan implementation.

2.2 Plan Structure

The proposed structure of the Management Plan has been developed to be as simple as possible, and as such, easily understood by stakeholders and implemented by the park managers and their partners.

One of the key tools used during the planning process to ensure that the plan's structure is as coherent and lucid as possible is the **Logical Framework Approach**, or LFA. The power of the LFA is in its emphasis on establishing explicit and logical linkages between the desired end results that a particular management programme is aiming to achieve, and the means used to achieve them. Application of the LFA enables the development of a clear hierarchy of means-ends relationships through the management programme, starting with the ultimate end result, the programme purpose, down through the management objectives, and finally to the management actions.

The application of the LFA helped to ensure that the plan is "**objective-oriented**", and avoids the undesirable situations where objectives are defined but with no actions to achieve them, or alternatively, where management actions are identified that do not contribute towards any obvious objective. When rigorously applied, the LFA results in a plan that can be effectively and efficiently implemented, as well as more easily monitored and evaluated.

2.3 Plan duration

This Plan Component of GFR is to be part of, and a contribution to a more comprehensive 10-Year Management Plan for GMNP.

The rationale for this approach to planning is that FHA has been supporting the conservation of GFR only, and the funds available for planning are for the planning for this part of GMNR only. After consultation with stakeholders, it was agreed that FHA embark on planning for this part of the new NP as its contribution to the formulation of the MP for the whole of the Park.

Other agencies and stakeholders (RDB, REMA, and RNRA) will also make their contributions according to the resources available to them. All these contributions by different stakeholders will be unified and synthesized into one coherent MP for GMNP.

2.4 Managing the Transition to National Park

Full effect of the transition to National Park will commence after the Law to upgrade the conservation status of GFR (together with MFR) into a National Park, has been passed by Parliament and Gazetted by the Minister responsible for National Parks. Some few measures have however, been taken in that direction:

- 1) RNRA which is the Agency responsible for Forest Reserves, has formally handed over GFR (and MFR) to RDB,
- 2) RDB has advertised 100 positions for Park Rangers; presumably some of them will be posted to GMNP

Part 2: THE MANAGEMENT PLAN

Chapter 3: Values of GFR, Principles and Objectives of the Management Plan

3.1 Overall Purpose of GFR

The GFR has a primary purpose of: ***conserving the natural values for both ecological and socio-economic benefits. These values represent the fundamental characteristics that will guide all operations in matters of management and development.***

In this context, it is essential to define the values underlying the conservation and management of GFR.

GFR represents both ecological and economic values; on one hand there is the conservation of biodiversity and ecological functions and on the other hand the economic and livelihood contributions at local and national levels.

3.2 Values of GFR

International and Regional Levels:

Across the African continent, high altitude ecosystems have been for years invaded, destroyed or threatened. Few afro-mountain typical forests have been left intact in Africa and such areas are found in the eastern and central Africa region. GFR itself has suffered some of the worst deforestations and degradations, leaving only a small fraction of Greater Gishwati Forest Reserve

GFR is part of the Albertine Rift, a very important geological and ecological formation in the Eastern and Central African Regions. As such, the GFR is a home to a number of the fauna and flora species that are endemic to the sub region. The GFR shelters three important primate species, including the chimpanzees, in addition to many other mammal species.

Scientific values: the diversity of ecosystems in of the GFR and its endemic richness gives national and international scientific community unique opportunities for undertaking scientific and applied research. Some limited research has been undertaken on the biodiversity and ecosystems remain unexplored and offer wide range for scientific research in different fields. The knowledge generated from research will support both resource management at park level and also the development of evidence-based policy at national level.

National and Local Levels:

The Natural forests and other vegetation play an important role in the regulation of weather patterns. Many people, including some industries, directly depend on water supply from the forest; water sources in the GFR feed into streams and rivers at national and regional level. The GFR contributes to the livelihoods to the surrounding communities through the provision of goods and ecological services. It has even greater economic potential through the development of the untapped tourism attractions.

As a policy response to the threats faced by GFR and MFR, the Rwanda Government has taken some measures to enhance their conservation status by upgrading them into a National Park.

3.3 Principles on which this Plan is based:

1) Systematic Conservation Planning for GFR

The need for rational setting of priorities and goals and for allocation of resources has changed our thinking about conservation planning and led to steady evolution from ad hoc to systematic planning process. An MP will make conservation and management decisions more credible and more defensible in the face of competition for scarce resources. It will also greatly improve the quality of decisions that can be made by conservation planners. On the contrary, ad hoc planning, leads to decisions that lack proper perspectives on priorities.

2) Linking Conservation and Development:

Since the seventies, conservation has been accepted as a key factor in land use planning and sustainable development. For survival and success, the management of a park or forest reserve must be consistent with national development goals, i.e. must hold out the promise of economic and social benefits to people. Thus, it has become gradually accepted that, instead of forest reserves just being protected, they should be managed and their resources wisely utilized.

Management of NR both inside and neighboring the reserve should follow the same type of approach: attention should be given to the special values of ecosystems to people and to the environment as well as to posterity.

3) Landscape-level management Achievement:

The focus of protected area planning and management has moved from the site to the landscape level. The emerging trend in PA planning and management is the view of PAs as part of a larger network that is nested within the broader economic and human context and is a component of the related ecological landscape or ecosystem. This major conceptual shift has taken place over the past decade or more. There is a growing realization that managing PAs in isolation from the main forces shaping the environment is no longer feasible in a rapidly changing world of increasing development pressures. Management approaches must require PAs to address resource use outside their boundaries, and for them to provide multiple benefits to a range of users.

4) Stakeholder Participation

Responsibility for protected areas (NPs and Reserves), normally rests with a national management authority which has the backing of existing government laws and regulations. However, it is no longer acceptable for a protected area authority to have a monopoly over the management of a reserved area for its own interests, without at least consulting the other stakeholders, even if the existing laws restrict the "use" of the area and its products. Inputs from all stakeholders - whether they are actual users, potential users, neighbours or occasional visitors should also be sought.

The legitimacy of the planning process and eventually, the acceptability and implementation of the resulting management plan, will depend on the extent (actual and perceived) of stakeholder participation. Stakeholder participation is therefore, in my view, mandatory in this process.

5) *Zoning and Land-Use*

One of the important attributes of this MP, is the delineation of management zones. Under a zoning plan, areas are identified within which, certain activities are considered appropriate or inappropriate given the goals to be achieved.

Zoning is based on the fact that land management regimes that are appropriate for one kind of goal, may not be appropriate if another goal is considered paramount. Zoning recognizes that different, equally legitimate goals can best be met in different conservation areas other than others, or in different parts of the conservation area. In other words, zoning defines the primary purpose of a given area within the reserve or ecosystem, and sets out the facilities and services that are appropriate for that zone.

3.4 Objectives of the GFR Management Plan

The overall objective of the GFR management plan is: ***“Protect and conserve the ecosystems, ecological and biodiversity for the benefit of nature, human populations at local, national and international levels.*”**

Specific objectives are to:

This Management Plan is designed to:

- Provide a comprehensive reference source for the GFR, with essential background information on its history, biodiversity, ecology, geology, soil types, etc.
- Set out a detailed inventory of issues or problems impacting on the GFR that are directly addressed through the plan's management objectives and actions
- Provide detailed prescriptions of the GFR, which, systematically and consistently implemented over the plan period, will contribute to its sustainable management;
- Provide brief description of national and sectoral policies, which are relevant to the plan's management objectives and actions. The Management Objectives and actions are consistent and aligned to the policies.
- Provide a 3-Year Action Plan and Budget which presents the plan of work as well as an estimate of the resources required to implement them.
- Protect and conserve the forest ecosystems and watershed values
- Maintain the evolutionary process and ecological functions in the long-term.
- Protect important forest species which are endemic or vulnerable and which have important genetic, ecological and cultural values and their habitats
- Safeguard the survival, preservation and where possible, the expansion of the populations of key species and their habitats
- Support the local communities around GFR to improve their social and economic conditions through wise management and use on land and development of income generating activities which are compatible with the biodiversity conservation
- Develop nature based tourism and controlled tourist activities to mitigate adverse impacts on the environment

- Promote and provide opportunities scientific research, scientific and cultural education, in order to increase the understanding of the biodiversity and of the ecological impacts caused by human activity
- Put into practice adaptive management system, through which management can be modified according to new information and changing socio-economic and environmental situations.

3.5 GFR Zonation Plan

Introduction

Zonation is a powerful protected area management tool that enables the spatial management of a protected area to achieve both the **protection** of the area's key ecological features and sensitive habitats, alongside the sustainable **utilization** of the area for tourism and other uses. Zonation allows managers to achieve different management aims in different parts of the protected area. Zoning also provides a framework for park planning by designating zones with different management objectives and allowable human impacts. This ensures a balance / trade-off between conservation and development objectives. It allows the planners to focus proposed conservation and development activities and resources on different zones depending on management objectives of specific sites within the protected area. The use of this methodology will enhance conservation planning by ensuring the development of effective conservation and /or development strategies.

For GFR , the primary factors in establishing the zonation plan are the need to protect especially fragile and vulnerable habitats and biodiversity, and the need to manage and mitigate human impacts, both from within the park itself, for example from visitor use, as well as from neighbouring community areas.

In order for managers to achieve different management objectives in different parts of the protected area, four main zone types have been identified:

- ▶ Ecologically Sensitive Zone
- ▶ Wilderness Zone
- ▶ Buffer Zone (and Corridors)
- ▶ Sustainable Development Zone

Each of the Management Zones will be described in detail and management prescriptions provided for each of them according to its management objectives. The Management Zones are shown in the Map below (.

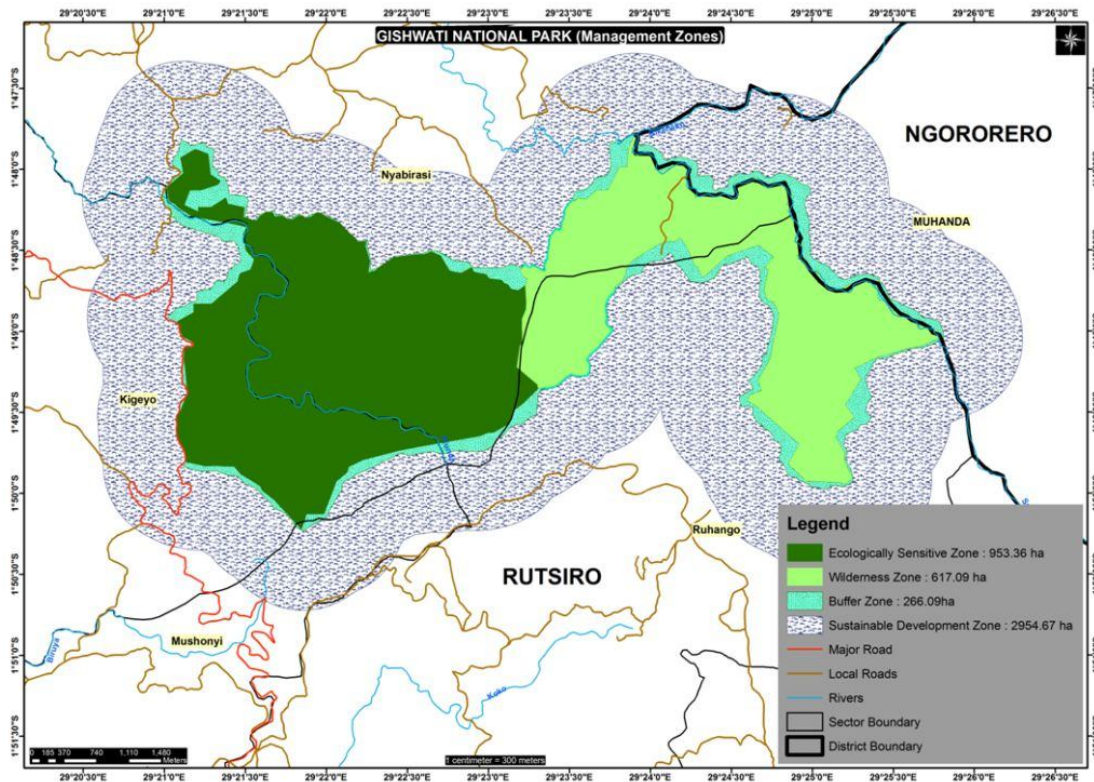


Figure 4: Zonation Map of GFR

3.5.1 The Ecologically Sensitive Zone (ESZ)

This zone Comprises habitats featuring high biodiversity and a variety of rare and endemic species and fragile ecosystems that require special conservation measures.

Primary Purpose: Protection of critical habitats and species as well as ecological functions and services

The ESZ mainly comprises the whole of the Gishwati Natural forest and associated ecosystems and habitats, which contribute to the park’s uniqueness and feature high biodiversity including a number of endemic and rare species. Under this 3-year management plan, the Ecologically Sensitive Zone will constitute core conservation area, set aside for ecological and biodiversity protection. Development activities will be restricted to low impact tourism such as birding, and primate watching, along defined trails. Research activities will also be limited in order to minimize the impacts of anthropogenic interference. Infrastructure development will not be permitted, with the exception of a limited number of trails for biodiversity viewing and research activities and hides for bird watching.

A key management issue for the ESZ is the conservation and restoration of indigenous forests and natural habitats in areas currently occupied by exotic species such as eucalypts and *Acacia melanoxylon*.

Restoration may be achieved through progressive removal of the exotic species and natural or assisted regeneration.

Management Prescriptions:

- ▶ Tourism use for birding and primate tracking on prescribed trails

- ▶ No adventure tourism activities with the exception of hiking on prescribed trails
- ▶ No infrastructure to be developed in primary forest or other ecologically sensitive/ high biodiversity areas
- ▶ Only limited trails and bird watching infrastructure will be allowed
- ▶ Carefully controlled research activities

Management issues:

- ▶ Conservation of Biodiversity
- ▶ Protection of the primates (especially chimpanzees) and their habitats
- ▶ Habitat restoration in degraded areas and areas occupied by exotics
- ▶ Control of invasive species
- ▶ Carefully controlled research activities
- ▶ Fire management and monitoring

3.5.2 Wilderness / Forest Restoration zone

This zone Comprises of areas that that are rich in biodiversity but limited low-intensity use can be allowed. The Zone may features both primary and secondary forest with medium biodiversity richness and endemism, and has critical water catchment functions serving parts of Rwanda.

Primary Purpose: Conservation of biodiversity, protection of nationally and internationally important water catchment functions, forest restoration through natural regeneration, alongside careful development of low impact tourism activities.

The **Wilderness / Forest Restoration Zone** comprises the two blocks of highly degraded forest areas that have recently been added to GFR covering approximately six (600) hundred ha. These areas are presently largely inaccessible to visitors, with the exception of the Congo-Nile Divide trail, and as a result, tourism use of this Zone is relatively low. The Wilderness / Restoration Zone features a variety of vegetation types, ranging from patches of indigenous trees and shrubs, exotic plantations and bear areas which been cleared for cultivation.

The major management issues in the Zone are habitat restoration as a result of damage by fire and other human-induced impacts, and activities to address the problem of invasive species. The impact of climate change on the ecology and habitat gradation is also a potentially important research priority for the zone.

Under this new management plan, the main management activities will be restoration of natural ecosystems and functions such as the vitally important water catchment values.

The exotic species will be progressively removed and the re-establishment of natural ecosystems achieved through natural or assisted regeneration and enrichment planting with selected indigenous tree species.

Careful development of low impact adventure tourism activities, such as trekking and bird watching, will be permitted in the Zone over the lifespan of this management plan, together with associated activity-based infrastructure such as trails, hides and camping sites. No permanent visitor accommodation infrastructure is permitted in the BZ during the lifespan of this management plan. Research activities will also be permitted in the Zone along designated trails.

Management Prescriptions:

- ▶ Conservation of Biodiversity

- ▶ Forest restoration
- ▶ Low Impact ecotourism
- ▶ Elimination of exotic species
- ▶ No permanent tourism infrastructure allowed in the zone
- ▶ Maintenance of existing trails and campsites, and development of new trails and related low impact temporary and semi-permanent eco-tourism related infrastructure, such as camps and hides for bird watching low impact tourism activities tourism, including trekking, nature walks and bird watching
- ▶ Research is permitted

3.5.3 The Buffer Zone

A Buffer Zone is a strip of land of varying width around a protected area, which should be formally established under the law to protect the PA. The Buffer Zone will be under the overall authority of RDB. Land use in the buffer zone should be compatible to conservation and contribute to the conservation of the core area of the park. Buffer zones will be established around both GFR and MFR.

The Gishwati - Mukura National Park buffer zones are legally established and gazetted under the law establishing the National Park and cover an area of 992ha. The BZ incorporates tea plantations, some pine and eucalyptus plantations and areas presently occupied by neighbouring communities.

It is understood that the people now occupying the designated buffer zone areas, will expropriated and compensated by the Government. Consequently, the buffer zone forms part of the National Park.

Primary Purpose of Buffer Zone: To provide a transition and protective zone between the neighbouring land and the PA. It provides economically viable forest and food products according to sustainable and socially-responsible agro-forestry practices, alongside mitigation of the negative impacts on park biodiversity and habitats.



Figure 5: A completely bare section of the GFR Buffer Zone

Management Prescriptions:

- ▶ No new human settlement and social infrastructure
- ▶ Conservation compatible and community friendly forestry practices
- ▶ Environmentally friendly tea production
- ▶ Regulated and appropriate tourism infrastructure development

- ▶ No mining, charcoal production or pesticide use

Management issues:

- ▶ Collaboration districts and local communities in implementing buffer zone land use and development prescriptions
- ▶ Reforestation of denuded areas using enrichment planting with indigenous and commercial species
- ▶ Removal of alien invasive species
- ▶ Promotion of conservation-compatible livelihoods and alternatives to resource use from the national park
- ▶ Promotion of human-wildlife conflict mitigation measures
- ▶ Implementation of a EIAs for infrastructure in the Buffer Zone and other areas adjacent to GFR;
- ▶ Completion of the compensation by GOR for of the people who have been relocated from the buffer zone.

The buffer zones and neighbouring community areas will be an important focus of this management plan. Management activities aimed at reducing human impacts through the promotion of conservation-compatible livelihoods and the strengthening of human-wildlife conflict mitigation measures will be vital to the survival and sustainability of the new National Park. In this regard, it will also be important to carry out EIAs for all development (including tourism) projects in areas adjacent to the national park. This will provide a rational planning basis for the planning and development of infrastructure in order to ensure that all potential adverse environmental impacts are identified and mitigating measures put in place.

3.5.4 Sustainable Development / Tourism Development Zone

a. Sustainable Development

The Sustainable Development Zone is a band of privately and community owned lands around the GFR and which is 800 – 1,000 metres wide.

Primary objective: To protect natural ecosystems and use natural resources sustainably, where conservation and sustainable use can be mutually beneficial.

The SDZ is particularly adapted to the application of landscape approaches where the protected area is managed within the context of the wider landscape within which it is located. It can also to establish linkages with other protected areas through corridors, thus expanding the overall areas under sustainable land management.

Other objectives:

- To promote sustainable use of natural resources, considering ecological, economic and social dimensions;
- To promote social and economic benefits to local communities and private land owners;
- To integrate other cultural approaches, belief systems and world-views within a range of social and economic approaches to nature conservation, food production and other sustainable development activities;
- To contribute to developing and/or maintaining a more balanced relationship between humans and the rest of nature;
- To facilitate scientific research and environmental monitoring, mainly related to the conservation and sustainable use of land and natural resources;

- To collaborate in the delivery of benefits to people, mostly local communities, living in or near to the designated protected area;
- To facilitate recreation and appropriate scale of tourism development.

It is to be clearly noted that the establishment of the SDZ does not involve any changes in land ownership. The land remains the property of the current community or private owners. RDB, Park Management and Development Partners will work with the land owners to establish incentive-based management systems which demonstrate the application and benefits of sustainable land planning and use.

b. Tourism Development

Due to the small size of the GFR, future tourism facilities and infrastructure development will have to be developed outside the GFR/NP. Most of the permanent tourism infrastructure such as lodges will be developed in the SDZ. Land requirements for such developments will be provided by Government or District authorities outside of the GFR. Investors can also acquire land from individual land-owners on the willing-buyer –willing - seller basis.

Primary Purpose: Tourism development to generate revenues and other socio-economic benefits, for the country, the park and the local communities.

While the tourism potential for GFR is high, currently there are very few tourism developments taking place due to lack of infrastructure and the systems for managing tourism. This will of course change over time. Tourism development is vital for generating resources for conservation and for socio-economic development of the country, the district as well as the communities neighbouring the GFR. Tourism development and promotion will therefore be an important component of this management plan.

Only low-impact activities such as trekking, nature walks, bird watching, and educational visits will be allowed in the park. In the addition to the existing trails, other trails will be added in designated areas or to provide access to areas of significant interest. Camping sites will also be provided in designated areas. A key management issue for the Tourism Development Zone will be the need to ensure that the environmental impacts of new infrastructure development are minimized. Adverse Impacts will also be minimized in the areas that areas of primary forest, or other high biodiversity areas and habitats where tourism is allowed.

Management Prescriptions:

- ▶ Visitor activities including: trekking, nature walks, bird watching, adventure tourism and educational visits
- ▶ Tourism infrastructure including: trails, eco-lodges, campsites, interpretation centres and viewing towers
- ▶ Development of tourism support services such as shopping areas, curio shops, cultural centres etc.

Management issues:

Regulation of tourism infrastructure development to minimize impacts on GFR environment and biodiversity values

- ▶ Habitat restoration in degraded areas
- ▶ Control of invasive species

Introduction

GFR is surrounded by dense human populations, with up to 430 people per km² (National Institute of Statistics Rwanda, 2007). High population densities coupled with household plot sizes that are now so small can hardly support family livelihoods. This has led to growing pressure on the Forest Reserves as a source of alternative livelihoods for adjacent communities, resulting in high levels of illegal use through poaching, firewood cutting, bamboo collection, mining, honey gathering and other natural resource extraction. Illegal activities in the forest as well as the close proximity to dense human settlements can also create other threats such as frequent forest fires and the spread of invasive species. Addressing these human-induced threats presents a major challenge for the management of the new NP.

Four management programmes are proposed in accordance with the recommendations made by stakeholders during consultation meetings. The programmes consist of a set of 3-year management objectives and their component management actions. The plan will be implemented through Annual Operations Plans which set out the day-to-day activities undertaken to implement the Plan.

The Annual Operations Plans will be regularly rolled forward throughout the implementation of the management plan, thereby ensuring that the plan remains dynamic and flexible enough to adapt to unforeseen challenges. The Activity Plan therefore provides the possibility for regular review according to changing needs and/or availability of resources.

The Four Programmes are:

1. Ecological Management and Monitoring Programme
2. Conservation Partnership Programme
3. Tourism Development and Management; and
4. Parks Operations Programme

Chapter 4: Ecological Management and Monitoring Programme

The purpose of the Ecological Management and Monitoring Programme is to enhance the conservation and understanding of the GMNP's conservation values and the ecological services it provides.

The Ecological Management Programme set out in this chapter, identifies the GFR's exceptional conservation and ecological values, the human-induced threats to these values, and defines appropriate ecological management actions to mitigate these threats. As such, this is probably the most critical component of this management plan.

The aims of the Ecological Management Programme include:

- ▶ Sustainable management of key ecosystems and species: *this* deals with managing natural systems that are critical to the ecological integrity of GFR
- ▶ Restoration of degraded areas
- ▶ Ecological monitoring to identify, eliminate and/or reduce the impacts of threats
- ▶ Minimizing the impacts of fire on ecological values of the GFR/GMNP
- ▶ Minimizing the impacts of mineral extraction, illegal agriculture and infrastructure development
- ▶ Control invasive and alien species
- ▶ Establishing and managing of research, in particular focusing on priority park management issues
- ▶ Management of the buffer zones

Setting Conservation Targets

The Conservation Action Planning (CAP) methodology provides a mechanism for focusing ecological management by enabling the identification and development of an accurate definition and understanding of the area's most significant ecological features, and the major threats to these features. This methodology was developed by the TNC and has now been applied in many conservation areas around the world, and it is based on the premise that, with limited human and financial resources available to managers, it is impractical to attempt to manage and monitor every single aspect of the complex ecology of an area, and management effort is therefore best focused on a limited number of the area's most important features.

The CAP methodology involves the initial identification of a limited number of "*conservation targets*", which represent and capture the unique biodiversity contained within the GFR/GMNP, or the ecological features that require specific management actions (such as particularly endangered species or habitats). The definition and understanding of each of these targets is complemented by the identification of the "*Key Ecological Attributes*" (KEAs), upon which the long-term survival of each conservation target depends. This in turn provides the foundation for the identification of the "*threats*" to these targets and attributes, prioritization of these threats according to their significance and then designing appropriate mitigation measures

Establish and Implement an Ecological Monitoring Framework

An Ecological Monitoring Framework will be implemented during the timeframe of this 3-year management plan for GMNP in order to monitor the status of the park's key conservation targets as well as associated threats. This will provide Park Management with a clear picture of the health of the

landscape as a whole and the trends of the ecosystem’s key components, allowing for adaptive management measures to be implemented as needed in order to maintain and /or enhance the park’s ecological integrity. In order for the Ecological Monitoring Framework to be utilized successfully, park managers will need to develop comprehensive data collection protocols as well as to acquire appropriate baseline data for each selected conservation target.

*The purpose of the Ecological Management and Monitoring Programme as defined by the Technical Planning Team is: “ **The ecological integrity, outstanding values, health, productivity and diversity of ecosystems and species of GFR restored and sustainably managed**”*

In accordance with the PAPF approach adopted for this planning process, the Nature Conservancy’s CAP methodology was used to help identify the GFR most important conservation values, their ecological requirements, and the threats impacting on them. The CAP methodology and its application are briefly described below:

The Conservation Targets

The CAP method provides a mechanism for the identification and development of an accurate definition and understanding of the area’s most significant ecological features, and the major threats to these features. This methodology is based on the premise 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 an area. Management effort is therefore best focused on a limited number of the area’s most important features.

The methodology involves the initial identification of a limited number of “conservation targets”, which represent and capture the unique biodiversity contained within the GFR and the ecological features that require specific management actions (e.g. endangered species or habitats). The definition and understanding of each of these targets is complemented by the identification of the “Key Ecological Attributes” (KEAs), upon which the long-term survival of each conservation target depends. This in turn provides the foundation for the identification of the “threats” to these targets, and the subsequent prioritization of these threats according to their significance.

The eight Conservation Targets and their associated Key Ecological Attributes that were identified for GFR are detailed in Table 5.1 below.

	Targets	Subsidiary Targets	▫ KEAs
Systems	Hydrological System		<ul style="list-style-type: none"> ▫ Water quantity, quality and seasonality ▫ Soil structure and composition ▫ Water sources
	Primary Forest	<ul style="list-style-type: none"> ▫ Endemic bird species ▫ Mahogany ▫ Ferns ▫ Medicinal and Mellifluous plan spp. 	<ul style="list-style-type: none"> ▫ Forest edges ▫ Size ▫ Species composition and distribution ▫ Connectivity - corridors ▫ Seed dispersers and pollinators
	Secondary Forest		<ul style="list-style-type: none"> ▫ Size ▫ Species composition and distribution ▫ Forest edges
	Wetlands		<ul style="list-style-type: none"> ▫ Species composition and distribution ▫ Water levels and seasonality ▫ Size
Species	Chimpanzee		<ul style="list-style-type: none"> ▫ Population size and distribution ▫ Health ▫ Genetic variability

	Other Primates	<ul style="list-style-type: none"> ▶ Monkeys ▶ Carnivores 	<ul style="list-style-type: none"> ▣ Reproduction ▣ Diet - food sources ▣ Connectivity ▣ Habitat size
	Threatened Birds		<ul style="list-style-type: none"> ▣ Population size ▣ Prey species ▣ Habitat size and distribution ▣ Health

Table 1: Conservation Targets and their Key Ecological Attributes

Threats to Conservation Targets and KEAs

The definition of conservation targets and their KEAs enables the identification of the “threats” to these targets and attributes, and the subsequent prioritization of these threats according to their significance. A threat is defined as “any factor, resulting either directly or indirectly from human activities, which has the potential to destroy, degrade or impair a conservation target.

Management objectives and actions

Five objectives were proposed by the Technical Planning Team as follows:

Objective 4.1: Key ecosystems, habitats and species sustainably managed

Objective 4.2: Degraded ecosystems restored through natural and assisted Regeneration

Objective 4.3: Adverse ecological impacts of mining, infrastructure development, bush fires and invasive species minimized

Objective 4.4: Provide objective scientific information and knowledge to support evidence-based policy and resource management decisions

Objective 4.5: Key ecosystems, habitats and species regularly monitored

Objective 4.1: Key ecosystems, habitats and species sustainably managed

Maintaining the ecological integrity of the GFR requires that key ecosystems, habitats and species are sustainable managed and protected where necessary. Specific action plans and strategies will need to be developed for the long-term conservation of threatened ecosystems and species, such as the chimps.

Activities to be undertaken

1. *Undertake periodic biodiversity assessments and inventories* – seeing what’s there, assessing what condition it is in, and tracking how that is changing over time is critical for taking stock of progress, learning and improving conservation practices. The PA managers need to know what resources are present and their conditions and conservation needs. This is a vital step in effective PA management.
2. *Identify and map fragile ecosystems and habitats of key species*: Mapping and understanding the current and desired future conditions of these habitats is critical to developing specific strategies for the protection.
3. *Expand the habitats and ranging areas for the chimps by expanding the corridors and the GFR itself*. Stakeholders should lobby for the expansion of the very narrow Twabugezi Corridor which links the core forest with the extended zone. This corridor is frequently used by the chimps to move between different forest patches. Also, neighbouring the GFR across the Sebeya River are government owned lands that are currently occupied by exotic forest plantations or least out to

cooperatives for agriculture. These lands should be demarcated and incorporated into the GFR/GMNP.

4. *Undertake periodic (3-5 years) censuses of key species such as chimps and other primates.* Through such censuses, it is possible to project population of key species and take appropriate action; e.g. if species numbers are declining
5. *Explore possibilities for re-introduction of certain species.* There is some anecdotal evidence that such species as colobus monkeys, duikers and others used to exist in GFR but are now locally extinct. Species richness and tourism appeal can be enhanced by re-introducing such species.
6. *Develop and implement a programme for health monitoring of chimps and other primates: The very small population of chimps could be very easily wiped out by an outbreak of disease. Diseases can be transmitted from humans or domestic animals. It is therefore vital to establish health protocols for monitoring, prevention and treatment of diseases if there is an outbreak. A Vet Unit already exists at RBD Headquarters; a field unit should be established at GFR for day to day monitoring. Guidelines will also need to be developed so as to reduce or control risks of disease transmission between humans, domestic animals and the wildlife.*

Objective 4.2: Degraded ecosystems restored through natural and assisted Regeneration

The Gishwati Forest used to be one piece in a complex system of rainforests through the middle of Africa. It used to extend west beyond Lake Kivu connecting with the rainforests of the Congo, and in the south connecting with Nyungwe Forest. These forest systems have become fragmented due to population increase and deforestation. Erosion, landslides, reduced water quality, loss of soil fertility, declining productivity, and fragmentation of the forests into isolated patches, have resulted from this degradation of the land.

The GFR will therefore need to be managed as part of the larger landscapes comprising an inter-connected matrix of productive, protective and inhabited areas connected by corridors and buffer zones.

Activities to achieve this objective:

1: *Natural forest conditions restored in the degraded areas through natural and assisted natural regeneration (ANR)*

Natural regeneration is the process by which forests and woodlands are restocked by trees that develop from seeds that fall and germinate in situ to re-establish themselves.

Areas that are managed in a way that enables natural regeneration to occur can be self-sustaining and may not require further expensive establishment costs. Natural regeneration ensures that the plants established on a site are from parents that currently occupy the site. Hence it helps to preserve genetic identity and variation in the forest areas. This natural 'conditioning' to a site means that these plants are capable of withstanding long-term natural fluctuations and should do well, once established. Natural regeneration is particularly useful for establishing plants on a broad scale but can also be used in localized areas.

ANR is a method for enhancing the establishment of secondary forest from degraded areas by protecting and nurturing the mother trees and their wildlings inherently present in the area. In GFR, ANR will help to accelerate, rather than replace, natural successional processes by removing or reducing barriers to natural forest regeneration such as soil degradation, competition with weedy species, and

recurring disturbances (e.g., fire, grazing, and wood harvesting). Seedlings and young saplings are, in particular, protected from undergrowth and extremely flammable plants such as grass. In addition to protection efforts, new trees are planted when needed or wanted (enrichment planting). With ANR, forests grow faster than they would naturally.

2: Invasive and alien species eliminated or controlled

Invasive plant species, both indigenous and exotic, can be a serious threat to the primary or secondary forests. The GFR has problems with exotic invasive species, such as pines, Eucalyptus and black wattle within the core natural forest; these trees have managed to establish themselves in the natural forest where they seem to be out-competing native species.

Activity 3: Identify and characterize invasive / exotic species of key concern for management

As a foundation for addressing the problem of invasive species in GFR the key invasive / exotic species including their distribution within the park and the size of invasive patches will be identified. One of the best ways of gathering this information is likely to be through the ranger-based monitoring system, when it is established. The SMART system of data collection will be modified to ensure that information on invasives is collected, as well as training in the identification of key invasive species. This information will provide the basis for determining the invasive species issues of key concern and for the design of strategies to eradicate them.

Activity 4: Develop and pilot methods to eradicate invasive and alien species of key concern. Based on the identification and characterization of key invasive/ exotic species issue, methods for their eradication will be developed and piloted in selected areas, and the impacts of the initiative will be monitored. Gaps left by the removal of invasives will be filled through assisted natural regeneration.

5: Natural forest conditions restored in the gaps opened up by removal of exotics in the natural forest, through natural and ANR

A key consideration here will be the necessity to avoid opening up gaps in the forest as a result of the removal of exotic species – which may simply compound the problem by encouraging other invasives to gain a foothold. Methodologies for dealing with invasive species will therefore also need to consider the requirement for enrichment planting with indigenous species.

6: Develop and implement special protection measures for fragile ecosystems.

Fragile ecosystems should be subject to special care in order to conserve the biodiversity and ecological functions. Such ecosystems include river sources (e.g. Sebeya River) , river banks and habitats for endemic or threatened species. Protective or restoration measures appropriate and capable of improving ecological conditions will be undertaken. Activities likely to cause soil disturbance in the future and resettlement on steep mountains/hills with a high risk of landslides should take into account the protection and preservation of steep slopes. Fragile ecosystems will be identified and site-specific measures undertaken to protect and/or restore them.

Objective 4.3: Adverse ecological impacts of mining, infrastructure development and bush fires controlled and minimized

This objective will be achieved through the control, mitigation and elimination of the adverse ecological impacts of mining, fires and infrastructure development within or around GFR.

The primary and secondary forest habitats are all being impacted by a range of human pressures, including fire, and a variety of human activities, in particular mining activities and agriculture being

carried around the forest. As a new NP, new infrastructure such as offices, housing and access roads will need to be developed and constructed in future. Mitigation measures will be necessary to reduce or eliminate adverse impacts of these developments.

1: Impacts of fire on ecological values of GFR minimized

While the threats of forest fires are not very serious at the present, the situation could change in future. Forest fire, mainly caused by poachers and honey gatherers, but also caused naturally by lightning, can be a major source of habitat degradation. The Managers of the new NP must make significant efforts in preventing fires through awareness raising in the community, and controlling them once they occur.

2: Develop and implement a Fire Management Plan

LA fire management plan will be developed and implemented to address the issue and mechanisms for fire prevention, detection and suppression when they do occur. It will also establish procedures and practices for fire-fighting as well as protocols for collaboration with stakeholders such as communities and Police Department. This may involve collaboration in designing and delivering fire management training programmes as well as potentially in exchange lessons learnt and best practice in practical fire fighting.

The fire management plan will be expected to set out technical requirements for mounting effective fire fighting responses, this will include infrastructure for detecting and preventing the spread of fires (fire towers, fire breaks), appropriate fire-fighting equipment as well as signage to warning people of the level of fire danger in different locations or seasons'

3: Minimize the adverse impacts of mineral extraction

Some mining activities are taking place both inside the GFR (Nduruma area) and in some areas neighbouring the reserve, which may have adverse ecological impacts. Mining has the potential to serious threats to GFR and its habitats. While some of the mining is legal, a lot of it is illegal artisanal mining. The main minerals are columbo-tantalite (coltan) and casitterite. Coltan is a vital component in mobile phones and other consumer electronic products, has also become a significant and economically important mining activity within the area. Mining activities can cause significant damage to habitats as well as erosion of soils and water pollution; open pits are also very unsightly.

Park management will need to create awareness in the law enforcement agencies on the potential amount of damage mining to the ecological and watershed values.

A variety of activities will be undertaken to increase the awareness of these agencies of the environmental threats caused by mining, and to gain their support in preventing illegal mining activities in and around GFR.

4: Commission studies to assess the ecological and social impacts of mining

A Technical Working Group should be set to consult with Ministries responsible for Mining, and Environment, propose and brief Governments on possible mitigation measures and to create a clear framework, guidelines, procedures, terms and conditions for exploration and mining in PAs, in order to minimize conflicts between mining and conservation. In future, this frame framework should be enacted into Law. PA staff will also need to be trained in techniques for monitoring prospecting and extractive operations in the protected areas.

5: Apply EIA guidelines applied for all infrastructure developments within GFR and neighbouring areas

The new NP will come under increasing pressure from infrastructure development, especially in connection with new park facilities will need to be constructed and tourism facilities that will also need to be developed around the park. These infrastructure developments are expected to grow significantly as the park develops.

RDB and Park management that proper environmental guidelines are in place and rigorous EIAs undertaken for each project to ensure that potential adverse ecological are identified and mitigated.

Under this management action, it will also be important to monitor the environmental impacts of all infrastructures developed in and around GFR/ GMNP, so that mitigation measures can be applied as necessary to reduce adverse environmental impacts, and also so that the EIA guidelines can be modified as necessary according to lessons learnt.

Objective 4.4: Provide objective scientific information and knowledge to support evidence-based policy and resource management decisions

Research in a protected area contributes to the knowledge and understanding of its resources and the functioning of its ecosystems, which is essential for the planning of the management activities of the protected area. The scientific data collected on the species, their habitat, their ecological relationships, their needs and their dynamic changes over time, will make it possible to design objective plans and strategies for the management and long-term conservation of the protected area.

In addition to said biological research, data collection on the effects of the protected area on the national and local economies will be necessary in order to evaluate the socio-economic contributions of the protected area.

Specific activities to be taken in Research Development:

1: Develop strategic partnerships with research institutions in order to carry out applied research

Experience from other NPs shows that GFR /GMNP will not be able to implement a complete programme of research on its own given the limited financial and technical human resources. It will therefore need to establish strategic partnership with research institutions, universities and independent researchers in order to develop and implement vital research programme.

In collaboration with research and development partners, a stakeholder workshop will be convened to identify information needs and research priorities and draw up a Research Plan to guide research activities over the next 3 – 5 years. The research plan will need to be reviewed and updated regularly. Up-dating, sharing and publishing research findings are viewed as a strategy to attract institutions and independent researchers and resources.

2: Compile, analyze and disseminate existing research data and findings on GFR

There are several years of accumulated research and monitoring data that has been generated by various researchers and projects on a variety of topics. However, much of this information has yet to be compiled, synthesized, packaged in formats appropriate for different users and disseminated. The new Park management should as a priority, embarked on a process to evaluate the existing research and monitoring information. The outcomes of this exercise should provide a good foundation for determining information gaps and ensuring that in future research and monitoring are geared towards filling these gaps.

3: Implement useful research findings and recommendations in the conservation of GFR /GMNP and in informing conservation policy development

Applying research results will contribute to improving management effectiveness and conservation outcomes. In this connection, RDB /GFR should actively promote research, analysis and peer review and application of research findings.

4: Conduct necessary inventories and Biodiversity assessments

Park managers rarely know all the resources in the parks they manage. Resource inventories and assessments will not only create a better understanding and appreciation of the resources being managed, but also serve as a baseline for monitoring changes over time. In addition, they help fill gaps in areas where biodiversity knowledge is insufficient. The management of the RDB /GMNP will encourage initiatives to conduct inventory of various species such as reptiles, amphibians, small mammals as well as endemic or endangered species.

5: Develop Partnerships with Private Sector on prospecting and use of genetic materials for the manufacture of essential products

Because of the potential economic importance of GFR's biodiversity as sources of important genetic materials for the development of new medicines, opportunities for establishing research partnerships with pharmaceutical companies will also be investigated under this action. However, while such partnerships offer a potentially important future source of funding for biodiversity research activities, they will need to be developed carefully and with an awareness of the potential intellectual property rights issues and the potential risks of biopiracy.

6: Develop and update useful biodiversity databases for the management of GFR/GMNP

RDB and Park Management will establish a suitable biodiversity database where research and monitoring data is managed and easily accessible to those who need it. A national level database will be established at RDB or REMA where data from all the parks will be sent for management.

7: Establish Research Unit at GFR

A Research Unit will be established at GFR to manage and oversee research activities at field level. Research findings will be submitted to the RDB Research Coordination Unit; at the national level these findings will be synthesized into national knowledge products that will inform conservation policy and strategic decisions on biodiversity / natural resource management and resource allocations.

GOR and RDB will therefore need to create institutional mechanisms for coordinating research activities analysis and peer review of results. Establishing a "one-stop centre" for research coordination with responsibility for identification of research priorities, approvals for new research activities, overseeing the implementation of research work, and maintaining and compiling a database of all research works. Although the scope of this action goes beyond the remit of this management plan, it has nevertheless been included under this objective because of its importance coordinating and managing a national biodiversity research effort.

Tentative List of Potential Research Themes for GFR / GMNP

Research would be applied, field-based and wherever appropriate involve participation of local residents. Some tentative research topics would include, but not limited to the following:

- Biodiversity inventory and forest ecology for Gishwati Forest Reserves.
- Ecological investigations on the health, needs and constraints of the chimpanzee population and other primates, following on from work already started through collaborations between Forests of Hope and University researchers and with a view to developing a long-term recovery and population management strategy.
- Factors of chimp movements, habitat and food and requirements and preference
- Forest restoration ecology.
- Propagation and multiplication of native tree and forest species
- Monitoring of key species (the population and their health if necessary): indicators of good health in the forest (example: species that are only found in primary forest, the amphibians)
- Identifying threatened, endangered, rare, near extinct and extinct species in GFR/GMNP, especially those that act as key indicators of habitat quality, climate change, etc. Biodiversity survey every 5 years
- Economic valuation of selected ecosystem services
- Research on crop raiding: impact on human and economic loss.
- Sustainability of natural resources use: (resources, water, etc...) including the distribution, abundance and ecology of targeted resources
- Socio-economic impacts of conservation on neighbouring communities
- Efficient strategies to control animals causing problems (including education and change of attitude)
- Study and field-testing of appropriate multipurpose trees species and crops in the buffer zone and corridors
- Study on the impact of tourism on biodiversity as a basis for tourism impact monitoring
- Ethno-botanical study of forest plants used by communities (medicinal, melliferous, etc.) and how to make available to communities outside the park
- Monitoring the impacts of climate change on key wildlife species and habitats in order to develop adaptation and mitigation plans for the park

Objective 4.5: Key ecosystems, habitats and species regularly monitored

Monitoring is a methodology of follow-up of the evolution and development of an element, based on the collection and management of data, analysis of these data, as well as the dissemination of information. More importantly, the deductions and knowledge drawn from the analysis are applied to inform and improve resource planning, management activities, and ultimately, conservation outcomes.

Monitoring is a basic tool on which larger proportion actions of conservation of natural ecosystems, and in particular protected areas, are based. It deals in the detection of changes or the absence of changes within ecosystems and communities that constitute these ecosystems.

The decision making process in the resource management is often based on intuition and field experience and not on objective information provided by this strategic evaluation and monitoring programmes. This will have to change and more reliance placed on more objective data.

Biodiversity inventory and monitoring – seeing what's there, assessing what condition it is in, and tracking how that is changing over time is critical for taking stock of progress, learning and improving practices. Analysis of the information gathered and knowledge generated assists in adapting management and allocating resources to the most critical needs. Monitoring will help show what works and what doesn't, and can be used to improve future management effectiveness. It will also provide locally relevant information to share with the communities. Access to new, regularly updated, and more easily shared data will result in better decisions, leading to improved conservation

outcomes that support the healthy environment and economic and social wellbeing contributions of GFR.

A nationally consistent approach is needed so the data can be combined and compared across parks and projects, and used to build understanding of Rwanda's ecological integrity. A more nationally-consistent, systematic and comprehensive approach means the information collected can be built into a national picture and used in multiple ways, including allowing relevant GOR agencies to report on overall losses and gains in biodiversity.

The system developed for GFR should therefore be part of an ongoing programme to develop a nationally-consistent and cohesive approach to managing biodiversity across Rwanda. Training and other support will need to be provided to encourage stakeholders and communities to monitor species and ecosystems in consistent ways.

The Biodiversity Monitoring and Reporting System will:

- Provide a foundation of sound data to better inform effective management planning and programme development.
- Improve understanding and reporting on the health of ecosystems and biodiversity trends in ecological integrity.
- Reduce reliance on anecdotal evidence and expert advice by delivering factual evidence to inform decisions and report on progress towards outcomes.
- Improve RDB's ability to compare outcomes between different parks and projects and know what interventions worked best.

Management Activities to achieve this objective:

1. Develop an Ecological Monitoring Framework for GFR

One of the key components of the Ecological Management Programme is the development and implementation of an Ecological Monitoring Framework, based on the conservation targets, key ecological attributes and associated threats identified at the beginning of the programme. The use of conservation targets, KEAs and threats also ensures that there is a direct link between the components of the ecosystem that are being monitored and this programme's management objectives and actions. As such, the Ecological Monitoring Framework will provide a basis for both monitoring overall ecosystem health and assessing the effectiveness of, and recommending adaptations to, the management actions under this programme.

The Ecological Monitoring Framework will need to be developed for the whole GMNP rather than for GFR alone. The Monitoring Framework is based on the Conservation targets. The selected indicators of change will provide easily measurable attributes for assessing the status and trends of the KEAs or threats to each conservation target. The indicators also provide an early warning of any serious threats that may develop during the monitoring period, which may potentially require the implementation of new management actions. The framework will also outline the data collection methodology, which sets out how, when, where and who will collect the data for the indicators.

2: Introduce and apply the SMART data collection and management system

The Spatial Monitoring and Reporting (SMART) data collection tool has been developed to replace the Ranger Based Monitoring System. The system will be immediately introduced and applied in the GFR/GMNP. Monitoring staff will need to be intensively trained in the application and operations of the new system. An important aspect of this process is the integration of ranger-based monitoring data and

information gathered through research. Clearly, both sources of monitoring data are important for ensuring the adaptive management in future, and the impact will be greatest if means are found to integrate the two datasets into a unified knowledge base.

In order to develop systems of analysis and interpretation of data obtained from different sources, it is indispensable for GFR to establish partnership with specialized institutions (GIS, remote sensing etc.).

3: Provide appropriate equipment and an adequate system of data collection, data analysis and data management

Among the weaknesses in the management of our protected areas, is lack technical capacity and equipment for data management. It is essential to put appropriate equipment at the disposal of the park, and training provided for their use and maintenance. For each equipment delivered, the use should be appropriate to the expected objective and if possible, the responsibility should be given to individuals. This would avoid consequences connected with abuse and misuse of such equipment.

4: Put in place a system of monitoring and evaluation of impacts of human activities on conservation outcomes

This exercise is particularly important given the variety of conservation activities going on within the park and in its neighbourhood. It is important to monitor the impact of conservation activities carried out within and outside the park itself as well as on the neighbouring population who are the beneficiaries of these activities. It will be necessary to draw up a guide for monitoring of socio-economic impacts around GFR and the indicators for monitoring and evaluation of the impact of illegal and "legal" activities.

5: Collaborate with local population for the inventory of forest resources used locally and their different uses

Partnership will be promoted with the local population to carry out inventories of forest resources utilized locally and their different uses. This activity will facilitate the management of the park in evaluating the dependency of the population on the resources, accessibility and abundance of these resources in the park. Through such inventories, it will be possible to determine the sustainable levels of harvest. In the longer-term, it will be possible to support the communities to propagate and produce these resources on their own farms as a way of reducing dependency on the park.

6: Provide continuous and adequate training of staff responsible for monitoring

Training at all levels will be an important element to ensure proper collection, integration, analysis and management of data. Rangers who have participated in monitoring in other parks have acquired good experience in data collection. Some of these should be posted to GFR to form the nucleus of monitoring team. New Rangers will learn from them as they get trained and learn from experience.

7: Monitor and understand the impacts of climate change on the ecological processes of GFR

The long-term threats posed by climate change and their impacts on forest cover changes, species and habitats will need to be monitored in order to identify and implement appropriate adaptive management options to mitigate them. In the coming decades, East Africa is expected to be affected severely by climate change, and the major focus should be on issues of adaptation, both at a regional and at a local level. Currently insufficient data is available on the impacts climate change on Rwanda's

ecosystems, and this will need to be addressed. As part of this process, weather and precipitation patterns will be closely monitored at the existing and new weather stations.

8: Undertake periodic Aerial Surveys and vegetation mapping: Aerial vegetation surveys will complement ground monitoring and the resulting maps will provide baselines upon which vegetation changes can be monitored over time.

Chapter 5 Community Conservation Partnership Programme

This Programme is aimed at generating and sustaining support by local, national, regional and international stakeholders who support conservation in general and conservation GMNP in particular. Through these partnerships financial and technical resources will be mobilized to fund priority programmes and activities in the NP.

Stakeholder communication and collaboration mechanisms appropriate for each category of stakeholders will be developed and consistently applied.

5.1 Community Partnership

This Programme addresses the need to ensure that communities neighbouring the NP share the benefits generated by the park in return for their support and participation in its conservation and in maintaining its ecological integrity. The communities will be empowered to achieve sustainable livelihoods through resource use practices beneficial to both the park and the communities themselves. As the NP is located in one of the most densely populated areas of Rwanda, this presents major challenges. The main economic activity of park-adjacent communities is subsistence agriculture, and agricultural practices are generally poor and affected by low soil fertility. This increases already intense pressures for land and resources.

An important goal of the Community Partnership Programme is to provide communities with positive economic and social benefits from the national park, thereby encouraging them to support conservation.

The Community Partnership Programme aims to:

- ▶ Enhance community livelihoods and sustainable resource use
- ▶ Reduce human-wildlife conflicts
- ▶ Explore and pilot appropriate models benefit sharing with communities (e.g. the CI Conservation Agreement Model)
- ▶ Strengthen conservation education and awareness
- ▶ Draw up a Plan of Activities to be jointly implemented by the park and the communities (e.g. community monitoring, species identification and interpretation)

The Gishwati Landscape has been under intense pressure for many years and the threats posed to the new NP remain. The development, resourcing and consistent implementation of this programme is vital for the long-term survival of the Rwanda's newest National Park.

5.1.1 Community Partnership Programme

Introduction

Conserving biodiversity and eliminating poverty are linked challenges at national and global levels. The poor, particularly the rural poor, depend on nature for many elements of their livelihoods, including food, fuel, shelter and medicines. Working alongside people who will ultimately benefit from conservation can build social capital, improve accountability and reduce poverty. In contrast, excluding people from conservation actions can increase conflict, resentment and poverty.

GFR is located in one of the most densely populated areas of Rwanda, with an average population density of 400 inhabitants per km². The main economic activity of these communities is agriculture, with over 90% being subsistence cropping. Agricultural practices are generally poor and the communities experience significant problems with soil fertility and productivity. This increases pressure for land resources which is already intense because of the high population densities and the customary practice of subdividing land between family members.

The diminishing size of household plots is in turn impacting on the ability of communities neighbouring GFR support themselves. As a result, a high percentage of these communities live in poverty, which is characterised by lower education levels, large family size, poor housing, and limited access to basic infrastructure.

Inevitably, this situation has serious implications and impacts on GFR. For example, increasing scarcity of arable land forces the communities to look to the park as a source of land and livelihoods; this leads to encroachment. Poverty and inadequate livelihoods in the communities also leads them to look to the forest as a potential source of livelihood, either through poaching of wild animals, harvesting of forest resources such as timber, firewood, honey and medicinal plants or illegal mining. All these exert pressure and represent a major and growing threat to the biodiversity and habitats.

On the other hand, the GFR also imposes direct and opportunity costs to the neighbouring communities which have negative impacts on their livelihoods. Crop raids by primates and other animals cause damage to community crops, and even potentially to human life. In addition, communities neighbouring national parks are often marginalised in wider development processes, exacerbating their poverty and contributing to their hostility to protected areas.

Under these circumstances, it is no surprise that parks and their neighbouring communities have often difficult and hostile relationships. Yet it is in the best interests of both sides to work together. A supportive community can help reduce threats to the national park from poaching, encroachment and other illegal activities. On their part, national parks can help to minimize and mitigate human-wildlife conflicts, and contribute in improving community economies and livelihoods.

With these aims in mind, Community Conservation Partnership Programme proposes a package of initiatives and activities aimed at establishing a win-win situation as a foundation for stewardship and sustainability of the GFR/GMNP.

The Purpose of the Partnership Conservation is defined as follows:

Community partnerships create incentives for biodiversity conservation and sustainable GFR management as well as socio-economic and environmental benefits for the neighbouring communities.

This purpose places emphasis to ensuring that communities will gain positive environmental and socio-economic benefits from the national park. This will be achieved both by increasing the benefits to the

community as well as reducing costs, such as those from crop damage. In turn, benefits will serve as incentives that encourage communities to support the conservation of the national park. The Programme should contribute to the building a sense of community ownership and stewardship of nature conservation inside and outside the Park.

The Partnership Programme is based on the following key principles that should guide and underpin its implementation:

- 1) Institutions and experts charged with management of protected areas, are mandated to do so on behalf of society and communities around them; they therefore have the obligation to involve other stakeholders in their management
- 2) Protected areas will often contain only a fraction of the ecosystems and natural resources in the landscapes in which they are located. The resources also need to be conserved; Partnership between PA agencies, local communities and other stakeholders is required to achieve this;
- 3) PA cannot be conserved as isolated “islands” of biodiversity; their conservation has to be linked to conservation of the landscapes in which they occur through what is variously referred to as “ecosystem” or “landscape” approach
- 4) It’s no longer tenable to continue regarding communities as threats or enemies of PA; they should be regarded as partners with an equal (or even larger stake) in the management and sustainability of PA. Genuine partnership with communities needs to be built and nurtured
- 5) To assist communities to become active partners in conservation mechanisms need support and enhance their participation and contribution to the conservation and management of the national park and the ecosystems around it;
- 6) PAs can only justify and achieve long term survival by generating quantifiable environmental and socio-economic benefits. GFR /GMNP will therefore be managed in ways that the costs and benefits generated are equitably shared by stakeholders, including neighbouring communities;

The Management Objectives proposed for this programme are based and premised on these principles. The following objectives are proposed:

Management objectives and actions

To achieve the Purpose defined for the Community Conservation Partnership Programme, Five Objectives are proposed as follows:

Objective 5.1: Build and strengthen the knowledge and capacity of the neighbouring communities to be effective partners in the management of the park and surrounding landscapes

Objective 5.2: Human-wildlife conflicts effectively managed, mitigated and reduced

Objective 5.3: Community livelihoods and sustainable resource use enhanced

Objective 5.4: RDB Revenue Sharing Programme Reviewed and Aligned to Real Community Needs

Objective 5.5: Develop and Pilot Alternative Incentive Based Mechanisms

Objective 5.6: Establish Conservation Partnerships at national regional and international levels

Objective 5.1: Community Institutions and processes established and strengthened

Objective 5.1: Build and strengthen the knowledge and capacity of the neighbouring communities to be effective partners in the management of the park and surrounding landscapes

Conserving biodiversity depends on understanding the interactions of societies and the environments in which they live, and understanding what motivates people to conserve. Most of the world’s biodiversity is not in PAs but on lands and waters used by people for their livelihoods. Therefore, partnership with

local people needed for long-term conservation Solutions. Genuine partnership can only be established and working with strong well functioning and well informed community institutions.

Proposed activities:

1: Formulate a legal framework, including guidelines and Regulations to guide and support community-based conservation

GOR and RDB recognize the necessity and importance of involving community members of the neighbouring communities in the management of the parks or of natural resources outside the parks. However, a legal framework and/or official guidelines for such participation have not yet been created. Community participation is therefore conducted in a very ad hoc basis.

A lot of pressure is exerted on the parks due to low levels of living and poverty, which are highly pronounced in these areas. This makes conflicts with the local communities almost inevitable, and at the same time the cost of conservation for both the local communities and the park authorities rises. In order to achieve the objectives of community participation in park management, it is necessary to develop a binding legal framework that will facilitate the implementation of different aspects of community-based conservation and other initiatives. The Wildlife Law now in Parliament should provide guidance on how this to be achieved.

2: Establish and strengthen community institutions and institutional processes and build the capacity and knowledge to be effective partners in the management of the park and surrounding landscapes

Establishing and strengthening credible community institutions with formal and transparent processes for engaging them holds the key strong community partnership in park management and in conservation generally. Technical and managerial capacity of these institutions will be strengthened in order to make them more effective partners.

Community partnerships can be based on some existing structures or the creation of new ones that are more appropriate to the task. For example it has been proposed to create a GFR/GMNP Community Conservation Association which would coordinate all community activities.

The Association would be formally registered and have branches in the Sectors and cells neighbouring the park. Other formal and informal groups such as the School Ecoclubs will be affiliated to the Association.

An important consideration will be to negotiate and sign binding MOUs between the Association and Park Management which defines the roles, responsibilities and obligation of each party to the Agreement.

3: Develop and implement a conservation education and awareness Plan and strategy

To build and sustain a functional community knowledge base, there is a need to put in place an explicit conservation education and awareness strategy. The strategy will prioritize and focus educational activities for both youth and adult education, and to define specific messages and approaches for each audience group. The development of the strategy will include an initial analysis of the existing capacity of relevant groups and institutions towards which conservation and awareness raising activities will be targeted, with a view to determining the appropriate capacity building needs to be addressed in the Plan.

Appropriate means of delivery to various audience groups will be part of the plan. An important aim of the Plan will be to formulate specific conservation messages and approaches for different target groups.

4: Build capacity and support key conservation education and awareness facilitators in dissemination conservation messages and information

Capacity building support will be provided to the groups and institutions that are identified as priorities for conservation education and awareness activities. These are likely to include the ANICO or community conservation facilitator network, teachers responsible for school environmental clubs, leaders of youth and adult environmental clubs and committees. The Community Conservation Unit of the Park will organize training opportunities for these conservation education and awareness leaders, including workshops on conservation and environmental issues, and study visits to the park to examine specific conservation issues and threats.

5: Implement targeted conservation awareness campaigns

In addition to the support and capacity building of conservation education and awareness leaders working, the Conservation Department Unit will implement conservation awareness campaigns to disseminate specific conservation messages using a variety of different media, including community radios and newspapers. As a basis for these campaigns, the Unit will routinely identify the key conservation issues or events to be introduced to the local media, as well as a schedule for disseminating these messages.

In collaboration with partners, the Unit will develop and produce specific educational materials such as posters and brochures for dissemination through the various environmental clubs and groups and other forums. Park staff will also participate in appropriate local and national environmental awareness events, as well as organizing special events and competitions relating to conservation awareness-raising about GFR /GMNP.

6: Carry out conservation awareness and attitudinal surveys

A wide variety of activities will be undertaken to build a stronger partnership between the GFR/GMNP and its neighbours, and to gain their support for the conservation of the park. As part of these activities, it will be important to understand the impact of all these initiatives on the neighbouring community's knowledge of conservation, and attitudes towards the park, so that lessons learnt can be generated to inform future planning.

The Community Partnership Unit in partnership with appropriate partners and in conjunction with sector-level administrators will undertake a conservation awareness and attitude surveys around GFR/GMNP, to provide both qualitative and quantitative information on the level of community awareness of conservation issues, community attitudes towards the national park, and the trends in these parameters.

The frequency and timing of the surveys will depend on availability of resources, but should be conducted at least once in two years.

7: Participate in local government Joint Action Development Forums

Park management will make efforts to ensure that conservation issues and concerns are incorporated into local government planning at the sector and district level. This will ensure that in areas adjacent to the park take into account the conservation needs of the national park. One of the channels that GFR can use to pursue this agenda is through the district-level Joint Action Development Forums (JADFs).

The JADF forums are a key aspect of Rwanda's decentralization strategy, providing space where public private partnerships in implementing development can evolve and develop. They are part of local mechanism designed to improve service delivery and economic development at the local level, and to facilitate collaboration between local government, the private sector, and civil society.

They enhance the scope for non-governmental organizations to take up tasks and implement activities that complement government efforts is enhanced. JADF's are currently mainly active at the district level, although it is intended that they should be operate at the sector level as well. The participation of a wide cross section of stakeholders in development at the local level, including citizens groups, service providers, cooperatives, companies, NGOs, faith-based organizations, will enable GFR /GMNP messages to reach a very wide audience.

In addition, park staff will also be able to participate in the planning processes for Rutsiro (and other Districts).

8: Collaborate with key partners in enhancing the management of the Buffer Zone and the Sustainable Development Zone

GFR / GMNP have a legally established buffer zone - a variable-width strip of land around the park. As an initial activity, it will be important to review any existing buffer zone policies and regulatory frameworks, should they exist. This will be important for developing an understanding of how these policy and regulatory frameworks guide and influence management activities in the zone.

Based on the review of the buffer zone policy and regulatory framework, GFR/GMNP management and RDB will commence a dialogue with the District Administrations and the neighbouring communities to determine the optimal and appropriate land use and management options for the buffer zone that will help to achieve sustainable management of the park as well as community livelihoods.

Developing this understanding of land-use options may require additional technical inputs, which could potentially be secured through a technical workshop or study, or a combination of the two. The outcomes of these activities should ultimately be a set of management strategies and guidelines for the buffer zone that are agreed upon by all concerned parties.

It will also be important to put in place prescriptions on specific activities that are permitted and/or not allowed in the buffer zone, in order to preserve the zone's role as a buffer between the dense human settlement areas and the national park itself.

Rutsiro District is in the process of developing a District Sustainable Land-Use Plan. This would provide an opportunity to incorporate the selected management options for the buffer zone in to the District Plan.

9: Buffer Zone and the Sustainable Development Zone sustainably managed for production and forest protection.

Agroforestry techniques and other sustainable land uses will help restore the vegetation, and increase food productivity and security through multi-level production systems (multi-purpose trees, perennial and ground crops. The use of trees for ecosystem restoration and stabilization has become a critical strategy for attaining food and environmental security.

Tourism development activities and other income generating activities will be developed in the sustainable development zone in addition to natural resource management and crop production.

Objective 5.2: *Human-wildlife conflicts effectively managed, mitigated and reduced*

HWC has been defined as *“disagreements or contentions relating to destruction, loss of life or property and interference with rights of individuals or groups that are attributed directly or indirectly to wild animals”*.

Many households neighbouring GFR experience some form of human-wildlife conflicts, mainly in the form of aids and damage to their crops. In an area where communities are already struggling to achieve viable livelihoods, such wildlife damage may push community members even further into poverty. HWC can have serious consequences for the affected communities, as important resources that contribute to their livelihood are destroyed, property can be damaged, social systems disrupted and there may even be risks to human life.

Communities are often forced to retaliate by killing wildlife or engage in other vengeful activities such as arson, illegal logging, grazing of livestock within the national park, or otherwise oppose conservation efforts.

Establishing and implementing effective and transparent mechanisms and activities aimed at reducing and mitigating such human-wildlife conflicts are therefore a top priority in enabling communities to reduce their losses and costs, securing and improving community livelihoods and increase community support for the management of the park.

1: Develop a human-wildlife conflict management strategy

HWC can be reduced in a variety of ways. These include encouraging communities to grow crops that are resistant to crop raiding by wildlife, such as tea and by providing compensation to households that are impacted by crop raiding. GFR/GMNP will need to elaborate conflict management strategy that sets out the mechanisms and approaches for different kinds of conflict, and the specific circumstances in which they are to be applied. The strategy will be developed in collaboration with key partners, District Administrations and community institutions, either existing or to be established.

2: Support communities in establishing institutional structures

Significant success can be achieved by promoting and supporting the establishment of community structures for a variety of purposes, including HWC management and other community resource management issues. Such groups will be formally established and registered (at the District level) and recognized as representatives of the neighbouring communities. Community Conservation Department, in association with appropriate NGOs and sector-level administration will provide training and support to help establish these associations, so these groups can be able to play an important role in mitigating crop raiding.

3: Establish and Strengthen capacity of ANICOs to address HWC issues

ANICOs, or community conservation facilitators, will be appointed in different sectors adjacent to the park to carry out conservation awareness-raising campaigns among the local population. Although their role is voluntary, GFR will provide them with training and some limited support to make them more effective. As a direct liaison between the park management and community members at the grass roots level, ANICOs have a potentially important role to play in helping to solve community issues relating to

the park and conservation, such as human-wildlife conflict issues, as well as providing a mechanism through which key problems and issues can be brought to the attention of park managers.

4: Assist communities to establish alternative crops that mitigate HWC

One of the ways in which human-wildlife conflict issues can be addressed is by promoting the cultivation of crops that are not attractive to, or otherwise resistant to, raiding animals, including crops such as tea, tobacco, sisal, and chilli pepper. These crops can be planted as a barrier between the national park and areas where more edible food crops are being grown. In the areas where tea is already being grown, it is providing an effective barrier to crop-raiding; communities can also be encouraged to grow tea as an economically important cash crop.

However, consideration must be given to the fact that promoting a tea monoculture around the forest/park boundaries may, in the long-term be highly detrimental to species composition in the forest edges. It is therefore important that a diversity of animal resistant crops be promoted in the buffer areas.

As a first step, an assessment of potential crops that are resistant to crop raiding will be undertaken to identify crop species that can be tested around GFR. Selection will be based on regional experience, but also taking into account the preferences and traditional knowledge of the neighbouring communities themselves. It noted that similar assessments have already been undertaken for other national parks facing HWC problems in the region; GFR can learn and benefit from this experience.

AFH in collaboration with West Chester University are undertaking research to determine the maximum distance that chimps can move in search of food. It is within this range that crop raiding can take place, and can provide guidance on the distances within which alternative non-raided crops can be introduced.

5: Assist with implementation of new Compensation Law for GFR

Compensation schemes are required compensate households for wildlife damage to crops, property and humans when they do happen.

Experience in implementing such compensation schemes in other countries indicates that, the cost of these schemes can be extremely high, especially where there is substantial crop loss or loss of human life. Implementation also involves other costs such as verifying the amount of crop loss and complications in deciding what / who should be eligible for compensation. Compensation schemes can also be subject to corruption and other forms of abuse.

Rwanda government has already enacted a Compensation Law, and Wildlife Law is also on the way, which will include provisions for the establishment of mechanisms for compensating community members that suffer damage from wildlife straying out of the national parks.

Community awareness of the compensation process will need to be raised, and their rights, responsibilities and obligations within the compensation law clearly understood. It will be important to explain to the community that the long-term viability of the new compensation scheme will depend on the good faith of all the players.

Objective 5.3: Community livelihoods and sustainable resource use enhanced

The long-term sustainability and survival of GMNP (or any other park for that matter, will partly depend on its ability to generate benefits that contribute to improved livelihoods and well being of the

neighbouring communities. In this regard, it is important to recognize the dual aim in promoting such sustainable livelihood and resource use practices – 1) improving community livelihoods for the benefit of society, 2) while at the same time reducing pressures and threats to the parks biodiversity and habitats.

1: Assist communities to establish alternative crops that reduce use of park resources

The heavy community dependency on GFR resources, results in significant threats to its biodiversity and habitats from the illegal harvesting of park resources, including tree cutting, honey gathering and beekeeping, livestock grazing, and collection of firewood.

Neighbouring communities will be assisted in developing alternative resources in the buffer zone or in their own lands, so as to reduce dependency on park resources. With support of park staff and other stakeholders, key park resources that communities collect from the park will be identified and inventoried.

Communities will then be supported in developing suitable alternative resources outside the park. This may include supporting communities to adopt fuel-efficient stoves. With support of RAB and other research institutions, useful plants that can be propagated and grown by communities (e.g. bamboo) will be identified and propagation methods developed.

2: Assist communities to develop conservation based income-generating activities

The Park staff in collaboration with NGOs and local community organizations will identify and assess the potential for viability of various income generating activities. Those with highest potential for success will be supported. Business and financial management skills will be provided to the community in order to ensure the viability and success of selected enterprises. They will also be supported in value addition to their products and services as well as being linked to appropriate markets. Skills necessary to manage enterprises and market the products and services will be provided through training by park staff and partners.

3: Identify and support innovative community flagship enterprises

To support the development of community enterprises, it will be important to identify and facilitate the establishment of one or more flagship community enterprises such as an eco-lodge. Besides having the opportunity to produce significant community income and employment opportunities, such flagship initiatives have the potential to demonstrate to communities the positive benefits that conservation can benefit in a way that smaller income-generating schemes are not able to.

The potential opportunities for the establishment of such a large-scale community enterprise will be identified, and a feasibility study undertaken to determine the most viable one(s). RDB with appropriate partners will then develop a project proposal for the provision of support in establishing the scheme, for fund-raising with appropriate donors and agree on the investment and management structure for the project.

4: Establish and implement innovative funding strategies to support community conservation initiatives

Achieving success community based conservation initiatives (e.g. restoration of water catchments outside GMNP) and with the income-generating activities will require the injection of funds and other resources which the communities may be lacking. Fund-raising strategies and mechanisms will be required for supporting the initiatives and activities.

RDB will investigate the possibility of developing additional funding mechanisms through which potential visitors, NGOs and donors can contribute to community initiatives. One possible mechanism for channelling resources to community conservation initiatives will be through the national Fund for Environment and Climate Change (FORERWA), which is likely to include a window in support of such initiatives.

Objective 5.4: RDB Revenue Sharing Programme Reviewed and Aligned to Real Community Needs

The Revenue Sharing Programme is a crucial mechanism for achieving the long-term goals of sustainable park management. Launched in 2005, the overall goal of the Revenue Sharing Programme as set out in the Tourism Revenue Sharing Provisional Policy and Guidelines is as follows: *"To ensure sustainable conservation of the National Parks with the participation of the neighbouring communities by contributing to the improvement of their living conditions"*

The total amount of revenue sharing is currently established as 5% of the total annual gross tourism revenues earned by RDB, distributed according to the ratio: 40% to Volcanoes National Park, 30% to Nyungwe National Park, and 30% to Akagera National Park. These proportions will have to be reviewed in order to include GMNP in the Revenue Sharing Programme.

1: Implement key recommendations of revenue sharing review

The Revenue Sharing Programme has been in place since 2005, giving more than six years of practical experience of field implementation of the programme. It is therefore timely to evaluate it, with a view to applying the lessons learnt for its future implementation.

Some of the key issues that need to be reviewed include:

- The new National Park will need to be incorporated into the scheme;
- The mechanism for selecting RS projects and project areas need to be revised. In particular, there needs to be greater community consultation in the identification of projects to be implemented
- Interventions need to target women as well as the poorest and most vulnerable people who are most dependent on park resources
- Revenue sharing should be linked to the community performance in conservation as well as at reducing threats to the park. It should cease being seen simply as a cash hand-out;
- There is a need to increase the percentage and amount revenue shared with communities (say increase from 5 to 15%)

2: Strengthen the role and capacity of communities in developing and selecting revenue sharing activities

While the success of the Revenue Sharing Programme may be mixed, concern has often been expressed that the current process used to identify and select projects tends to favour infrastructure projects that benefit the district rather than the community members that may be most directly impacted by the park. This does mean that the Programme fails to address the aims of reducing illegal activities by providing alternatives for park resources, and reducing human wildlife conflicts.

It will therefore be vital to re-orientate the focus of revenue sharing towards more sustainable natural resource management and conflict reduction priorities. This means that there will need to be a greater participation of grassroots community members in the identification and implementation projects.

It is especially important that future efforts will be refocused to target vulnerable groups living around GFR/GMNP, who are most dependent on the use of its resources, and are also especially impacted by human-wildlife conflicts.

Objective 5.5: *Develop and Pilot Incentive Based Mechanisms*

“If it pays, it stays” is an old catch-phrase that has been used to summarize the importance of generating incentives for local communities, private sector organizations, or even government agencies to invest in biodiversity conservation.

Incentive mechanisms are increasingly being tried out in developing countries to address the conservation of biodiversity and provision of ecosystem services – that is services that ecosystems provide. The incentives need realigning to ensure development is based on the sustainable use of resources.

1: Pilot potential PES Initiatives

Payments for environmental service schemes can be used to pay natural resource users to conserve natural resources or manage them more sustainably. A good example is to assess the carbon stocks of community tree plantations or perennial crops and paying them for the carbon sequestration services.

‘Biodiversity offsets’ which seek to compensate communities for the unavoidable negative impacts of development projects on biodiversity at one site, for example from establishing a mine or building a road, through conservation actions aimed at restoring or reducing threats to biodiversity at another site.

2: Develop and pilot innovative incentive-based approaches that advance community contribution to conservation

Conservation of biodiversity-rich habitats presents a challenge to nations wishing to develop their natural resources for economic ends. Economic activities that offer the prospect of tangible economic benefits but are often implemented in ways that are environmentally destructive. To address this problem, CI has been working to develop the concept of a “Conservation Incentive Agreement, (CA)” a novel approach that seeks to directly reconcile resource protection with development.

A CA directly compensates local stakeholders and relevant government bodies for conservation services. National resource authorities and local resource users forego destructive exploitation of areas of habitat in return for a reliable flow of structured benefits, under a negotiated agreement. The agreement specifies an explicit *quid-pro-quo* of regularly scheduled compensation in return for conservation performance based on measurable indicators.

Once an agreement is deemed suitable and effective by both implementers and resource owners, emphasis shifts to ensuring long-term financial and managerial sustainability, based on strategies defined during the agreement design and negotiation phases.

The CA tool will be piloted and implemented in several (3 – 5) sites around GFR/GMNP. Experience and lessons learned will be used to upscale the use of the tool in other sites (including other NP) as well as incorporate it in the Revenue (Benefit) Sharing Policy.

The CA approach holds substantial potential for promoting and supporting conservation-compatible and sustainable natural resource use practices and income-generating activities around the park, and providing direct community benefits.

Other potential approaches that may be developed and piloted include biodiversity offsets and conservation easements.

3: Assess the social implications of the rules set at international, and/or national and local levels

A better understanding of the social implications of the rules set at international, and/or national and local levels in order to better design these mechanisms in future is needed. To address this evidence will be gathered on the efficiency, effectiveness and social and environmental impacts of incentive or compensation mechanisms. This evidence will be used to inform the choice and design of incentive mechanisms so that they benefit the poor and most vulnerable groups within relevant communities.

There is also an explicit assumption that reducing the rate of biodiversity loss can help in efforts to tackle global poverty. But the evidence for this assumption is surprisingly weak. An evidence base will be built on this link, identify knowledge gaps and make evidence more widely available.

Objective 5.6: Establish Conservation Partnerships at national regional and international levels

Partnerships established at national, regional and international levels have great potential for contributing to the objectives of GFR/GMNP. Contributions can be through mobilization of resources and provision of technical support and advice. Volunteers can also contribute their own time and skills to undertake specific activities within the Park.

Proposed activities include:

1. Establish national level partnerships

There are several categories of national stakeholders who can be actively engaged to provide financial, technical and other support to GMNP:

National Institutions: Institutions which have a stake in conservation and in GMNP can be encouraged to provide financial, technical support to the park. These include REMA, RNRA, WASAC, University of Rwanda, RAB, and others.

Private Sector: Promoting private sector investment in tourism products and services as well as in other areas such as park infrastructure.

Some big companies in Rwanda are drawing important benefits from the GFR. For example Bralirwa draws its water from one of the streams originating from GMNP. Such companies can be encouraged to make some modest annual contribution to the management of the park, or fund specific activities of their choice.

Volunteers: One of the Objectives of The National Wildlife Policy 2013, (Objective 4.3) is to develop and grow conservation volunteerism and the opportunities to provide additional private resources for the PAs and the added value.

This would include developing a volunteer outreach program, to reach various stakeholder groups and associations such as "Friends of Gishwati" who can support the park in various ways, such donations money or time to undertake specific activities. The Volunteers can be young people who are building their careers or older citizens looking for active and productive pursuits.

2. Establish regional level partnerships

Potential regional partners include IGCP, Lake Victoria Basin Commission (of the EAC), the Nile Basin Initiative - the proposed Congo Basin Initiative and others that can be identified in future.

3. *Establish international level partnerships:*

Potential International Partners include the Great Ape Trust (already on board), WCS, WWF, MacArthur Foundation, UNEP, UNDP, GEF and CI. Several others can be identified and engaged in future.

Chapter 6: Tourism Development and Management Programme

Introduction

The development for the new NP is vital to the long-term conservation of the park. Tourism has the potential to generate significant economic returns to meet the costs of park management and, at the same time contribute to the socio-economic development of the country and the local communities. In particular, contributing to local development and livelihoods would increase the support of neighbouring communities for the conservation of the park.

The GFR/GMNP has great potential for tourism because the park offers a range of different visitor attractions and experience that are different, and complement those of the other NPs. As a new and relatively small and fragile national park, GFR/ GMNP, currently has no tourism development to speak of, save for a few hikers who occasionally visit the forest. Tourism development will therefore have to start from scratch. This has its advantage that we can learn from the experience of other parks and do it right; this is especially so in identifying niche markets which tourism in GFR/GMNP could target.

The focus of tourism development will be to develop diverse visitor attractions and activities inside and around the new NP. In the case of GFR/GMNP there is considerable scope for building a new premium ecotourism product inside the national park, based on the park's outstanding scenery and habits, the excellent opportunities for primate and bird watching. There are also exciting opportunities for hiking and other adventure activities linked to the already existing trail network, which could be expanded in futures.

These comparative advantages of GFR/GMNP have inspired the formulation of the purpose of the Tourism Development and Management Programme, which states: "***GFR/GMNP is established as an additional and exciting ecotourism destination in Rwanda that generates optimal economic benefits to the park, neighbouring communities and the nation***".

The main philosophy behind this plan is the diversification of tourist products and associated services (infrastructure and activities) in order to offer to tourists a wide range of experiences and accommodation facilities. Because of the small size of the GFR/GMNP, the key concept is to develop tourist facilities (and some attractions) outside the park itself. The private sector and local communities will therefore be encouraged to develop tourist initiatives outside the park.

In this regards, Rutsiro District has already a wide range of attractions with potential for tourism development. These sites include cultural and religious areas, cultural exhibitions, water sports on Lake Kivu, agricultural tourism as well as nature walks, local markets and handicrafts exhibitions within the local communities. The District will also sometimes be called upon to provide land for investors for the construction of lodges and other facilities. RDB and Park management will therefore need to work closely and coordinate with District Administrations in order to ensure good linkage and consistency in tourism development.

Development of environmentally, socially and economically sustainable tourism will be based on, and guided by the following principles:

- Tourism development should be carried out in a way that doesn't compromise the park's outstanding ecological and biodiversity values
- The adoption of sustainable tourism development style which is linked to strong environmental and social values in the region.
- To position GFR/GMNP as an alternative and exciting ecotourism destination that is distinct, but complements other attractions outside the park,
- Contribute to the conservation of biodiversity by balancing tourism with protecting the forest's sensitive and diverse plant and animal life
- Addressing the economic needs of local communities that may be linked to tourism in and around the park
- Establish partnerships with both communities and investors in developing the tourism products and services (public-private partnerships)
- To achieve the desired growth in the tourism product, it will be vital to create an enabling and conducive environment for investors

These objectives and activities of the Tourism Programme are based on the foregoing principles. Four management objectives have been defined for the Tourism Management & Development Programme aimed at achieving the Programme Purpose outlined above, as follows:

Objective 6.1: Tourism infrastructure and facilities developed inside and outside the Park.

Objective 6.2: Capacity and systems for managing tourism products and services developed

Objective 6.3: Products and Services developed, continually improved and promoted to provide diversified visitor experience

Objective 6.4: The tourism value chain for communities living around GFR developed and promoted

Objective 6.5: Management of tourism products and services strengthened

Objective 6.1: *Tourism infrastructure and facilities developed inside and outside the Park.*

As a new NP the main focus of this Management Plan in the first three years is the provision of infrastructure and other facilities that are vital for the development of tourism. As already stated, most of the infrastructure will have to be built outside the park, either on government land or land acquired from individual land owners on the willing-buyer willing-seller basis. Clear distinction is therefore made between infrastructure to be provided **inside** the park and those to be provided **outside** the GFR.

The proposed actions under this objective that have been developed to address these issues, and to ensure that tourism development is supported by adequate and appropriate infrastructure and other facilities.

Visitor services will stimulate park use by people and also direct these uses. Wherever possible, therefore, park infrastructure and visitor services should help to enhance visitor understanding of key park themes and values. Good design makes visitors more comfortable and responsive to the special place that they are visiting. Visitors who feel they are well looked after will value the park more and are likely to assist in its protection. An increasing emphasis on a customer focus has developed in recent decades. Park visitors' needs are now more carefully investigated through planning and research, and monitored through comments cards and satisfaction surveys. Indeed, a mark of a well-managed protected area is that the planning of the infrastructure and services for visitors is based on an understanding of the needs of existing and potential users as well the need to maintain the ecological integrity.

The following activities are proposed to achieve this objective:

1: Establish three (3) Ranger Posts at designated sites with adequate Rangers to provide security to tourists

2: Maintain existing trails and establish new ones as necessary

3: Establish a number of camp sites and expand as necessary. Two potential sites have been identified and mapped; additional ones will be identified and developed in future

4: Design, map and construct access roads and maintain existing ones to facilitate access for visitors, patrolling etc.

5: Identify and map potential areas for tourism lodges and other facilities in the Sustainable Development Zone; this could be on private or public land

6: Facilitate acquisition of land, construction permits, business licences and EIA certificates.

7: Establish a framework to facilitate and guide the development of public-private partnerships for the purpose of mobilizing investment in tourism.

This will be closely linked to the creation of a conducive business environment that promotes private sector interest and investment in new tourism infrastructure and activities in the GFR.

Objective 6.2: Capacity and systems for managing tourism products and services developed

The main focus of this Objective is to build ecotourism products and services through the development of new visitor attractions and activities in and around the park. The activities that have been proposed to address these issues are as follows:

1: In consultation with stakeholders carry out a comprehensive review of Potential Tourism Products and Services and Draw up a Tourism Development Plan as a basis for future tourism Development

The *Tourism Plan* will include a tourism zoning plan for the park, proposals for a variety of potential ecotourism products and services in and around the park.

An important aspect that will also need to be addressed as part of tourism zoning plan is the need to establish “limits of use” for tourism, aimed at ensuring that the protection of the outstanding ecological and biodiversity values and ensuring optimal visitor satisfaction, are achieved in a balanced way.

Another important aspect of the Tourism Plan will be to create linkages between the proposed tourism infrastructure and product investments and community-based tourism products in the area surrounding the Park. It will be important that the Plan identifies the potential community tourism products neighbouring each development site, and urging potential investors to link with and support those community tourism initiatives.

2: Build the capacity of GFR /GMNP Staff to manage different aspects of tourism (visitor care, tracking, guiding, resource interpretation etc)

A Tourism Management Unit will be established with key staff, including Tourism Manager, reception staff, Guides and trackers. These staff will be provided with appropriate training.

3: Promote investment in the development of Tourism around GFR:

Based on the priorities identified in the Tourism Plan, undertake a preliminary assessment and identification of potential investment opportunities, and start engaging with the most promising investors.

4: Develop a Tourism Prospectus for GFR:

This will provide summary information on all of the proposed tourism development sites, their attractions and locations, the visitor activities that are allowed / not allowed possible in the vicinity of the site, the concession terms and any incentives that will be provided to investors, and other relevant information. The Prospectus, once finalized, should be disseminated widely to inform investors and visitors of the new opportunities available in GFR/GMNP.

5: Develop public-private partnerships to develop and manage other tourism facilities and visitor attractions around GFR.

The opportunities for and feasibility of such private sector involvement in delivering visitor facilities and services will be investigated, and proposals to achieve them made. An important consideration will be that all tourism developments will need to be subject to strict environmental guidelines to ensure the protection of the parks ecology as well as the safety of visitors.

6: Establish visitor attractions focusing on GFR biodiversity and ecosystems

GFR/GMNP provides exceptional opportunities to explore and enjoy its rich biodiversity and endemism. Besides its primate species, the park is also rich in avian diversity, with 130 species of birds some of them endemic to the Albertine Rift.

There is a therefore good potential to develop specific visitor attractions focusing on the exceptional landscapes, biodiversity and endemism, including small mammals, trees and shrubs, birds, butterflies, and other species. Under Action 1.4, the opportunities to develop additional biodiversity-related visitor attractions and activities will be explored, and specific visitor activities will be designed and developed, in association with specialist tourism companies as appropriate. Development of these attractions will be supported by necessary infrastructure including building new trails and campsites.

7: Develop a tourism circuit linking GFR/GMNP with VNP and NNP.

One of the reasons that the GMNP has great tourism potential is that it is located near Lake Kivu. It is also located in between two other NPs. The main road connecting Kamembe on the southern end of Lake Kivu with Gisenyi through Kibuye is in the process of being upgraded, and once complete, this will greatly improve access to the GFR/GMNP from both NNP and VNP. It will then be possible for visitors to travel conveniently and visit the three parks as part of a circuit. The airports at Kamembe and Gisenyi as well as airstrip at Musanze will make the travel much faster and easier.

Objective 6.3: Products and Services developed, continually improved and promoted to provide diversified visitor experience

Alongside the tourism and service development, it will also be important to continually improve the quality of these offerings in order to ensure growing visitor experience and satisfaction and succeed in establishing GFR as leading ecotourism and adventure destination.

1: Develop and Implement Bird Watching Action Plan

GFR/GMNP offers exciting opportunities to watch a wide variety of Albertine Rift endemic bird species coupled with the hilly terrain which allows good views of the forest canopy. With over two hundred bird species, is an ideal place for bird watching. In order to further develop GFR as a bird-watching destination, RDB, Park Management and Bird Watch Specialists should develop a Bird Watching Action Plan, which will make concrete of proposals for improving guiding services; developing new bird watching trails and signage, and designing new maps and brochures. These will be used for promoting GFR as a Great Birders Destination.

2: Develop and introduce chimp tracking as a specific activity in GFR

The Chimps are the most iconic species in GFR from a biological and economic viewpoints; tracking can be a great attraction to tourism and should be vigorously developed. The development of chimp tourism can represent a unique conservation tool for generating revenues that are not only indispensable for the survival of the species but also for the demonstration of its role in local and national development. The imperative need for conservation must however predominate in any circumstances. A particular attention will continue to be paid to chimp tourism programme by ensuring that visitation rules are developed and strictly enforced.

3: Develop a competitive pricing scheme and booking system

A competitive pricing scheme for the products and services on offer and an efficient booking system will need to develop to manage tourism in the new NP. As a new park and the need to encourage and build a loyal visitor base the prices will need to be competitive as an incentive. One of the reasons given by tourism stakeholders for the low uptake of some visitor activities in other parks is the high charges levied on these activities. The pricing scheme will need to be simple to administer and be developed in consultation with tourism stakeholders.

The complexity and high tariffs would undermine the overall attractiveness of the GFR as a tourism destination and hamper its development efforts. At the initial stages, the development of the primary aim should be to increase visitor volumes and build the reputation of the GFR/GMNP as a new and exciting ecotourism destination.

Alongside the pricing scheme, there will also be need to improve on the booking and payment systems, with the aim of making them more visitor friendly and easier to manage. It will be most cost effective and efficient to unify and integrate booking systems into a single structure for all the national parks.

4: Develop and maintain appropriate visitor facilities

GFR/GMNP visitation will be greatly enhanced by the development of facilities such as Tourism Resource Centre, which will: Visitor Reception, Interpretation Centre, and other visitor amenities and appropriate information resources. . The location for these facilities will be determined by park management in consultation with tourism stakeholders.

5: Establish and implement an effective and efficient strategy of resource interpretation and information dissemination

Basically, interpretation is the translation of information and scientific data on the environment, ecosystems and species, so as to provide simple explanations and comprehensible ideas to different targeted audiences.

Parks can utilize objects, observations and field experience as well as mass media equipment to inform/educate the public on the value of environment and its components. This would potentially contribute and encourage better understanding of the functioning and relations within ecosystems, and also to promote conservation and appreciation of nature. The content of the message should be packaged to suit specific audience such as local tourists and international tourists who have different expectations. The contents of the messages as well as the channels for dissemination will depend on the target audience.

The interpretation is achieved using various means. Park Guides and Trackers are among the best channels of information and ensure that messages of conservation are best transmitted at site level. Other approaches may include: posters, brochures, photographs, exhibitions and information centres at the parks.

6: Develop and disseminate Park information and marketing materials

An important aspect of delivering a premium tourism products and services is to ensure that visitors are provided with high quality information materials about the park itself, as well as the various visitor attractions and activities on offer. For example, visitors need to be provided with information resources of the park, specific visitor activities and attractions, including what the visitors can expect to see, where it is located, what is involved in undertaking the activity (e.g. strenuous or hilly trails) and how much time is needed. Providing visitors with appropriate information regarding chimp trekking, including the likelihood of seeing chimps and how long it takes, will be especially important, (chimps will probably be the leading selling point for GFR tourism). Visitor information on the transport options for getting to and around the GFR will also be needed for those visitors who use public means to travel to the park.

An important activity to promote GFR and its attractions will be RDB HQ's participation in key international travel events, which provide excellent opportunities to showcase a lesser-known destination GFR/GMNP to a wide range of international audience.

In addition to the dissemination of visitor information in print and through the Internet, there are also opportunities to carry out interactive visitor awareness events, such as talks and presentations by researchers and Park Staff on different aspects of the exceptional biodiversity and habitats.

As resources become available, it may be important to publish a regular e-newsletter to provide news about the latest developments. Its distribution will involve the establishment of a distribution database, including past visitors, international and local tour operators.

7: Market and Promote GFR/GMNP as a new tourism Destination:

It will be important to market and promote the new destination, its products and services. RDB in consultation with tourism stakeholders will agree on the main components which will then be developed into a Marketing Plan to guide future marketing and promotion activities.

Objective 6.4: Community-Based Tourism for communities living around GFR/GMNP developed and promoted

Building and strengthening of community involvement and contribution to the delivery of GFR tourism products and services is an important objective of the this MP. While community participation in the tourism development in other parks remains relatively weak, its importance cannot however be gainsaid. Increased community involvement in tourism development around GFR will not only bolster the reputation and attractiveness of the tourism product; it will also provide stronger means by which adjacent communities can gain positive economic benefits from the park. This is crucial to strengthening community support for conservation. Community-based tourism is also an important mechanism for promoting development that is compatible with conservation and sustainable livelihood improvements. The promotion and support of community-based tourism initiatives is therefore given high priority in this management plan.

1: Provide support and training to communities in developing viable ecotourism enterprises and in managing them effectively.

One major handicap in developing viable community ecotourism enterprises is that communities lack the required knowledge and skills to both develop and manage them effectively. Specialist skills are needed in the development and delivery of products and services, as well as the business skills that are essential to running a viable and profitable enterprise. Providing communities with business management skills in running enterprises is an especially important aspect for the success of these tourism ventures. The Park staff and their partners will provide and/or facilitate the required support and capacity building needed to enable individuals or cooperatives to establish and manage viable ecotourism enterprises.

Opportunities for developing community-private sector partnerships and joint ventures in the delivery of ecotourism products will also be investigated and promoted as necessary.

Private enterprises will also be encouraged to provide employment to community members, as these opportunities will increase as tourism around GFR develops. Investors and Park Management will identify and develop ways of ensuring that community members are able to gain access to these emerging employment opportunities, for both skilled and unskilled workers. This may involve providing opportunities for local communities to undergo appropriate training, as well as developing programmes to enable community members to work as trainees and interns various tourism-related capacities.

2: Identify and mobilize funding sources for developing community ecotourism initiatives

While opportunities for community enterprises will exist and expand over time, community will be constrained by lack of capital for investment. The community ecotourism enterprises that will be promoted and supported under this objective are likely to need significant capital for which they will require substantial assistance. RDB and its partners will help identify potential sources of funds for the development of community tourism enterprises and help mobilize them.

3: Assist and facilitate as necessary, the planning of community-based tourism infrastructures and services:

Technical assistance will be provided to communities in the planning and development of infrastructure and facilities for community based tourism. Particular assistance will be provided to ensure that community-based tourism development activities correspond to the needs and required standards. RDB and Park management will need to support various community-based tourism initiatives, not only at the conception and planning a phases but also in their operations and management.

4: Provide support and advisory services to neighbouring community entrepreneurs on operation, management and maintenance of tourist products and services

The GFR /GMNP its partners will offer advisory and other appropriate support services in order to make sure that community -based tourism operations around the park are in conformity to required quality, standards and strategies. This support will put emphasis on the mobilization not only Park Staff but also partner NGOs such as FHA.

Objective 6.5: Management systems for tourism products and services developed and strengthened

This Programme sets out an ambitious plan for the developing and expanding tourism around GFR/GMNP, through the development and delivery of new tourism products and services. To ensure that tourism management keeps pace with these anticipated developments, it will be essential that efficient tourism management and administration systems are established and developed. This will ensure that the tourism products and services are effectively and efficiently delivered as they are developed, with minimal impacts on the park's natural environment.

It will also be vital to ensure that tourist products and services are developed and rendered according to the highest standards that are expected and acceptable to the regional and international tourist markets.

1: Recruit and appoint competent staff and enhance their capacity of to manage tourism operations

As tourism products and services are developed, it will be especially essential that competent staff are recruited, especially those staff that interact with visitors, such as tour guides, community guides, and park guides. With regard the recruitment of new staff, it will be especially important that efforts are made to enhance recruitment standards so that their calibre is adequate to meet the required level of visitor services. RDB and tourism stakeholders will need to consider the development and of professional and tracking guide standards, and the provision of the necessary training to ensure that staff meets these standards.

As a basis for undertaking the training, it will be necessary to identify the key training needs of the concerned staff and to work out a training plan for the provision of required skills through *ex situ* or *in situ* training as appropriate. Some of the key training aspects may include: hospitality and customer care; nature interpretation, including animal, bird and plant identification; tracking and guiding skills; and first aid training.

2: Develop and Implement Tourism Regulations

Increasing numbers of visitors and an expanding tourism activities and attractions will increase the pressures on the park's biodiversity and habitats. Careful management is therefore required to ensure that expansion of tourism will not undermine the quality and reputation of GFR tourism destination or

of its tourism products. Park staff in collaboration with RDB and tourism industry stakeholders will develop tourism regulations that are adequate to cope with current and future tourism expansion and increased visitor numbers. This will include developing a Visitor Code of Conduct as well as limits of acceptable use on tourism development and visitor use of key attractions

Once the tourism regulations have been developed and approved, it will be necessary to disseminate them widely to ensure that all concerned are aware of them; especially the tourism industry stakeholders, visitors, and tourism staff such as guides and trackers.

3: Develop and implement a monitoring programme designed to assess the environmental and tourism product impacts of the new tourism developments.

Adapting management to changed circumstances and needs is an important consideration in the effective delivery of tourism products and services in the future, and in minimizing negative environmental and social impacts. Monitoring is therefore essential in being able to track changes in needs and trends. Establishing a Monitoring System will require a comprehensive and systematic collection and analysis of tourism information. A simple framework for tourism monitoring will be developed, including the establishment of a database on key tourism parameters such as the number and category of visitors, method of arrival, length of stay, and activities undertaken. The database will allow the regular analysis of the key trends and needs of visitors and inform a review of the products and services and their delivery.

Alongside developing an understanding of tourism and visitor statistics, and of visitor satisfaction, it will also be important to monitor the impact of tourism on the parks resources, and on community livelihoods. Limits of Acceptable Change approach applied to different habitats; a series of indicators with associated thresholds of key environmental and social parameters likely to be impacted by tourism will be established, and thereafter regularly monitored to ensure that the impacts of tourism on the environment remains within acceptable limits.

4: Establish tourist safety and emergency response Measures

The dense forests and rugged terrain make for a challenging and hazardous environment for both visitors and staff. Moreover, there are significant dangers inherent in close proximity to wild animals in a forest environment, as well as from landslides, particularly following heavy precipitation in areas impacted by deforestation.

All these potential dangers, underscore the crucial importance of establishing safety and emergency response measures which set out actions for fast response to emergencies, as well as standardized protocols and procedures for dealing with specific health and safety hazards. The GFR /GMNP staff in collaboration with District Administrations will develop such a plan which will also specify the roles of various actors. It may also be necessary to sign MoUs with healthcare facilities and security agencies that can be called upon at a time of need.

Chapter 7: Park Operations Programme

Introduction

The Park Operations Programme deals with construction and maintenance of infrastructure for the new NP, as well as establishing management systems – including law enforcement, human resources management, administration and finance, equipment, and stakeholder collaboration and coordination mechanisms. The infrastructure and management systems are critical to the effective and efficient management of the new national park, as well as to the successful delivery of the other programmes set out in this management plan.

It is obvious that the new National Park cannot be effectively managed and conserved if it does not have the required human resources, infrastructure and equipment. Also, considering the high levels of threats that the park is facing, as well as the likelihood that these threats will likely intensify in future, it will be especially important to ensure that the law enforcement infrastructure and personnel are put in place as early as possible and continuously improved and strengthened.

The Park Operations Programme aims to:

- Develop and maintain basic infrastructure including the construction of park and other offices and facilities and construction and improvement of access roads
- Establish and strengthen park monitoring, patrolling and law enforcement operations
- Allocate and prudently manage financial, technical and human resources,
- Provide adequate and appropriate office and field equipment in line with priority management needs
- Establish effective monitoring and communication systems for detecting, reporting and responding problems and emergencies
- Provide and maintain technical, human as well as financial) required for the effective implementation park programs.

The Purpose of the GFR / GMNP Park Operations Programme as defined by the Technical Planning Team is to: ***Establish and implement an effective, well resourced and participatory management systems for GFR***

Three management objectives have been proposed to achieve this Purpose; these are:

Objective 7.1: *Appropriate and adequate infrastructure planned, designed and constructed*

Objective 7.2: *Law enforcement operations established and strengthened*

Objective 7.3: *Human and technical resources to match management needs provided and deployed*

Proposed Activities

Objective 7.1: Appropriate and adequate infrastructure planned, designed and constructed

The GFR/GMNP has no infrastructure has ever constructed there since there has not been any management presence in the forest reserve. Everything from Park Offices to access roads have to be built almost from scratch, which will require a substantial investment outlay over the next 3 years and beyond.

Infrastructure is a necessary part of the development and monitoring of the national park, but it can also have devastating impacts on the environment. The roads may fragment habitats or interfere with wildlife movement. Environmental concerns must therefore always be put into consideration during the design, planning and construction of infrastructure projects. This should include examining innovative ways reduce environmental impact and protecting sensitive habitat that may be irrevocably damaged by these projects.

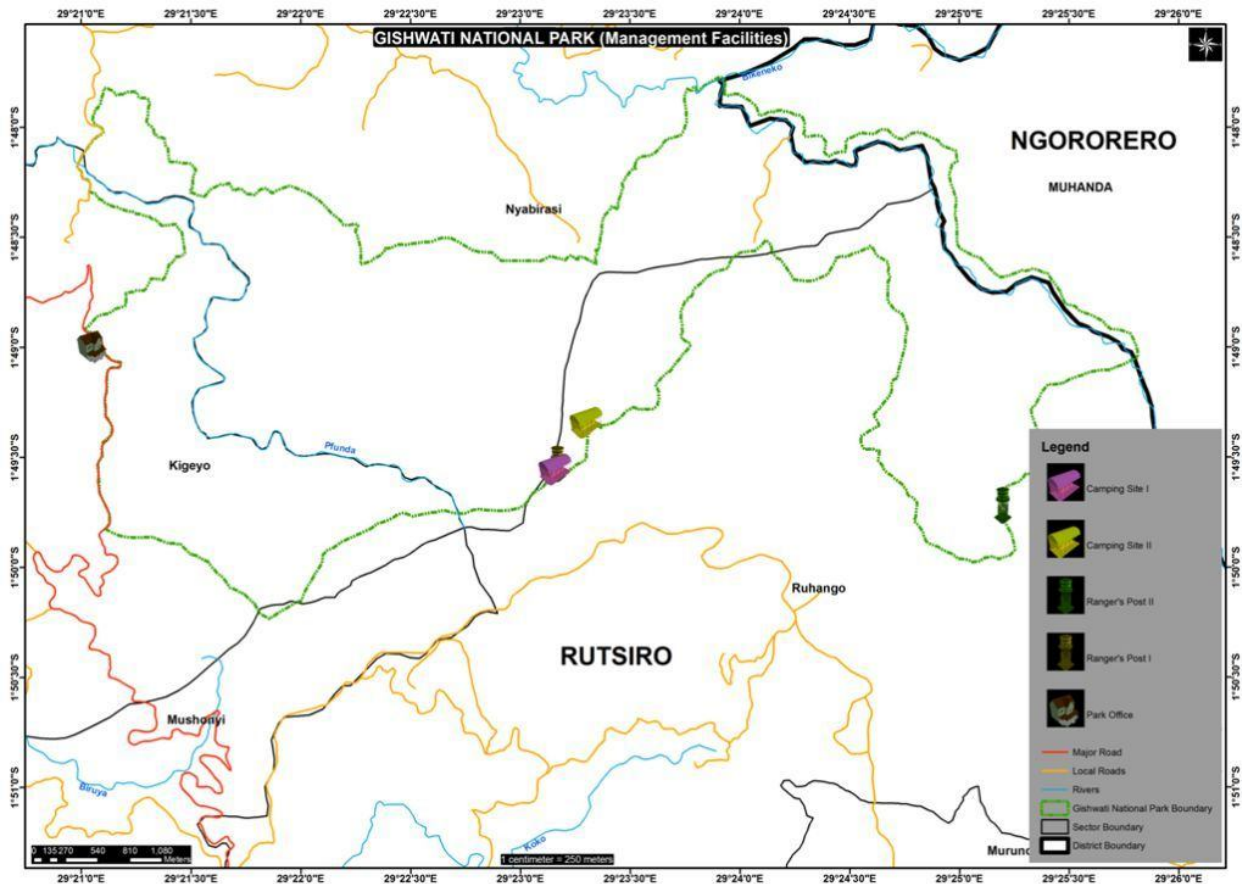


Figure 6: Location of Proposed Park Infrastructure

The locations of some key park infrastructures such as park offices, ranger posts and camp sites have been provisionally identified, as shown in Map 7.1 above.

The proposed activities to achieve this objective include:

- 1: Carry out a preliminary assessment of required infrastructure and develop an implementation and financing plan,
- 2: Design and construct Park Offices and other buildings (visitor reception and information centre etc)
- 3: Equip the offices with appropriate and adequate equipment to make them functional
- 4: Design and construct a minimum of staff housing and supporting facilities (majority of staff should be facilitated to hire accommodation outside the park)

Objective 7.2: Law enforcement operations strengthened

Considering the threats that the new NP faces, effective law enforcement operations to deter illegal activities and encroachment on the park will be urgently required. Law enforcement must be based on strict application of law as well as community goodwill and support. It is rather a paradox that, in the past, Rwanda had no Park Management Law to enforce. What has been called “Law Enforcement” were a set of measures, which have presumably been beneficial, but lacked a Law to back them up. Presumably, a Draft Wildlife Law is now before Parliament; when passed, it will go a long way in addressing this anomaly.

In addition, to establish an effective, Law enforcement operations in the new NP, competent and well trained Rangers will need to be recruited and deployed there. They will also need to be provided with appropriate infrastructure (especially patrol posts), and equipment (especially communication equipment), and training in order to improve the quality of patrol reporting.

1: Establish and strengthen capacity of law enforcement Unit

A Law Enforcement Unit will need to be established and built from scratch and trained to apply a variety of patrolling techniques to meet the needs of the Park.

Considering that illegal activities might intensify in future, it is vital that the unit is established and equipped and should literally hit the ground running. Its capacity will need to be progressively strengthened to keep pace with the growing threat of illegal activities, and also to ensure that all parts of new NP are adequately covered and patrolled.

2: Recruit competent Rangers and deploy them urgently to GFR/GMNP

An adequate number of Park Rangers will need to be recruited, trained and deployed. RDB has already put out an advert for 100 Park Rangers; some of them will presumably be deployed in GFR/GMNP. It will, however be necessary to balance skills and experience needs by posting some already serving rangers to GFR/GMNP to serve as mentors and trainers for the new ones.

The Park Rangers will be exposed to ongoing training, through the provision of induction training for new recruits as well as refresher courses for those already in the service. In service training will be provided by law enforcement staff, or by instructors brought in for the purpose. Ex situ training programmes will be provided by appropriate law enforcement training facilities both in Rwanda and in neighbouring countries; (e.g. Pasiyasi College in Tanzania, and Manyani Wildlife Training Centre in Kenya).

3: Provide adequate infrastructure, equipment and field materials for Park Rangers

In order to offer efficient and performance in patrolling and protection for the park the Rangers need to be provided with adequate infrastructure and equipment, as follows:

- Construct and equip three Ranger Posts on the designated locations
- Provision of transport, including at least one vehicle; motor cycles and bicycles;
- Provision of quality uniforms and other necessary gear such as GPS, binoculars, guns and ammunition
 - Tents each and camping equipment and materials

4: Strengthen monitoring of illegal activities to guide law enforcement efforts

The newly developed SMART monitoring system will be introduced and the Rangers trained in its use in data collection, synthesis and analysis. The data will be vital for the targeting of law enforcement patrols and effort within the park. The data are also crucial for guiding other management activities including community partnership activities, tourism activities, and ecological management activities.

There will also be need use the data to understand the trends and the linkages between illegal activities and the underlying drivers of these activities. Developing a greater understanding of the drivers of illegal activities will be important in influencing the adapting law enforcement activities to those trends.

5: Improve collaboration between GFR/GMNP and other law enforcement entities in Rutsiro District

Law enforcement efforts will only fully succeed if there is effective collaboration between GFR/GMNP and other law enforcement agencies in the District. Offenders need to receive punishment to match the offence they have committed; if the penalty is less than the benefits they gain from their illegal activities, then the illegal activities are likely to continue. For this reason, the enactment of the Wildlife Law and its effective enforcement through the prosecution process is vital to the success of park law enforcement efforts. This will require improved collaboration between GFR/GMNP and the law enforcement and prosecution services.

In this regard, without a Wildlife Law that defines various categories of offences and the matching penalties, the effectiveness of the prosecution of wildlife crimes will remain poor, and offenders frequently will continue to be either released without charge because of deficiencies in the prosecution case, or are let off with minimal penalties.

6: Strengthen intelligence-gathering mechanisms involving local communities

Intelligence gathering is a vital dimension of successful and efficient protected area law enforcement operations. An effective intelligence system will PA managers with advanced warning of illegal activities before they occur, and can also help pinpoint where these activities are going to occur..

Community members can be a vital source of intelligence information because poachers and other illegal resource users live and operate within the community. The Law Enforcement Unit in close collaboration with the Community Conservation Unit will work to strengthen the informant network, through the development of specific systems and protocols for managing the informant network, followed by their practical application.

It will also be important to improve the handling of the collected information, including the synthesis, analysis and verification of intelligence data, the establishment of an intelligence database, and the design of mechanisms by which intelligence data can be incorporated into park patrol efforts. Developing this intelligence management capacity in GFR/GMNP is likely to require specialized human resources and/or training.

Objective 3: Human and Technical Resources Provided and deployed in line with Management Needs

This management plan describes the diversity of management activities and challenges that are likely to confront the new NP. The scale and complexity of these challenges is expected to increase significantly as the new park is developed. If the management team is to successfully cope with these emerging management challenges, there will be a need for RDB to deploy substantial investment in the new park, in terms of human resource and technical capacity.

1: Set up management systems for GFR/GMNP and Recruit competent and adequate staff

The first step in this process is to undertake an assessment of the management structures, technical and human resource needs for the new Park and then acquire and deploy the resources.

The provisional list of needs has been identified as follows:

1. Management Structures: Establish the following units:
 - The Office of the Chief Park Warden,
 - Community Partnership Warden
 - Law Enforcement Warden

- Research and Monitoring Warden
 - Tourism Warden
 - (Recruit Warden for Mukura)
2. Recruit Staff:
- Recruit Chief Park Warden
 - Recruit five other Wardens as above
 - Recruit Office Support Staff (Admin Assistants, Procurement, Accounts, Cashier, Reception)
 - Recruit other support staff (Guides, Trackers)
3. Technical Capacity and Equipment
- Transport means: Vehicles and motor cycles.
 - Office equipment (furniture, computers, printers)
 - Communication equipment
 - Consumables (stationery, fuel, etc)

2: Establish a career development and training Plan in collaboration with RDB headquarters

Adequate and appropriately trained and motivated staff with clear work responsibilities and career development prospects is vital for effective and efficient park management. In this regard, RDB currently has proper career development and training structure in place to meet the growing demands of park management, as well as to effectively implement the range of management actions expected of park staff.

A comprehensive assessment of human resource required for the effective manage the national park system will be undertaken. The review should look at the needs, job responsibilities, powers and reporting lines under the current system, and will develop a revised career structure and progression system for park staff, including the development of the related job descriptions and the definition of qualifications and training needs associated with different grades and job positions.

3: Develop opportunities for special training programmes for GFR /GMNP in collaboration with KCCEM

One of the founding aims of The Kitabi College of Conservation and Environmental Management (KCCEM) was to provide on-going in-service training for conservation practitioners in Rwanda and neighbouring countries. The College offers a unique facility for the training of protected area managers and other conservation professionals, right on the doorstep of Nyungwe National Park, which in turn offers opportunities for field training.

GFR /GMNP managers and the RDB HQs will work together with KCCEM to develop specific training programmes that are needed, and a plan for implementation. Since these special training programmes are also likely to be of equal relevance to other NPs, it will be important to coordinate with them with a view to conducting joint training for various categories of staff.

4: Strengthen internal and external communications

Communication systems are an essential part of effective and efficient protected areas management, especially for the implementation of law enforcement operations and for ensuring the safety of the park staff and visitors. A VHF radio system will be established at the new Park Office to ensure a high

standard of communication between Park Office and Ranger Posts in the field. Any necessary infrastructure such as repeater stations to facilitate communication will also be provided.

A Rapid Response Unit will be established at Park HQs to respond to any emergency situations.

5: Sustainable financing mechanisms designed and operational

The need to establish sustainably financing mechanisms for GFR/GMNP cannot be over-emphasized. It is highly unlikely that on its own, GFR/GMNP will be able to generate enough revenue to support its operations. For this reason, there will be need explore and establish alternative financing mechanisms, in particular related to the potential for developing PES mechanisms. Such mechanisms are clearly feasible, especially considering the GFR/GMNP importance as a water catchment, as well as its significant role in carbon sequestration and in the protection of biodiversity and genetic resources. The development of long-term alternative financing mechanisms will also fill the gap that is currently being filled by less-permanent projects underway (e.g. the World Bank /GEF funded LAFREC).

This activity has been put forward to underscore the long-term importance of these mechanisms for securing the future conservation of the GFR /GMNP. It is, however, expected that much of the work to investigate and develop these alternative financing mechanisms will be spearheaded by RDB and its development partners.

6: Monitoring the implementation of the Management Plan

The implementation of this MP will need to be monitored to ensure that it is fulfilling its objectives in the short and long terms. As a first step in the implementation of the pan, indicators of success for each of the management programme will be developed. The indicators will be rigorously applied from the outset, to determine if management is achieving the planned /desired outcomes. The indicators will be related to the physical aspects of the system (water quality and quantity, forest / soil condition, erosion, etc.), to its biological nature (plant and animal species, populations, habitats, health of biota, etc.) and to the human use aspects (availability of forest products and services, access to resources, sustainable levels of utilization and replacement, social impacts etc.).

Results from monitoring will be used to periodically review and update the MP.

Operational Planning

In order to implement this plan, it is necessary to cast the planned activities into timeframes in order to indicate when they will be implemented during the planning period. It is in this context where operational planning comes in. Ideally, good management may be able to plan daily, weekly, monthly and annual activities in order to be able to contribute to the achievement of the objectives of the plan and each of its components. Park management will develop an AOP at the beginning of every year to guide operations for the whole year.

Allocation of Resources for the Implementation of the management plan

Implementation of the MP and achievement of its objectives depend on the allocation of adequate resources. These resources are mainly at three levels: financial resources, technical and human resources.

Funding the Plan

A management plan will need funds to make it run and to ensure that it continues to do so. In addition to GOR funding, it may also be necessary to find external funds (from donors and other partners). This can be initiated by the development of a convincing Sustainable Financing Plan for GFR/GMNP. The Plan will also contain some proposals for future resources.

The Funding Plan would be submitted to the likely sources of funding with a suitable budget and timetable for implementation.

Strategic Partnerships

This MP contains ambitious proposals for the conservation and management of GFR/GMNP, which will require substantial investment as well as in expertise and competence. Effective implementation of this management plan will need to involve participation by many stakeholders and partners. Based on their level and the areas of intervention, partners involved in the implementation of the management plan are divided in 5 categories:

- Key ministerial institutions and sectoral agencies (MINIRENA, MINICOM, REMA, RNRA)
- Decentralized administrative structures in the districts and neighbouring communities;
- National and International NGOs non-government organization will provide essential support in the sensitization of the population, in technical support and in the mobilization of additional resources for implementing different objectives and strategies according to their areas of interest.
- The Private Sector, who will be expected to provide the required investment in ecotourism
- Bilateral and multilateral cooperation agencies will contribute to the technical and financial support in different objectives according to their areas of specialization.

Periodic Revision of the MP

A plan remains a useless document so long as it is not implemented in depth, or if it is not regularly monitored and periodically updated or revised as necessary. A number of mechanisms are proposed for ensuring follow-up, evaluation and revision of this MP:

- Putting in place a Team at the Park Level, with responsibilities for planning and monitoring; the Team will be composed: the Chief Park Warden, Managers responsible for planning, research and monitoring
- Annual operation plans (AOP) will include a list of objectively verifiable indicators for each management programme. These indicators will be selected on the basis of their being SMART.
- At the end of each planning year, an Annual Report will be drawn up, which will address the degree of plan implementation, using the AOP and the indicators as the reference points. This will facilitate the documentation of the achievements of the AOP/management plan. In case of non-realised or partially realized indicators, clear explanation will be given and corrective measures will be proposed.

Conclusions

There is no doubt GFR/GMNP constitutes a valuable addition to Rwanda's network of NPs. Hence, this Management Plan 2015 – 2017 is timely since it will establish the management systems for the new NP and guide Park Management in a consistent way over time. It will in particular help in managing the transition from Forest Reserve until it is fully established as a National Park. The plan sets out management options that will lead to balanced development, in terms of ecological integrity and generation of economic benefits for the adjacent communities and the country as a whole.

It is to be noted that GFR reserve is now part of a larger entity, the GMNP. This management therefore forms only part of the Management Plan required for the whole national park.

The LAFREC Project will provide resources for the formulation of a General Management Plan for GMNP, through which both GFR and MFR will be managed as a single reserve. The management plan will address ongoing restoration and ecological management needs based on identification of the most critical biodiversity elements, and a strategy for eco-tourism development.

The development of this Draft Management Plan for GFR is only part of the management plan for the GMNP. Similar planning work will need to be undertaken for MFR and the two synthesized into a single unified Management Plan for the whole National Park.

When the formulation is completed, it will behoove the GOR and its partners to mobilize the necessary resources to make this happen.

PART 4: ANNEXES

Annex 1: Three Year Activity Plan

Programme Objectives, Activities and Implementation Timeframes

Objective, Management Activity	Responsible Person	Timeframes					
		July 2015 – June 2018					
		Jul – Dec 2015	Jan – June 2016	Jul – Dec 2016	Jan – Jun 2017	Jul – Dec 2017	Jan – June 2018
Programme1: Ecological Management and Monitoring Programme							
Objective 1: Key ecosystems, habitats and species regularly monitored							
1-Develop an Ecological Monitoring Framework for GFR	Chief Park Warden (CPW)	X					
2-Introduce and harmonize RBM data collection system in GFR	Research & Monitoring Warden (RMW)	X	X				
3-Provide appropriate equipment and an adequate system of data collection, data analysis and data management	CPW	X	X				
4-Put in place a system of monitoring and evaluation of impacts of human activities and conservation activities	RMW	X					
5-Collaborate with local population for the inventory of forest resources used locally and their different uses	RMW	X	X	X	X	X	X
6-Provide continuous and adequate training of staff in charge of monitoring	RDB/KCCEM	X	X	X	X	X	X
7-Monitor and understand the impacts of climate change on the ecological processes of GFR	RMW	X	X	X	X	X	X
8-Undertake periodic Aerial Surveys and vegetation mapping	RDB		X		X		X
Objective 2: Degraded ecosystems restored through natural and assisted Regeneration							
1-Natural forest conditions restored in the degraded areas through natural and assisted natural regeneration	CPW	X	X	X	X	X	X
2-Invasive and alien species eliminated or controlled	RMW	X	X	X	X	X	X
3-Identify and characterise invasive / exotic species of key concern for management	RMW		X	X			
4-Develop and pilot methods to eradicate invasive and alien species of key concern	RMW	X	X	X	X	X	X
5- Natural forest conditions restored in the gaps opened up by	RMW	X	X	X	X	X	X

<i>removal of exotics in the natural forest, through natural and ANR</i>							
<i>6- Develop and implement special protection measures for fragile ecosystems.</i>	CPW	X	X	X	X	X	X
Objective 3: Adverse ecological impacts of mining, infrastructure development and bush fires minimized							
<i>1- Impacts of fire on ecological values minimized</i>	Law Enforcement Warden (LEW)	X	X	X	X	X	X
<i>2- Develop and implement a Fire Management Plan</i>	LEW	X	X	X	X	X	X
<i>3- Minimize the adverse impacts of mineral extraction</i>	LEW	X	X	X	X	X	X
<i>4- Commission studies to assess the ecological and social impacts of mining</i>	CPW	X	X				
<i>5- Apply EIA guidelines for infrastructure development within GFR or neighbouring areas</i>	REMA		X	X			
Objective 4: Provide objective scientific information and knowledge to support evidence-based policy and resource management decisions							
<i>1- Develop strategic partnerships with research institutions in order to carry out applied research</i>	RDB/CPW	X	X	X			
<i>2- Compile, analyze and disseminate existing research data and findings on GFR</i>	RMW		X	X			
<i>3- Implement useful research findings and recommendations in the conservation of GFR /GMNP and in informing conservation policy development</i>	RMW			X	X	X	X
<i>4- Conduct necessary inventories and Biodiversity assessments in GFR /GMNP</i>	CPW	X	X	X	X	X	X
<i>5- Develop Partnerships with Private Sector on prospecting and use of genetic materials for the manufacture of essential products</i>	RDB/CPW			X	X		
<i>6- Develop and update useful biodiversity databases for the management of GFR/GMNP</i>	RMW		X	X	X		
<i>7- Establish RDB Research Coordination Unit</i>	RDB/CPW		X				
Objective 5: Key ecosystems, habitats and species sustainably managed							
<i>1- Undertake biodiversity assessments and inventories</i>			X	X	X	X	
<i>2- Identify and map fragile ecosystems and habitats of key species</i>			X	X			
<i>3- Expand the habitats and ranging areas for the chimps</i>			X	X	X		
<i>4- Undertake periodic censuses of key species</i>				X			
<i>5- Explore possibilities for re-introduction of certain species</i>			X	X			

6-Develop and implement a programme for health monitoring for primates		X	X	X	X	X	X
7-Undertake periodic Aerial Surveys and vegetation mapping				X	X		
Programme 2: Conservation Partnership Programme							
Objective 1: Build and strengthen capacity of community institutions							
1- Formulate a legal framework, including guidelines and Regulations to guide and support community-based conservation	RDB/CPW	X	X				
2-Establish and strengthen capacity of community institutions	CW	X	X	X	X	X	X
3-Develop and implement a conservation education and awareness Plan and strategy	CW	X	X	X	X	X	X
4-Build capacity and support key conservation education and awareness facilitators in dissemination conservation messages and information	CW	X	X	X	X	X	X
5- Implement targeted conservation awareness campaigns	CW	X	X	X	X	X	X
6- Carry out conservation awareness and attitudinal surveys	CW		X			X	
7-Participate in local government Joint Action Development Forums	RDB/CPW		X		X		X
8- Collaborate with key partners in enhancing the management of the buffer zone	CPW	X	X	X	X	X	X
9-Buffer Zone sustainably managed for production and forest protection.	Community Warden	X	X	X	X	X	X
Objective 2: Human-wildlife conflicts effectively managed, mitigated and reduced							
1-Develop a human-wildlife conflict management strategy	CW	X	X				
2-Support communities in establishing institutional structures	CPW/CW	X	X	X	X	X	X
3-Establish and Strengthen capacity of ANICOs to address HWC issues	CW	X	X	X	X	X	X
4- Assist communities to establish alternative crops that mitigate HWC	RDB/CPW	X	X	X	X	X	X
5-Assist with implementation of new Compensation Law for GFR	CPW	X	X	X	X	X	X
Objective 3: Community livelihoods and sustainable resource use enhanced							
1-Assist communities to establish alternative crops that reduce use of park resources	CW	X	X	X	X	X	X
2- Assist communities to develop conservation based income-generating activities	CW	X	X	X	X	X	X
3-Identify and support innovative community flagship	RDB/CPW		X	X	X		

enterprises							
4-Establish and implement innovative funding strategies to support community conservation initiatives	CPW	X	X	X	X	X	X
Objective 4: RDB Revenue Sharing Programme Reviewed and Aligned to Real Community Needs							
1- Implement key recommendations of revenue sharing review	CW		X	X			
2-Strengthen the role and capacity of communities in developing and selecting revenue sharing activities	CW	X	X	X	X	X	X
Objective 5: Develop and Pilot Alternative Incentive Based Mechanisms							
1- Pilot potential PES Initiatives	CW	X	X	X	X	X	X
2- Develop and pilot innovative incentive-based approaches that advance community contribution to conservation	CW	X	X	X	X	X	X
3-Assess the social implications of the rules set at international, and/or national and local levels	CW	X	X	X	X	X	X
Objective 6: National, Regional and International Partnerships							
1-Establish National Level Partnerships	RDB	X	X	X	X	X	X
2-Establish International Partnerships	RDB	X	X	X	X	X	X
3-Establish Regional Partnerships	RDB	X	X	X	X	X	X
Programme 3: Tourism Development and Management Programme							
Objective 1: Development of tourism infrastructure and facilities inside and outside the Park.							
1-Establish three (3) Ranger Posts at designated sites with adequate Rangers to provide security to tourists	RDB/LEW		X	X			
2- Maintain existing trails and establish new ones as necessary	Tourism Warden (TW)	X	X	X	X	X	X
3- Establish a number of camp sites and expand as necessary.	TW	X	X	X			
4-Design, map and construct access roads and maintain existing ones to facilitate	CPW	X	X	X	X	X	X
5-Identify and map potential areas for tourism lodges and other facilities outside the park, this could be on private or public land	TW	X	X	X	X	X	X
6- Facilitate acquisition of land, construction permits, business licenses and EIA certificates.	RDB/CPW	X	X	X	X	X	X
7- Establish a framework to facilitate and guide the development of public-private partnerships for the purpose of mobilizing investment in tourism.	RDB/CPW		X	X			
Objective 2: Ecotourism and adventure tourism product developed							
1-Carry out a comprehensive review of Potential Tourism	TW/Private Sector	X	X				

<i>Products and Services</i>							
2-Draw up a Tourism Plan as a basis for future tourism Development	RDB/TW		X	X			
3- <i>Build the capacity of GFR /GMNP Staff to manage different aspects of tourism</i>	CPW		X	X	X	X	X
4- <i>Promote investment in the development of Tourism</i>	RDB	X	X	X	X	X	X
5-Develop a Tourism Prospectus for GFR	TW		X	X			
5- <i>Develop public-private partnerships to develop and manage other tourism facilities</i>	RDB	X	X	X	X	X	X
6- <i>Establish visitor attractions focusing on GFR biodiversity and ecosystems</i>	TW	X	X	X	X	X	X
7- <i>Develop a tourism circuit linking GFR/GMNP with VNP and NNP.</i>	RDB/Private Sector	X	X	X	X	X	X
Objective 3: Products and Services to provide diversified visitor experience developed and continually improved							
1-Develop and Implement Bird Watching Action Plan	RDB/TW	X	X	X	X	X	X
2-Introduce Chimp tracking	CPW/TW	X	X	X	X	X	X
3-Develop competitive pricing scheme and booking system	RDB	X	X				
4-Develop and maintain appropriate visitor facilities	RDB/TW	X	X	X	X	X	X
5-Resource interpretation	CPW/TW		X	X	X	X	X
6-Develop and disseminate visitor information and marketing materials	TW/RDB	X	X	X	X	X	X
7-Market and Promote GFR/GMNP as a new tourism Destination	RDB	X	X	X	X	X	X
Objective 4: The tourism value chain for communities living around GFR developed and promoted							
1- Provide support and training to communities in developing viable ecotourism enterprises and in managing them effectively.	TW/CW	X	X	X	X	X	X
2- Identify and mobilise funding sources for developing community ecotourism initiatives	RDB/TW	X	X	X	X	X	X
3- Assist and facilitate as necessary, the planning of community-based tourism infrastructures and services:	TW	X	X	X	X	X	X
4- Provide support and advisory services to neighbouring community entrepreneurs on operation, management and maintenance of tourist products and services	TW	X	X	X	X	X	X
Objective 5: Management of tourism products and services strengthened							
1- Recruit and appoint competent staff and enhance their	RDB	X	X	X			

<i>capacity of to manage tourism operations</i>							
<i>2-Develop and Implement Tourism Regulations</i>	CPW/TW	X	X	X	X	X	X
<i>3-Develop and implement a monitoring programme designed to assess the environmental and tourism product impacts of the new tourism developments.</i>	RMW		X	X	X	X	X
<i>4- Establish tourist safety and emergency response Measures</i>	LEW	X	X				
Programme 4: Park Operations Programme							
Objective 1: Appropriate and adequate infrastructure planned, designed and constructed							
<i>1- Carry out a preliminary assessment of required infrastructure and develop an implementation and financing plan,</i>	RDB	X	X				
<i>2- Design and construct Park Offices and other buildings (visitor reception and information centre etc)</i>	RDB		X	X			
<i>3- Equip the offices with appropriate and adequate equipment to make them functional</i>	RDB/CPW		X	X			
<i>4- Design and construct a minimum of staff housing and supporting facilities (majority of staff should be facilitated to hire accommodation outside the park</i>	RDB		X	X			
Objective 2: Law enforcement operations established and strengthened							
<i>1-Establish and strengthen capacity of law enforcement Unit</i>	RDB/CPW	X	X	X			
<i>2- Recruit competent Rangers and deploy them urgently in GFR/GMNP</i>	RDB	X	X	X			
<i>3- Provide adequate infrastructure, equipment and field materials for Park Rangers</i>	RDB	X	X	X			
<i>4- Strengthen monitoring of illegal activities to guide law enforcement efforts</i>	LEW	X	X	X	X	X	X
<i>5-Improve collaboration between GFR/GMNP and other law enforcement entities in Rutsiro District</i>	LEW	X	X	X	X	X	X
<i>6-Strengthen intelligence-gathering mechanisms involving local communities</i>	LEW	X	X	X	X	X	X
Objective 3: Human and technical equipment to match management needs provided and deployed							
<i>1- Set up management systems for GFR/GMNP and Recruit competent and adequate staff</i>	RDB/CPW	X	X				
<i>2-Establish a career development and training Plan in collaboration with RDB headquarters</i>	RDB	X	X				
<i>3-Develop opportunities for special training programmes for GFR /GMNP in collaboration with KCCEM</i>	RDB/CPW	X	X	X	X	X	X

<i>4- Strengthen GFR /GMNP internal and external communication</i>	RDB/CPW	X	X	X	X	X	X
<i>5- Sustainable financing mechanisms designed and operational</i>	RDB	X	X	X	X	X	X
6-Monitoring of MP implementation	RDB/CPW	X	X	X	X	X	X

Annex 2: Draft Terms of Reference for the Technical Planning Team (TPT) For Gishwati Forest Reserve (GFR) / Gishwati Mukura National Park (GMNP)

Background

GMNP is in the process of establishment and the law to effect it, is before Parliament for enactment. Formulation and implementation of a Management Plan is an essential part of effectively managing the new National Park.

Forest of Hope Association (FHA) is a National Rwandan Non Government Organization (NGO) focusing on the conservation of the Gishwati Forest Reserve. Established in January 2012, FHA emerged from – and builds on the Gishwati Area Conservation Program (GACP), an International NGO that worked on conservation of the Gishwati Forest Reserve from 2008 through 2011.

The FHA is supporting a planning process for Gishwati Forest Reserve, as its contribution to elaborate of a long-term management Plan for GMNP. The main objective of this assignment is to provide a draft Three-Year Management plan of Gishwati Forest Reserve to support the change in conservation status from forest Reserve to National Park.

Management Plan (MP) for a Protected Area (PA) is defined as “a document that guides and controls the management of protected areas resources, the uses of the area, and the development of facilities (and capacities) needed to support that management and use. Central to such a plan is a statement of goals and measureable objectives to guide the management of the area” (IUCN, 1990). The planning process and guidelines are very important in order to achieve the objectives of Protected Areas. Specifically, the plans provide guidance in three dimensions:

- In space, establishing what should be done in a given place;
- In time, establishing what should be done at a given time;
- In method, establishing how things should be done.

In order to undertake the elaboration of the MP for a PA, it is important to take into account the local communities and other stakeholders as well as the current management situation of the Protected Area. It is also indispensable to know the baseline situation, the available human and financial resources, as well as the existing political, legal and institutional frameworks guiding the elaboration of such Management Plans.

In the context of Rwanda, the statutory requirement for the elaboration of MP for PA is well recognized. A MP sets out the management approach and defines clearly the management goals, objectives and actions to be implemented. The MP represents the policies and intentions of the government and institutions in charge of the Protected Area and its partners.

The MP is recognized as a key instrument for the effective management of the PA. All involved with the PA, including public institutions, decision-makers and management staff, private sector companies and individuals, all contractors, partners, tourists and any entity and individual dealing in any way with the PA, must ensure that all the actions and decisions relating to the PA are in strict accordance with the MP. It is under these guidelines that the MPs for all the three National Parks of Rwanda (Volcanoes, Nyungwe and Akagera NPs) were elaborated.

It is now necessary to elaborate a MP for the new GMNP.

We envision that the planning process will, more specifically consist in:

- Establishing an overview the conservation efforts of the Gishwati FR since the time it was declared a National Forest Reserve, and including all the past and current research works;
- Undertaking a socio-economic and livelihoods analysis taking into account the interaction between the forest reserve and various and all potential zones of influence;
- Carrying out an analysis of the land use around the Gishwati FR considering the existing different stakeholders and actors;
- Mapping out the various investment opportunities in the area;
- Undertaking an analysis of the existing infrastructure and make propositions of the required additional one to support the proposed management options for Gishwati FR / and future Gishwati Mukura NP;
- Establish a proposition for the appropriate biodiversity and ecosystem management options.

To achieve these objectives, it is deemed necessary to establish a **TPT** with key responsibility of providing overall guidance and oversight to the planning Process.

The objectives of the TPT are to:

- Develop an understanding and assess the level of knowledge about GFR and its resources and its past and current management regimes
- Represent their own institutions in the planning process as we as provide technical inputs into the planning process
- Gather qualitative and quantitative data about the ecosystems and resources of GFR
- Share and apply the knowledge to guide the development of an MP for GFR
- To engage policy makers and other stakeholders in developing objectives, programmes and activities of the various components of the MP.

The Role of the TPT

The main role of the TPT is to advise, guide and provide technical leadership in the development of the Management Plan for GFR process.

Specific tasks of the Committee

In collaboration with the Planning Consultant, the TPT will:

- Identify and map existing and potential ecosystem services and their beneficiaries
- Undertake stakeholder identification and analysis, and engage them in the planning process as appropriate to each stakeholder group
- Gather ,collate and synthesize information and data on GFR
- Assess policy and institutional opportunities, strategies and constraints to MP elaboration
- To raise stakeholder awareness to ensure ownership and support of the planning process and the implementation of the resulting MP
- To provide a forum for networking, sharing information and experience and for providing inputs and proposals that contribute to the planning process

- To enhance linkage, coordination and harmonization of planning process between their own institutions and other stakeholders
- Participate in a stakeholder planning workshop where the main components of the MP will be presented and additional inputs provided
- Facilitate the production of the Final MP component for GFR and its submission to FHA and other stakeholders

Frequency of meetings

The TPT will initially meet at least once a month. The time and location of all working group meetings will be communicated in advance. The development of meeting schedules will take into consideration the special needs of its members so as to maximize attendance. Members agree to place a high priority on participation in the TPT process and to make the best effort to attend all meetings.

- Every member of the TPT will be expected to consultant regularly brief senior management of the institutions they represent in order to ensure that they are aware of the progress in the planning process.
- Draft meeting agendas along with support materials will be provided to the working group at least 7 calendar days in advance of the meeting.
- The secretary will produce draft products or summaries following each meeting that identify major discussions or follow up actions.
- These summaries will be filed and represent the documentation for the Planning Process. However, the focus of the TPT will be working toward producing Draft and Final MP Component for GFR Including all annexes.

Composition of the TPT

The following persons have been nominated to be members of the TPT:

Names	Institution
Marie Goretti MANIKUZWE	RNRA/Forestry and Nature Conservation Department
Jean Aime SIBOMANA	RDB/Tourism
Benjamin MUGABUKOMEYE	IGCP
Nathan K. BYAYESU	RNRA/ Geology and Mine Department
Télesphore NGOGA	RDB/ Conservation
François BIZIMUNGU	RDB/ Conservation
Fabrice MUGABO	REMA
Servilien TURAMYE	Rutsiro District/DFO
Thierry A. INZIRAYINEZA	FHA
Aristide MANIRIHO	FHA

Co-opted Members of TPT

During the course of its deliberations, the TPT may determine that it's in the best interest of achieving a quality and informed outcome to co-opt additional members with different skills, knowledge or perspectives

that are relevant to the Planning Process but are lacking in the current membership. Such co-opted members may be added by consensus to provide specific inputs. .

The TPT may also, from time to time, call on a relevant expertise from any institution for consultation and advices.

Key Outputs of the TPT

- Validate and agree on the overall structure of the planning component for GFR
- Design and oversee the implementation of a transparent and objective planning process throughout the process
- Provide inputs, validate and agree on the content and structure of each component of the MP Component for GFR
- Validate the Draft MP and circulate for review by stakeholder individually and through stakeholder workshop
- Ensure all relevant stakeholder comments and inputs are incorporated into the Final Management Plan
- Validate and approve the Final Management Plan for submission to FHA and other Stakeholders

Stakeholder Consultations

Because of the very limited time available to develop the management plan, it was necessary to scale down the amount of stakeholder participation in the planning process, while at the same time making efforts to ensure that there were adequate opportunities for stakeholders to input their ideas and issues into the planning process. This was achieved through a diversity of participation mechanisms.

Table 1. Planning events

Timing	Planning Event
February 26 – March 9, 2015	Initial Inception Meetings and Consultations with FHA and WCS
Feb-12	Design of Data Gathering Tools
February 26 – March 5, 2015	Consultations with Kigali Based Stakeholder
	Technical Planning Team Meetings
March 9 – 23, 2015	Field Visits
April 1, 2015	TPC Meeting
May 12, 2015	TPC Meeting
July 15, 2015	Stakeholder Plan Validation Workshop

Annex 3: Proposals for Sustainable Land Use Around GFR

Introduction

Land Use Planning in Rwanda

Being a densely populated and hilly country, Rwanda faces serious problems related to the scarcity of land, the mode of human settlement and the protection of the environment. The evolution of agriculture, long considered as the backbone of the national economy, has become unpredictable because the land resource has been badly managed, and yet over 90% of the Rwandan population depend on land for their livelihood. Soil erosion has worsened due to continuous cultivation of land, settlement on marginal land that is unsuitable for agriculture, and lack of reliable soil conservation methods.

In view of the country's high population density and the direct dependence of the majority of the population on the land resources, the Government of Rwanda, has made optimal, rational and sustainable utilization of land a top priority goal. This is articulated through its long-term development instruments (specifically the EDPRS). The National Land Policy of 2004 and the Organic Land Law of 2005 require that a National Land Use and Development Master Plan be put in place to guide spatial development in the country.

The National Land Use and Development Master Plan was undertaken by the Ministry in charge of Lands, through the National Land Centre assisted by consultants from SwedeSurvey AB. The Masterplan, which was approved in 2011, outlines the spatial strategies to address the key land-management issues so as to achieve the country's development objectives.

In line with the National Land Masterplan, the Districts are expected to develop their own District Masterplans. Rutsiro District in which GFR falls is in the process of this development.

Sustainable Land Management (SLM)

Past emphasis on land 'development', focused on maximizing production and return on investment, and planned against an assumption that suitable lands for expansion could always be available. This has given way to a more cautious approach-one that recognizes the finite extent of fertile land and the seemingly insatiable demands of a growing human population. Efficient use of these lands is becoming a matter of life or death for increasing millions of mankind.

The concept of sustainability includes notions of limits to resource availability, environmental impact, economic viability, biodiversity and social justice. Improper land management can lead to land degradation and a significant reduction in the productive and service (biodiversity niches, hydrology, carbon sequestration) functions of watersheds and landscapes. SLM is vital to meeting the requirements of growing populations.

SLM is defined as: a knowledge-based procedure that helps integrate land, water, biodiversity, and environmental management (including input and output externalities) to meet rising food and fiber demands while sustaining ecosystem services and livelihoods.

Sustainable land management combines technologies, policies and activities aimed at integrating socio-economic principles with environmental concerns so as to simultaneously:

- maintain or enhance production/services (Productivity)
- reduce the level of production risk (Security)
- protect the potential of natural resources and prevent degradation of soil and water quality (Protection)
- be economically viable (Viability) and
- socially acceptable (Acceptability)

Production systems will have to be flexible, diversified and developed on a broad genetic base to ensure the possibility of rapid response to changing conditions. Soil and water resource use will need to be closely regulated. Land management practices, in large measure, control processes of land degradation and their efficiency in this respect will largely govern the sustainability of a given land use. However, institutional, political, social and economic pressures and structures can also cause or exacerbate environmental problems and control of their influence must form part of the solution.

Technical and scientific advances will be instrumental in the transition to SLM and sustainable agriculture, but they will need to be tailored to local environmental conditions-much more site-specific than has been the case in the past.

Sustainable land management is an integral part of the process of harmonizing agriculture and food production with the often conflicting, interests of environment and social equity. Agriculture is expected to continue to be the engine of economic development in Rwanda but, for this to be realistic, agriculture in the future will have to be increasingly more productive, more economically efficient and more environmentally friendly- that is, more sustainable.

Current Land Uses Around GFR

Gishwati Forest Reserve is bordered by four sectors: Nyabirasi, Ruhango, Kigeyo and Mushonyi and six cells, namely: Nyagahinika, Rukaragata, Rurara, Rundoyi, Gihira, and Mubuga Cells; (see the Map below).

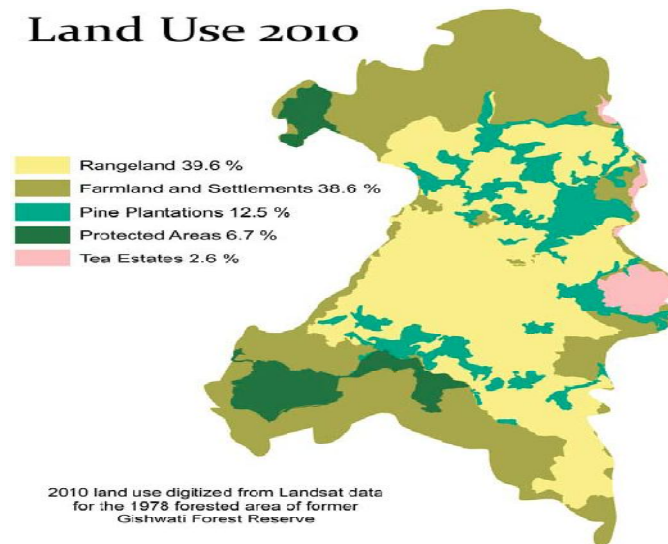
The land use in the former Gishwati Forest Reserve is dominated by cattle ranching (39.6% in 2010), smallholder farmland and settlements (38.6%), planted pine and eucalyptus woodlands (12.5%), and tea plantations (2.6%). High population density has pushed agriculture onto steep slopes, and land holdings are usually very small and fragmented. There is a small amount of artisanal mining in the area.

A Great Apes Trust survey found 194 individuals using the areas immediately abutting the core forest. The primary land use is for pasture, with some mixed pasture-cropping systems, but relatively few pure cropping systems and only very small areas of plantation forests. In the broader vicinity, residents cultivate tea, potatoes (mainly Irish), maize, and beans.

Inappropriate land use management policies in the early 1980s that sought to establish a forestry industry alongside cattle ranching led to the conversion of 70% of the former Gishwati Forest Reserve's natural forest cover into pasture and pine plantations.

The former Gishwati Forest Reserve which was once an important source of goods and services ranging from wild fruit, wild vegetables, wild animals, foods and medicinal herbs, can only provide a fraction of those services.

However, deforestation has resulted in the loss of natural resources, biodiversity and ecological functions. Apart from a drastic reduction of endemic flora, fauna and avifauna, negative environmental impacts of this land conversion culminated in flooding in the neighboring low lying areas. Beyond loss of human life and extensive property and crop destruction and damage, flooding has been associated with increased health risks, especially from malaria. Following the 2007 floods, families that had settled on areas that were especially prone to soil erosion and landslides had to be resettled outside the area.



Map A5.1: Land use around GFR

Introducing Sustainable Land Use Planning Around GFR

The survival of the GFR as part of the MGNP will partly depend on the development of land-uses that are compatible with conservation and provision of alternative resources that reduce pressure on the protected areas. This means that the GFR /MGNP will have to be managed within the broader context of land-uses within the landscape.

To save this forest while still safeguarding human livelihoods, there is a need to re-establish a balance between its economic and environmental functions in the use of forest resources. Previous land-use plans were inadequate as they only focused on soil erosion as the driving factor for planning land use. There is therefore urgent need for more comprehensive planning and management that integrate socio-economic and environmental goals (including climate change).

Preliminary work has been undertaken by MINIRENA, to assess potential risks and suggest recommendations for developing a land use suitability map. Subsequently, a Rwanda Environment NGO forum (RENGOF) undertook a review and revision of the land suitability and land use map of Gishwati. The resulting updated land suitability map will be a key planning and decision making tool in the efforts to develop and implement sustainable land management practices in the Gishwati Landscape.

The Landscape Approach to Land and Natural Resources Management

Losses of forest cover, biodiversity, agricultural productivity, and ecosystem services in the in the Gishwati landscape are interlinked problems that threaten the livelihoods of the people who inhabit it, as well as the inhabitants of the adjoining areas. For many years, environmental conservation, food security, and rural economic development were treated as independent sectors. The poor outcomes of sector-oriented approaches have catalyzed efforts to address environmental and socioeconomic problems concurrently.

Landscape Level Planning is a process that aims to regain and maintain the ecological integrity and enhance human well-being in natural and human modified, deforested or degraded landscapes. This is achieved through a variety of place-based interventions, including new tree plantings, managed natural regeneration and improved land management.

Landscape restoration and food security

Landscape level planning partly depends on ecosystem restoration, based on active stakeholder engagement. Productive landscapes are managed for a mosaic of different land uses, including agriculture, silvipastoral systems, agroforestry, protected areas, regenerated forests, managed plantations, woodlots, riverine forests to protect riverbanks and watershed management. Such landscapes are capable of providing a wide range of products and ecosystem services. They can also meet the social, economic and environmental needs of present and future generations at the local, national and global levels.

The landscape approach goes beyond a traditional watershed management process, with a stronger focus on and better integration of social development, environmental sustainability and economic development efforts. The landscape approach also seeks to better understand and recognize the connections between different land uses and stakeholders by integrating them into a joint management process. This provides the opportunity to better handle trade-offs and to achieve synergies.

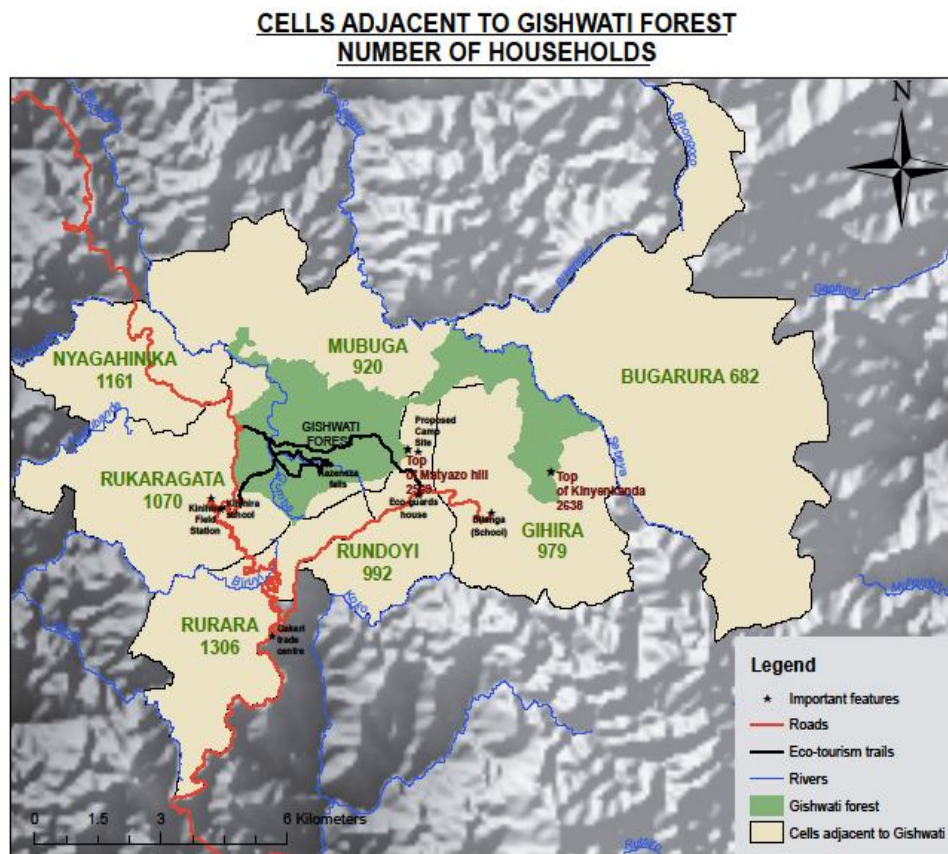
Landscape level planning can be an important strategy for improving food security in addition to achieving conservation goals in the Gishwati Landscape. Experience from West Africa demonstrates how using this approach has resulted in improved soil and water conservation, soil fertility, increase in crop yields and income helping households to gain more access to food and better nutrition and also adaptation to climate change. Landscape planning and ecological restoration can therefore be expected to, contribute to improving agricultural production systems, increasing resilience and reducing vulnerability of rural communities, while delivering a range of goods and services to the communities around GFR.

Applying the Landscape Approach in Gishwati Landscape

The Gishwati landscape faces some of the highest rates of soil erosion in Rwanda, resulting in decreasing agricultural productivity. The population is heavily dependent on subsistence farming and agricultural incomes - which in turn are subject to climatic variations - while also being vulnerable to flood and landslide events. The landscape continues to face serious threats to its sustainability from a variety of stresses and pressures. These include climate change, altered disturbance regimes and increasing pressures and impacts from an expanding human population. These diverse threats affect aquatic and terrestrial ecosystems in other parts of the country and the focus of mitigation measures should be reconnecting people with nature.

The sustainability of the GFR is doubtful under current management arrangements. By applying the landscape approach, the health, diversity, and productivity of the GL (protected, forested, settled, natural, human modified), can be re-established and sustained to meet the needs of present and future generations.

All the land-uses in the landscape will be integrated and harmonized through this approach. Its piloting and application will initially focus on the six cells bordering the GFR, (See Map...). With field experience and learning from this area, the practices can be up-scaled and expanded to other areas.



Map A5.2: Cells and Households around GFR

Components of the Proposed SLM in GFR Landscape

The proposed sustainable land-use in GFR landscape will comprise of the following components:

- 7) Management of the core forest reserve, which is addressed in Chapter 5;
- 8) Management of the Buffer zone, which is the transition zone between the core conservation area and other land-uses;
- 9) Restoration of degraded areas outside the forest reserve (watersheds, forest patches, hillsides, river banks, habitats etc.);
- 10) The Agro-ecological component – which includes conservation of agro-biodiversity;

- 11) The Agro-forestry component; and
- 12) The Biological Corridors linking GFR with MFR and NNP.

Component 2: Buffer Zone Management

Buffer zones are areas created to enhance the protection of a specific conservation area, often peripheral to it. Within buffer zones, resource use may be legally or customarily restricted, often to a lesser degree than in the adjacent PA so as to form a transition zone

A Buffer Zone is defined as: *“an area peripheral to a national park or equivalent reserve, where restrictions are placed upon resource use or special development measures are undertaken to enhance the conservation values of the area”*

The technique of surrounding a protected area with other protected and non-protected areas allows for the creation of a gradient of protection around the core site. Buffer zones are therefore an important part of conservation strategies for a wide variety of sites of biodiversity importance. Buffer zones are particularly suitable practice for climate change mitigation, as they may facilitate the shifting of populations from reserves to adjacent lands according to the climatic needs of species.

Management of Buffer Zones

There are various approaches in buffer zone management depending on the type and objectives of the conservation area for which they are created. Activities in the buffer zones around protected areas are designed and regulated so as to protect the core zone. The buffer zone can also be managed as an area for research to develop approaches for sustainable use of resources, for ecosystem restoration, education and training, as well as carefully designed tourism and recreation activities. The degree of legal protection to buffer zone varies. The GFR Buffer is part of the PA, and falls under the institutional control and jurisdiction of RDB which is responsible for management of the protected area.

Biodiversity importance – Buffer zones may not be sites of active biodiversity conservation, but their establishment provides an additional layer of protection to existing areas of biodiversity importance, and they are often fundamental to achieving conservation of those areas.

Socio-cultural values – Buffer zones can be important areas for traditional practices, cultural values, rights and involvement of local communities in protection, use and management around protected areas. For instance, among different approaches of buffer zone creation, social buffer zones use the culture and sense of identity of local population groups, and local organisations, to form a barrier, control and monitoring system between a conservation area and its surroundings.

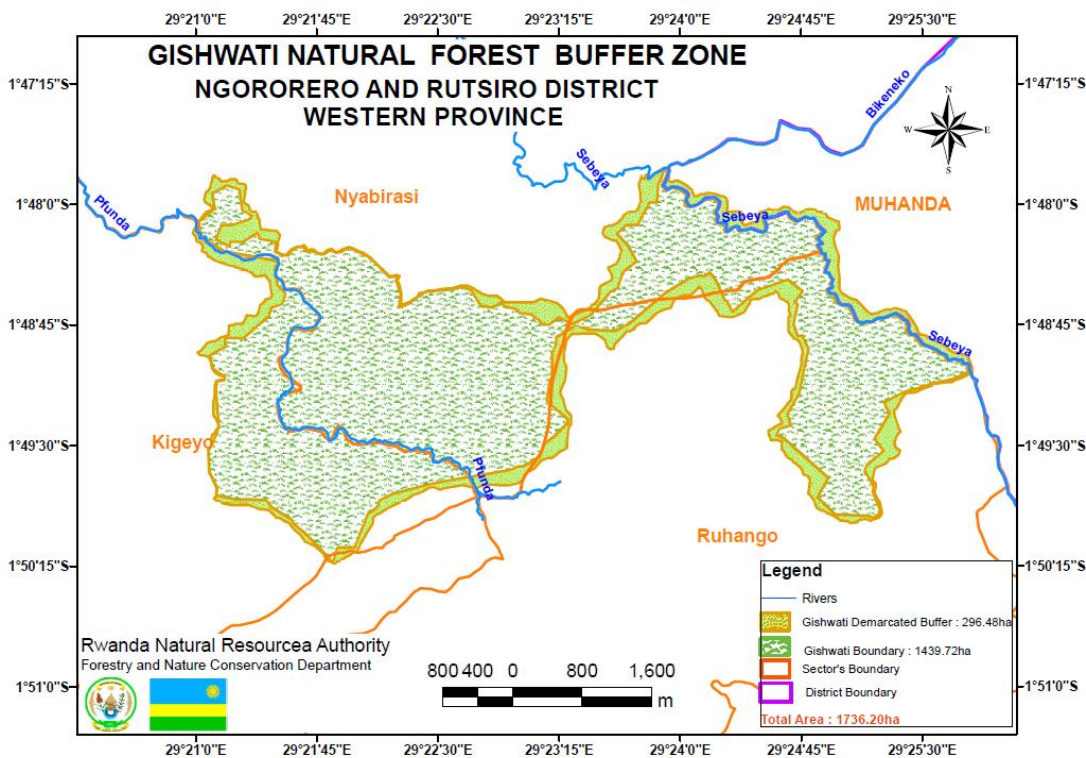
The GFR Buffer Zone:

The GFR Buffer Zone will be under the overall authority of RDB. Land use in the buffer zone should be compatible to conservation and contribute to the conservation of the core area of the park.

The Gishwati - Mukura National Park buffer zones are legally established and gazetted under the law establishing the National Park and cover an area of 992ha. The BZ incorporates tea plantations, some pine and eucalyptus plantations and areas presently occupied by neighbouring communities.

It is understood that the people now occupying the designated buffer zone areas, will expropriated and compensated by the Government. Consequently, the buffer zone forms part of the National Park.

Primary Purpose of Buffer Zone: To provide a transition and protective zone between the neighbouring land and the PA. It will provide economically viable forest and food products according to sustainable and socially-responsible agro-forestry practices, alongside mitigation of the negative impacts on park biodiversity and habitats. The GFR part of the Buffer Zone is shown in the Map below.



Map A5.3: GFR Buffer Zone according to draft law (previous map).

Buffer Zone Status and Objectives

In addition to protecting the natural forest, the objectives of the buffer zone are to prevent soil erosion, stabilize water regimes, and generate benefits for the local communities. It will therefore, serve the dual objectives of protection and production.

The GFR buffer zone is intended to:

- Prevent activities that would negatively influence biodiversity within the protected area; and
- Provide more opportunities for improving the livelihoods of over 7000 households living in the six cells – in part by establishing more efficient and conservation compatible land uses, reducing overgrazing, etc.

Management of the GFR Buffer Zone

The use and co-management structure of the buffer zones will be discussed and agreed with local communities. The management established will ensure a balance between its protection function and the provision of benefits for local people living in and around the buffer zone.

Certain limitations will be introduced on activities that are not compatible with conservation such harmful commercial activities. For example, grazing may be restricted in certain areas of the buffer zone.

Management of the BZ will be based on a management plan coordinated with the district, RDB and local community institutions. All buffer zone land users will be provided with appropriate maps indicating relevant boundaries. Appropriate boundary signs will be installed on major roads.

Management prescriptions will be designed to mitigate the medium to long-term impacts of development and inappropriate land use practices on GFR. The BZ and neighbouring community areas will also be an important focus of management actions under the Community Partnership Programme of the National Park. A key aim of the Programme will be to reduce adverse human impacts on the national park through the promotion of conservation-compatible livelihoods and alternatives to resources outside the national park.

Management Prescriptions:

The following management activities are tentatively prescribed for the Buffer Zone:

- Promotion of conservation-compatible livelihoods and provision of alternatives to resource to those harvested in the national park
- Conservation compatible and community friendly development practices, such as agroforestry – excluding charcoal production, fruit trees, beekeeping
- Environmentally friendly tea practices (e.g., no pesticide use, etc.)
- Regulated and appropriate tourism infrastructure development
- Removal of alien invasive species
- No mining allowed
- No human settlement and minimum infrastructure
- Collaboration between RDB, District Administrations and local communities in implementing buffer zone management
- Reforestation of denuded areas using enrichment planting with indigenous and commercial species
- Promotion of human-wildlife conflict mitigation measures

These management prescriptions will be elaborated in greater detail in a Buffer Zone Management Plan to be developed. It is understood that the people currently occupying the Buffer Zone will be compensated and relocated.

This process should be completed in the next two years.

Component 3: Ecological Restoration of degraded natural habitats.

Ecological Restoration is an important component of the Landscape Approach; it is the process of assisting the recovery of resilience and adaptive capacity of ecosystems that have been degraded, damaged, or destroyed. Restoration in GL will focus on re-establishing the composition, structure, pattern, and ecological processes necessary to make terrestrial (and aquatic) ecosystems sustainable, resilient, and healthy under current and future conditions. This is the best approach for managing ecosystems under uncertain future environmental conditions, such as those driven by climate change and an increasing human populations.

The need for ecological restoration is widely recognized, and a number of restoration projects have been implemented in Gishwati Landscape and other parts of the country. However, the concept of ecological restoration has not been well understood nor consistently implemented throughout the country.

Challenges in the ecological restoration efforts

The major challenges in understanding and applying the concept include:

- Monitoring trends in key resource conditions and identifying approaching thresholds of ecological resilience;
- Understanding how, when, and where to plan for and implement management activities to maintain the resilience and adaptive capacity of ecosystems, while also providing goods and ecosystem services critical to the communities.
- How to manage risk and make decisions on long-term land management investments under the conditions of uncertainty and rapid change.
- How to build and utilize partnerships to meet Landscape Level Planning and management goals. Yet, successful restoration and management of landscapes involves collaborating with many partners such as adjacent communities and landowners, national and other stakeholders.

The restoration component will comprise the following elements:

i) Identification, mapping of fragile and degraded ecosystems

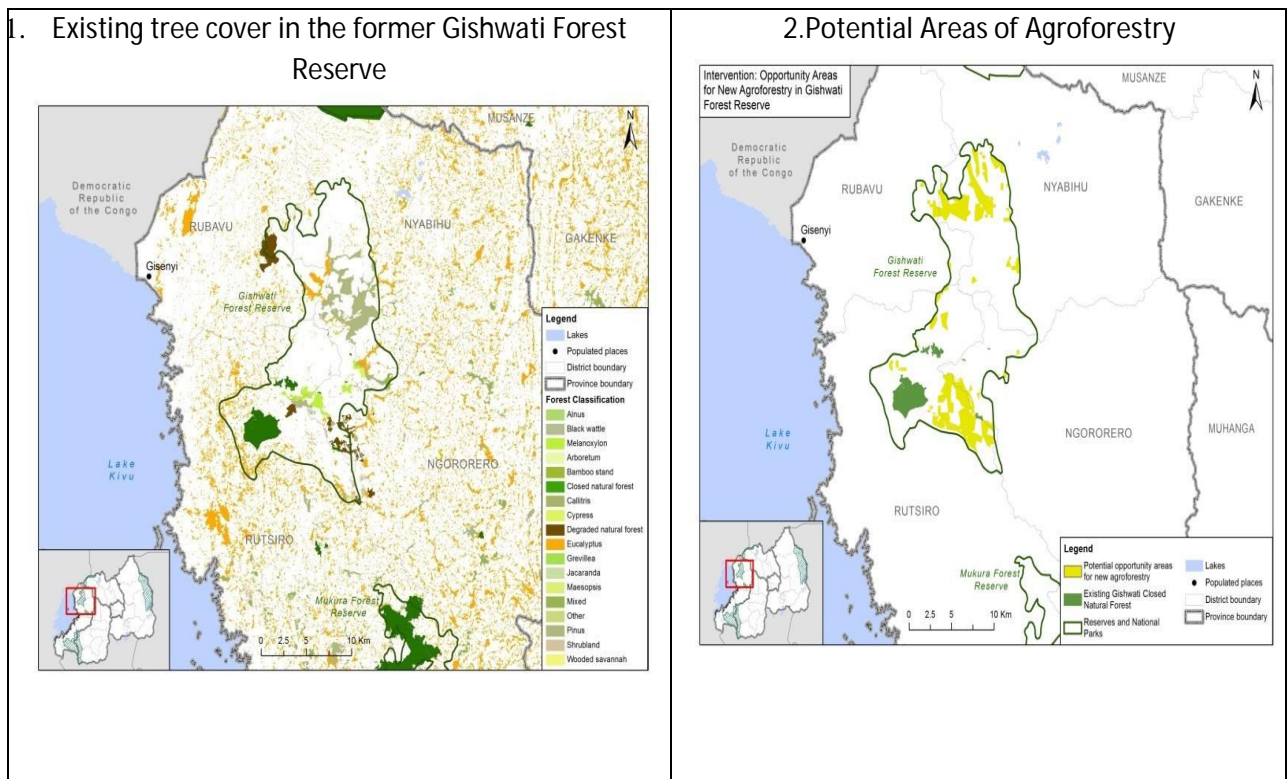
Fragile and degraded ecosystems in need of restoration and protection will need to be identified, mapped and a plan for restoration developed. Such ecosystems include habitats, micro-watersheds, degraded land, river banks, water sources and springs. In order to turn these degraded areas into productive land, communities undertake various site-specific soil and water conservation measures.

ii) Afforestation and Reforestation

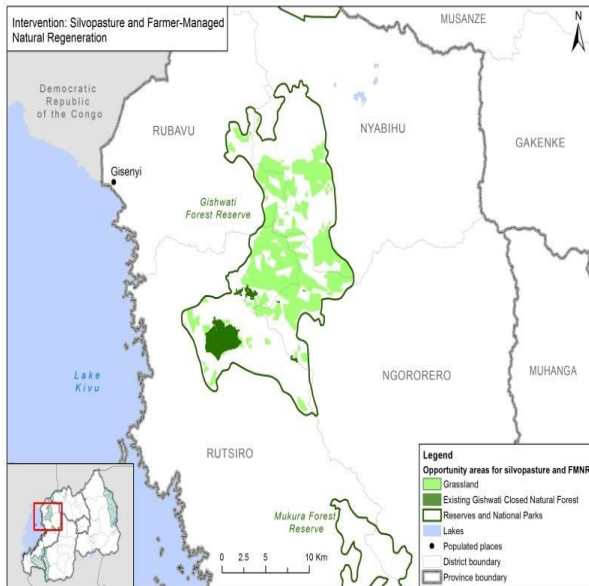
Afforestation and reforestation efforts will be based on the understanding of the dynamics of the forest-agriculture interface, as well as policies and practical ways to influence the extent of tree cover in agricultural land.

There is a strong convergence of ecological, environmental and cultural rationales to retain and increase tree cover in the landscape. This provides many reasons for landscape programmes to increase tree cover, as do rural livelihoods and economic development, based on the practical value of trees and forests for timber, for fruits, fodder, feed and fibre, and for stabilizing slopes and riverbanks, pollination and pest control.

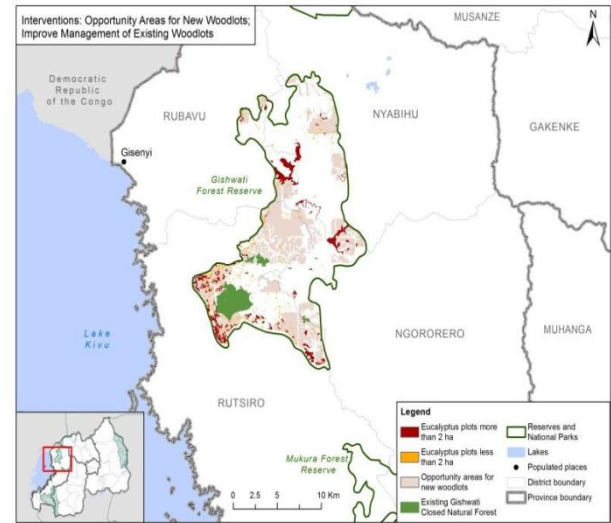
Management of the broader Gishwati landscape will aim at enhancing both production and watershed values, whilst seeking to increase the representation of native forest species in forest patches in buffer zones, corridors and on steep hillsides, thereby also increasing biodiversity and connectivity in the landscape. Working with individual communities would support the implementation of tree-based landscape restoration approaches through provision of training, seeds and materials. The Map below shows the existing forest patches and the potential areas for afforestation /reforestation.



3. Potential areas for silvopastoralism



4. Potential areas for management of woodlots



Map A5.3 : Existing tree cover in the Gishwati landscape, and potentials for tree-based approaches in the area of the former Gishwati Forest Reserve; (adopted from LAFREC Project Document).

iii) Establishment and improved management of woodlots:

Rwanda already derives most of its household energy from small-scale woodlots, but they are typically managed inefficiently, and significant productivity gains can be achieved through improved spacing, and soil and fire protection and diversification of species. There are also potentials for introducing more environmentally friendly approaches to replace the eucalyptus monocultures, which may involve intercropping and a broader species mix to establish more complex understories and greater hydrological and pest resilience.

Protection forest strips will also be established; this would involve establishment of adequate forest cover on the steepest and most vulnerable lands which are not suitable for agriculture, and utilizing a mixture of native species.

Every effort and opportunity will be harnessed to increase the treed component of the landscape by planting trees around homesteads and villages, along the boundaries and also along access and major roads.

iv) Income generation from restored ecosystems

Restoration and rehabilitation measures should also create increased opportunities for direct economic benefits for individual farmers and households. IGAs include production of crops, vegetables and fruits, bee-keeping, various wood products and NTFPs as well as livestock production.

Marketing and profitability issues are very important to the sustainability of the landscape approach. Successful and lasting market linkages strengthen business opportunities for farmers and subsequently support the successful implementation of IGAs. The landscape approach will only be sustainable if farmers generate tangible benefits from their efforts.

Component 4: Improving Productivity of the Agricultural Production Systems

Agriculture has been one of the major drivers of global environmental change, including through changes in land use, loss of land cover and irrigation that affect the hydrological cycle in terms of water quality and quantity.

Agricultural ecosystems in GL will need to be managed in ways that optimize provisioning ecosystem services such as food, fibre and fuel. At the same time, the production of such services depends upon supporting and regulating ecosystem services, such as soil fertility and pollination. In addition to provisioning services and services in support of provisioning, agricultural ecosystems can provide other regulating and cultural services to communities, such as flood control and scenic beauty, recreation and tourism.

The benefits obtained there-from contribute to various aspects of human well-being, such as adequate livelihoods, sufficient nutritious food, health, secure resource access and security from disasters. Agriculture in the landscape will need to be managed properly to maintain productivity, and reduce production costs as a result of problems such as pest damage, competition for water from other ecosystems, nutrient run-off and sedimentation of waterways.

Designing and managing Eco-agriculture Landscapes

The land use model that segregates agricultural production from areas managed for biodiversity conservation is no longer adequate. Agricultural landscapes can be designed and managed to host wild biodiversity of many types, with positive effects on agricultural production and livelihoods. Innovative practitioners and land managers are adapting, designing and managing diverse types of 'eco-agriculture' landscapes to generate positive co-benefits for production, biodiversity and livelihoods for local people.

A new paradigm, 'eco-agriculture' for is emerging: integrated conservation–agriculture landscapes in which biodiversity conservation is an explicit objective of agriculture and rural development, and the latter are explicitly considered in shaping conservation strategies.

Ecoagriculture approaches may be applicable in all agricultural landscapes, in light of their focus on improving landscape performance (NB. three goals (agricultural production, biodiversity conservation and livelihoods)).

The concept would clearly be applicable for the GFR landscape:

- The landscape is located within the Albertine Rift eco-region and the Congo-Nile Divide, with critical habitat areas for wild species of local, national or international importance, such as the chimps,
- The landscape is heavily degraded; restoration of ecosystem services will be essential to achieve both agricultural and biodiversity benefits

- The landscape also provides critical ecosystem services to the community (watershed functions)

Eco-agriculture landscape land use of GL will contain diverse land-use mosaics with:

- 'natural' areas (with high habitat quality and niches to ensure critical elements for habitat or ecosystem services that cannot be provided in areas under production), which are also managed to benefit agricultural livelihoods either through positive synergies with production or other livelihood benefits,
- agricultural production areas (productive, profitable and meeting food security, market and livelihood needs), which are also configured and managed to provide a 'matrix' with positive ecological qualities for wild biodiversity and ecosystem services, and
- institutional mechanisms to coordinate initiatives to achieve production, conservation and livelihood objectives at landscape, farm and community scales, by exploiting synergies and managing trade-offs among them.

Supporting Climate-smart agricultural technologies

Since climate change is already affecting smallholder agriculture production, supporting Climate-smart agricultural technologies will strengthen adaptation and contribute to mitigation of climate change impacts, while at the same time creating financial benefits for the farmers, e.g., through payments for environmental services.

A large number of climate-smart measures are available, including composting, mulching, crop rotation, crop diversification and use of crop residue and use of improved crop varieties.

Biodiversity and ecosystem services in eco-agriculture landscapes

Biological diversity as an independent variable, can control ecological processes that are both essential for, and fundamental to, the functioning of ecosystems. Loss of biological diversity ranks among the most pronounced changes to the global environment. Reductions in diversity, and corresponding changes in species composition, could alter important services that ecosystems provide to humanity (e.g., food production, pest/disease control, water purification).

Conservation of biodiversity in eco-agriculture landscapes embraces all three elements of agricultural biodiversity defined by the Convention on Biological Diversity: genetic diversity of domesticated crops, animals, fish and trees; diversity of wild species on which agricultural production depends (such as wild pollinators, soil micro-organisms and predators of agricultural pests); and diversity of wild species and ecological communities that use agricultural landscapes as their habitat.

Conservation of Agro-biodiversity

Conservation of agro-biodiversity increasingly requires a landscape perspective. Greater consideration is needed of the interdependence of the conservation of crop genetic diversity and the restoration and protection of landscape mosaics through community-based approaches. Crop genetic resources are embedded in agricultural landscapes, which are a matrix of agricultural fields, forest and wetlands.

The conservation of these resources depends on the ecosystem and evolutionary services provided by wild ecosystems mosaic within landscapes. To maintain these services, negative agricultural impacts on ecosystems can be reduced through greater use of agrobiodiversity in production practices, such as locally-

adapted low-input varieties and agroforestry. The success of such a landscape approach depends on the existence of institutions that guide collective action and ensure the sharing of knowledge, equitable distribution of resources, benefits across the landscape.

Component 5: Agroforestry Production Systems

Agroforestry is the deliberate incorporation of trees and other woody species of plants into other types of agricultural activities. By definition the use of woody species must result in the enhancement of both the biological productivity and the economic return of the system. There are many types of agroforestry, which are usually defined by what type of agricultural activity is involved, but also other combinations such as livestock production (sylvo-pastoral agroforestry).

The Biological Basis of Agroforestry

There are many ways in which agroforestry practices may enhance biological productivity. Soil fertility may be enhanced by planting nitrogen-fixing woody species between rows of crop plants. The foliage of many woody species may also be harvested to provide "green manure" for crop plants which provides nutrients, but also helps prevent soil erosion and water loss, and may help deter pests. Woody species also may be planted to provide shade for crop plants, to prevent soil erosion, or to act as windbreaks. The addition of woody species to an agro-ecosystem has the potential to change both the physical structure of the ecosystem as well as the flow and retention of nutrients in the ecosystem.

The Economic Basis of Agroforestry

In addition to enhancing the biological productivity of agroecosystems, the addition of woody species often results in enhanced economic returns. The use of woody foliage as fodder may reduce the cost of feeding livestock, or may prevent the economic damage done by the loss of livestock during famine or drought. Usually, the woody species used in agroforestry themselves are valuable: they may provide fruit, fiber, nuts, building and craft materials, medicines, timber, charcoal, and a host of other products which can be used on-farm or sold.

Longer-growing tree species used in agroforestry are often used by farmers as a "bank account" which can provide cash income during years with bad harvests. As such, agroforestry practices not only diversify the economic products available to farmers, but may serve to increase economic security as well. Because agroforestry practices improve economic returns, agroforestry has long been seen as an ecologically and socially "friendly" means of sustainable development.

The Ecological Importance of Agroforestry

Farmers typically adopt agroforestry practices because those practices increase productivity and provide economic benefits. But, agroforestry practices can also have significant ecological effects which may be considered more, important than the economic benefits. The inclusion of trees and other woody species changes the structure, diversity, and functioning of these systems, making them more like natural ecosystems than traditional types of agriculture which do not include trees.

Agroforestry practices also, have a tremendously important role to play in the current efforts to conserve global biodiversity. The promotion of agroforestry practices may help to conserve biodiversity in at least four ways:

- 1) In many places in the tropics, agroforestry is more productive, affordable, and sustainable than other agricultural practices. Because it is more productive, both biologically and economically, farmers need less land to survive.
- 2) Because agroforestry systems more closely mimic natural ecosystems, they typically harbor higher invertebrate and vertebrate biodiversity.
- 3) Agroforestry practices have been shown to enhance habitat for bird and arthropod species that act as pollinators and as the natural enemies of pest species protecting these two very important ecosystem services.
- 4) Agroforestry practices may protect and enhance other ecosystem services such as erosion prevention and groundwater recharge, which in turn helps prevent the degradation and loss of surrounding habitat.

Agroforestry System for GFR Landscape

The peasant farmers of Rwanda, faced with a perpetual land shortage, have evolved certain intensive systems of organic agriculture. These systems, particularly the homestead (compound) farming, involve the combination of food, fodder and tree crops. To a certain extent these systems can satisfy the multiple needs of the subsistence farmers living under several risks and constraints.

To cope with the expanding food demand of the rapidly increasing population, some multipurpose, low-input technologies and agroforestry approaches will need to be developed and expanded in order to improve land productivity.

These include:

- 1) inter/mixed cropping systems and rotations, alley cropping with leguminous trees and shrubs, use of planted 'fallow', planting tree legumes on anti-erosive lines, mixed farming, community forestry and woodlots, and tree planting on farm/field boundaries.
- 2) The agroforestry trees already in use will be extended, diversified and intensified to stabilize the slopes and improve soil fertility. Growing of perennials and tree-crops (including tea, shade coffee, fruit trees, etc), inter-cropping or planting of in-field trees, and shelter-belts / live-fences will be promoted. This will particularly promote the use of local species, such as *Podocarpus*, *Polyscias fulva*, *Entantophrama*, *croton megalocarpus*, *Markhamia lutea*, *Vernonia Amydalina* *Mytragyna*, and *sygygium*.
- 3) *Multi Storey Cropping Cropping Systems*: This consists of planting of an overstory of trees or shrubs with an understory of specialty or agronomic crops or forage. Tree-to-tree distance is wide enough to let sufficient light through to understory crops or forage. "Forest Farming" is a form of multistory cropping. Tree canopies of native forests would be managed to allow the production of such crops or forage.

The purpose of multistory cropping is to produce wood or tree products in addition to agronomic crops or forage, 2) To improve crop or forage quality and quantity by enhancing microclimatic conditions, 3) To improve utilization and recycling of soil nutrients for crop or forage use, 4) To reduce excess subsurface

water or control water table depths, 5) To provide favorable habitat for species beneficial to crops or forage.

The trees are planted or native forests managed at a sufficiently wide spacing to allow adequate light to the understory crops or forage and permit passage of the widest field equipment width.

The tree components of the system can also serve as windbreaks and shelterbelts for conservation and improved agricultural production. These vegetative barriers are made up of trees, shrubs and/or grasses planted to provide shelter from the wind and to protect against soil erosion. Properly designed windbreaks can reduce the cost of energy for homes and support buildings while providing habitat for wildlife.

4) *Silvo-pastoralism in Gishwati rangelands.*

Silvo-pastoral techniques, will be established within rangeland areas of the former Gishwati Forest Reserve emphasizing the use of native species. This would include establishing trees on ridge-tops, extreme slopes, riparian buffers, and as live fences, shelter belts and shade trees, through planting and managed natural re-growth. Although this would involve a marginal loss in the area of pasture, silvo-pastoral approaches can be expected to improve the overall productivity of rangelands, by protecting against land degradation, providing shelter for animals from climatic extremes, and through provision of additional fodder and forest products. This is in addition to enhancing forest cover and biological connectivity. Silvo-pastoral interventions would be accompanied, where necessary, with training on improved livestock and pasture management.

Tree/Shrub Species Requirements for use in Agroforestry:

- High value species adapted to the soil/climate of the planting site.
- Low to moderate root and crown spread to minimize competition with understory crops.
- Resistance to pests and disease.
- High resistance to stem and branch breakage from high winds etc.

Component 6: Re-establishing Connectivity through Biological Corridors

Biological corridor is the designation for a continuous geographic extent of habitat linking ecosystems either spatially or functionally; such a link restores or conserves the connection between habitats that are fragmented by natural causes or human development. Such corridors are an important aspect in the conservation of biodiversity and threatened species.

Conserving critical habitats and linking them with ecologically meaningful corridors would allow the continuation of long term ecological and evolutionary processes and heal fragmented landscapes. Corridors effectively mitigate the negative effects of habitat fragmentation through the exchange of individuals and the reduction of genetic drift; leading to higher overall population numbers and increases the exchange of individuals.

Positive species interactions also mitigate negative genetic effects by increasing total genetic diversity, highlighting the importance of designing corridors for entire communities rather than one focal species.

From a conservation perspective, the benefits of increased genetic resilience associated with corridor quality and design can have far-reaching implications for not just local populations, but communities as a whole

Establishment of Biological Corridors in the GFR

A potential biological corridor has been proposed: 1) linking Gishwati with MFR which are two separate parts of MGNP, and then proceeding to link MFR with NNP thus restoring the historical biological link between the two.

Gishwati Forest and Nyungwe National Park corridor is estimated to cover About 4,000 ha. that will connect GFR, MFR and NNP, about 50km to the south. This connection will allow animals to migrate between the protected areas and insure gene exchange between the populations of chimpanzees.

In addition to protecting vital resources and ecosystems the corridors will improve environmental quality and quality of life in rural communities and provide recreation opportunities. They will also enhance property values by creating opportunities for conservation-based enterprises such as ecotourism and cultural tourism

The corridor will also provide important sites for demonstrating the practices and benefits of sustainable, conservation-compatible land-uses. Bearing in mind the small size of Rwanda's Pas, the corridors and buffer zones will expand the extent of the countries conservation areas, where environmental and socio-economic goals are achieved concurrently.

While some studies on the efficacy of wildlife corridors in GFR landscape are necessary, some general principles of evaluation and design are available and should be implemented. Monitoring the use of corridors by target wildlife species is an important step in corridor planning, to allow for adaptive management.

Planning and Establishment of the Corridors:

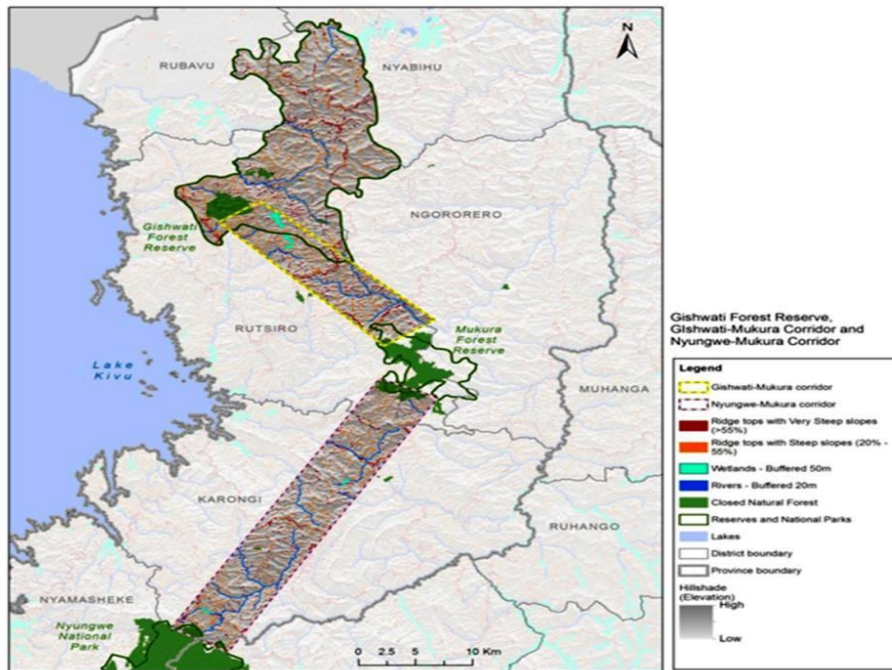
The Biological Corridors will need to be designed with the local species in mind. Some species will do just fine with relatively narrow corridors, while others that are less used to human presence simply won't use them. Many factors play a role in how attractive a wildlife corridor will be to animals: terrain type, vegetation cover, topography, physical barriers of various kinds, and of course, human presence (including smells and noise disturbance).

Identification, Demarcation and Mapping of the Corridors

The areas falling under the corridor will need to be systematically identified, demarcated and mapped. Species and habitats falling within the corridors (e.g. water sources and springs, riverbanks, wetlands etc.) will also need to be identified, inventories and included in the maps.

This information and data will provide a baseline for monitoring progress and changes (positive or negative) within the corridors. A monitoring system focusing on delivering of detailed information needed to manage places and species effectively will be put in place. It will involve consistent, rigorous monitoring of the outputs (management results) and outcomes (management achievements) of specific activities as well as species and ecological changes in the corridors and other parts of the landscape

A detailed study of the movement patterns of wildlife between the GFR and MFR will need to be undertaken and the routes mapped to support the planning, establishment and protection of the corridors. Monitoring the use of corridors by target wildlife species is an important step in corridor planning, to allow for adaptive management.



Map A5.4: Potential protection forest areas within the Gishwati- Mukura – NNP Corridor,

Management of the Corridors

Management of biological corridors can be complex, and different strategies will be appropriate for different corridors.

The land within the corridors belongs to the communities who own it, there will be on expropriation or eviction. However, the owners will be persuaded to adopt land management systems that are compatible with conservation in exchange for certain incentives and benefits. The agreements to establish the corridors, the expected management and benefits will be negotiated in an open and transparent process and formalized through binding agreements.

Elaborating Sustainable Corridor Management Regimes

After the Corridors have been identified, demarcated and mapped, a comprehensive management systems will need to be elaborated. The Planning and elaboration will be undertaken through a participatory process that includes all key stakeholders, particularly the land-owners.

Management standards and guidelines will need to be developed, clarified, structured, and enforced to ensure consistency of management over time. Roles, responsibilities, contributions and obligations of various stakeholders will also need to be defined and agreed.

Sustainable land management with corridor communities

Establishment of a Gishwati-Mukura forest corridor has been adopted as a national goal and is reflected in the National Land Use Master Plan. However, there has been almost complete agricultural conversion of the proposed corridor area. Management of the corridor area will seek to reduce to the minimum the disruption and dislocation of the corridor communities. It will therefore focus on increasing the representation of native forest elements in the corridor, enhancing biological connectivity via the small forest patches and soft boundaries. Highly vulnerable ridge-tops, extreme slopes, and riparian buffers, and/or unproductive lands, combined with agroforestry techniques using native species, offer the potential to greatly increase biological connectivity whilst maintaining or enhancing the productive value of the landscape.

Annex 5: Background on Rwanda's Protected Areas

Overview of Rwanda's Protected Areas

As a policy response to the threats faced by its montane forest, the Rwanda Government has taken some measures to reduce the pressures facing them including The establishment of protected areas and relocation of human populations settled in Gishwati forest to areas outside the forest.

Rwanda's protected areas cover around 8.5 % of the country's total land area of 26,338 km². This includes the three older national parks: (ANP, VNP and NNP), the newest one, GMNP; some forest reserves, forests of cultural importance (Buhanga forest); and wetlands of global importance (Rugezi-Burera-Ruhondo wetland complex) (see Table 1). Besides these legally protected forests, there are other remnant natural forests which are only protected to the extent that Rwandan law prohibits human activities in natural forests. (REMA, 2007).

Initial establishment of protected areas in Rwanda was in 1923, starting with the montaine forests: Mukura, Nyungwe, and Gishwati, and closely followed by the gazettelement of the VNP in 1934 and the ANP in 1934. Since then, all national parks have suffered from degradation and weak management.

The GMNP will be the fourth and latest addition to Rwanda's network on National Parks. With its establishment as a NP, its conservation status will be upgraded from Forest Reserve.

Table 2: Rwanda's Protected Areas

No	Name of PA	Responsible Agency	Year of Gazettelement	Original Area (ha)	Current Area (ha)	Comments
1	Virunga National Park	RDB	1934	34,000	16,000	Initially Gazetted as Albert National Park in 1925, making it the oldest NP in Africa
2	Akagera National Park	RDB	1934	26,400	112,193	NP = 17,900 Ha. Mutara Hunting Area 8,500Ha.
3	Nyungwe National Park	RDB	2005	114,100	101,900	Initially established as a Forest Reserve in 1933
4	Gishwati Forest Reserve	RNRA	1933	28,000	1,484	In process of gazettelement as GMNP
5	Mukura Forest Reserve	RNRA	1933	2,000	1,987	In process of gazettelement as GMNP

Rwanda's national parks are not only a significant source of income for the country, but also provide invaluable ecosystem services for the Rwandan people - in terms of hydrological cycling to ensure clean water, erosion control, climate regulation, etc..

Revenues generated from both protected and natural forests, including income from tourism, timber and non-timber forest products, were estimated to contribute 5% of total GDP in 2009 and rose to 18.8% in 2011/2012 (MINECOFIN, 2013). Rwanda's parks are the main source of tourism revenues.

From a biodiversity perspective, Rwanda boasts some of the most biologically significant areas on the African continent, with the majority of these areas found in three national parks. Rwanda falls within the Albertine Rift – which is one of the richest areas in Africa in terms of biodiversity. This region ranks first out of 119 terrestrial ecoregions of Africa for its endemic vertebrate species (species that occur nowhere else) and second in terms of threatened species. The entire Albertine Rift, from northwest Uganda through Rwanda, Burundi, Western Tanzania and eastern Democratic Republic of Congo, is recognized as an “Endemic Bird Area” by Birdlife International and as a “biodiversity Hotspot” by Conservation International.

Demographic pressures in Rwanda have posed major challenges with respect to natural forests and protected areas. Common threats facing protected areas include poaching, agriculture encroachment, woodcutting for firewood and construction, bamboo harvesting, water collection, medicinal plant collection and honey gathering. The increase in tree cover using non-native species, has diminished natural forest cover from 26% of the country’s land areas in 1993 to 21% in 2010 (GoR, 2010). Areas of national parks also have been reduced to accommodate Rwanda’s expanding population. Two-thirds of the surface area of the ANP, estimated at 245,000 hectares in 1934, was de-gazetted in 1997 to accommodate Rwandans returning from exile. The park currently covers 112.193 hectares.

Resettlement of former refugees repatriated from the DRC after the 1994 Genocide has sharply contributed to the destruction of Gishwati forest reserves in the northwest of the country. Gishwati’s history of deforestation extends over many decades. Gishwati forest covered about 70,000 acres in 1930.

PA Regulatory Framework

- *National Policies and Laws*

A number of laws and policies relevant to the management of protected areas have been put in place in recent years. These include: the Constitution of the Republic of Rwanda as amended to date, the Environmental Policy (2003), Land Policy (2004), the Environment Law (2005), the Akagera Law (2010), the Forestry Policy (2010),¹⁷ the Rwanda Wildlife Policy (2013), and the Land Law (2013), the Biodiversity Policy (2013) and Biodiversity Law.

Protected areas are legally classified as state land in the public domain which is reserved for environmental protection. In accordance with policy and legislation, various rights and restrictions can be established by the relevant competent authorities that define each stakeholder’s access to direct and indirect use of wildlife resources. Article 64 of the environmental law of 2005 obligates the population to conserve the environment by individual action, collective activities, or associations of the environment.

Brief Overview of Key Policies

Vision 2020 and EDPRS

The Vision 2020 and the EDPRS are the overall national policies driving Rwanda’s sustainable development agenda. Both of them give emphasis to the importance protection and wise use of the environment for the development of the country. They are therefore the reference documents for all other national policies. They have strongly influenced the statements and strategic options of other policies.

One of the pillars of Vision 2020 is the protection, efficiency and the sustainable usage of natural resources. Multiple targets are set in the policy for environmental improvements. Some examples of targets are the increase of forest cover, decrease of wood energy use, increase of modernized agricultural land and reduction of soil erosion.

One of the five priorities for economic transformation addressed in the EDPRS is the green economic approach. Positive environmental impacts in this approach are secured through allocation of adequate resource. With this technique resource exhaustion will be prevented and a sustainable use of natural resources will be promoted and eventually achieved. The government of Rwanda recognises that the achievement of these targets is not possible without private sector involvement. Vision 2020 as well as the EDPRS emphasize the importance of the development of the private sector for long-term development. Vision 2020 underpins the importance of the development of local-based business class and the creation of off-farm jobs.

Relevant Sectoral Policies

The government has formulated a number of policies whose implementation is contributing to the conservation, protection and restoration /reforestation of critical ecosystems. The policies have substantially reversed the critical situation facing natural forests such as Gishwati; and today they have greater hope for their survival and the loss of species will be reversed.

Some of the more relevant policies are briefly reviewed below.

National Environment Policy

As a response to the environmental problems taking place at wide scale in Rwanda, the National Environment Policy was enacted in November 2003. The overall objective of the policy is "*the improvement of man's wellbeing, the judicious utilisation of natural resources and the protection and rational management of ecosystems for sustainable and fair development*" (MINIRENA 2003).

The Environment Policy also calls for:

- Optimum utilization of resources in order to attain a sustainable level of consumption of resources;
- The use marginal land for the promotion of reforestation programmes with a view to the protection and conservation of bare and degraded areas;
- The rehabilitation of degraded ecosystems and the restoration of threatened species.
- Undertaking of inventories of endemic native and/or less known species of economic importance.

National Forest Policy

The national forest policy was enacted in 2010 to replace the first national forest policy of 2004. The old policy was influenced by the forestry law of 1988 which was written in a different socio-economic and political context and therefore needed revision. The overall aim of the policy is "*making the forestry sector, one of the bedrocks for sustainable development, thriving, developed, managed and utilised for sustainable benefits to all segments of society and the environment*". This involves the maintenance of the present

forests cover, sustainable forest management and increase the total amount of forest cover in the country to at least 30% by 2020; (MINIFOM 2010).

Some Key Provisions of the National Forest Policy:

- **Increasing the forest cover:** Targets of forest cover have been set by two different policies, EDPRS and Vision 2020. The targets have been set at 23.5% equivalent to 616.309 ha in 2012 and 30% equivalent to 790.140 ha of forest by 2020. This is planned to be done through both afforestation and reforestation programmes. The last forest cover assessment done in 2012 showed a forest cover of almost 20% equivalent to 526,760 ha of which over 80 percent is forest plantations. The aim of increasing forest cover is to increase the supply of forest product, as well as protection of the soil, water catchments and conservation of the biodiversity.
- **Agroforestry:** Because of the high population density in Rwanda there is a shortage of space for growing large scale forest plantations. Therefore farm forestry is needed and will be widely applied to increase the forest cover. The use of multi-purpose and nitrogen-fixing trees species will be promoted. These trees on farm land can bring great added values for the farmers by being a source for timber, wood fuel, bean stakes, and non-timber products like fruits and medicines. Besides that they can be used for erosion control.
- **Tree species diversification:** Tree farming shall endeavour to use a wide range of species. More than 80% of the current tree plantations are Eucalyptus. Monocultures bring very high risks in case of outbreaks of pests and diseases
 - *Ecologically and physically fragile areas:* Special care shall be taken to conserve ecologically fragile areas in order to conserve the biodiversity therein and to protect areas prone to soil erosion and landslides;
 - *Establishment, rehabilitation and conservation of watershed protection forests:* Watershed degradation is mainly due to the erosion caused by unsustainable utilization of resources that does not take into consideration the protection of natural ecosystems.

To achieve the objectives of Forest Policy, the following strategic actions are proposed:

- Identifying, mapping and assessing the condition and status of major watersheds in Rwanda;
- Rehabilitating degraded forests in the watersheds;
- Developing regulations and guidelines for management of lakeshore and riverbank forests;
- Developing educational material and mobilizing the population to protect watersheds by tree planting; and
- Supporting neighbouring communities in developing community management and/or utilization approach of soil, water and forests resources, to learn lessons and promote successful experiences elsewhere.

Organic Law n° 04/2005 of 08/04/2005: This law is determining the modalities of protection, conservation and promotion of environment in Rwanda. According to this law every person has the duty to protect, conserve and promote environment and every person has the right to live in a healthy and balanced environment. To protect the environment every project will be subjected to environmental impact

assessment before obtaining authorization for its implementation. And any activity aiming at controlling soil erosion and drought like afforestation, sustainable renewable energy, use of modern cooking stoves may receive support from the National Fund for Environment, FONERWA.

The National Wildlife Policy 2013

The Goal of this policy is to: ***ensure that wildlife inside and outside protected areas are managed within a comprehensive national conservation plan***

Rwanda's protected areas generally encompass biologically rich habitats, which contain most of the country's remaining wildlife. The challenge of conserving wildlife in protected areas as well as outside of these areas requires a national level planning structure.

- Prohibit mining and other ecology-disrupting activities within PAs, except under very strict legal conditions.
- Park zoning techniques are used for evaluating and classifying park land according to diversity of the resources, their vulnerability, and the desired conditions or the management objectives for different units in a protected area.
- Set up a regulatory framework for management of wildlife, and conservation of protection of species and habitats outside protected areas as a contribution to both species conservation and socio-economic development.
- Strengthen the ecological security and functioning of PAs through the designation and establishment of buffer zones, migratory corridors and wildlife dispersal areas.
- Undertake quantitative and qualitative assessments and censuses of wildlife, and their habitats outside Pas as part of the national baseline assessment. This information will be vital for making decisions on the management and protection of these resources.
- *Biodiversity Policy*

The main provisions of this policy include:

Addressing Threats and Supporting Sustainable Use of Biodiversity: Human activity has been changing the natural ecosystems through agricultural and industrial development, and human settlement, over-exploitation of certain species and the introduction of alien invasive species. This has resulted in habitat loss and degradation, and the pollution or toxification of the soil, water and atmosphere. In addition, some species have been lost and ecological processes impaired. This policy provides the framework for effective strategies for action to save biodiversity and promote sustainable use.

Control of Alien Invasive Species: The unregulated entry, introduction and spread of alien organisms can have adverse impacts on biodiversity and ecosystems. Through this Policy, Government establishes a legal framework for controlling and regulating the introduction and spread of such organisms in Rwanda. It also requires the establishment of a framework for regulating the transfer, handling, use and release of genetically modified organisms (GMOs) in order to minimize the potential risks to biodiversity and human health.

Conserving the Diversity of Landscapes, Ecosystems, Habitats, Communities, Populations, Species, and Genes in Rwanda: this deal with those aspects of the policy concerning the conservation of biodiversity, both inside and outside of protected areas. It includes measures required to protect, maintain, rehabilitate, restore, and enhance biodiversity such as:

Establishment of a comprehensive strategy for land-use planning that integrates and connects biodiversity conservation to serve diverse production and conservation goals. Biodiversity planning is steadily moving from localized, piecemeal efforts to a broader approach that emphasizes planning, protection, monitoring, and management of entire landscapes and ecosystems. Integrated conservation planning ultimately arrives at a land-use mosaic comprising of core protected areas surrounded by transition zones with compatible human uses that serve both production and conservation. The aim is to connect the core PAs within the landscapes through buffer zones, corridors and dispersal areas.

Environmentally Sound and Sustainable Development outside Protected Areas: Urgent attention is required to ensure that biodiversity is conserved not only within protected areas, but across the landscape, and that sustainable development is promoted throughout Rwanda. Special attention should be paid to areas adjacent to protected areas, given that activities occurring in such areas may be critical to the protected area's success. Furthermore, the ecological landscape is often a continuum comprising protected areas and surrounding regions. The viability of PAs and the maintenance of biodiversity outside them are thus dependent upon the extent to which biodiversity conservation is socially, economically, and ecologically integrated into the entire landscapes.

Promote environmentally sound and sustainable development in areas adjacent to or within protected areas, with a view to furthering protection of these areas: Protected areas in Rwanda fall within some of the most populous and poverty-stricken parts of the country. As protected areas are often centres of economic activity, social and economic conditions within and outside of these areas contrast starkly. In the creation of protected areas, many communities were forcibly removed without adequate compensation. Furthermore, a "fences and fines" approach resulted in people being denied access to resources upon which they depended. Aggravating these circumstances is the fact that protected areas have remained inaccessible to the majority of the people, and are perceived to provide few benefits to them. These imbalances are well recognized, and are in some instances being redressed by conservation and other agencies.

Establishing connectivity and gene flow through the establishment of corridors and buffer zones between patches, and between PAs and other habitats as an important part of this approach.

Ensure sustainable management of areas beyond national parks for holistic sustainable management of biodiversity: The landscapes outside PAs have a full range of ecosystems with varying degrees of human influence. Even those ecosystems that have been intensively modified and managed by humans contain significant resources of conservation value. The land outside protected areas is largely under the control of private owners and communities. With proper incentives, land use practices that are compatible with conservation can be introduced and promoted, in some areas.

National Water Resources Management Policy

In 2010 a new water supply and sanitation service policy was formulated to meet the objectives set by the Vision 2020 and EDPRS. The policy provides for the protection of ground and surface waters and lays the foundation for wetland and water catchment protection. The Policy calls for an integrated approach to the management of Rwanda's water resources. The main challenge of the water resources management in Rwanda is "*meeting increasing multiple water demands, in the face of declining water quantity and quality, and inadequate governance framework*".

Key Provisions of the Water Policy:

Watershed and catchment rehabilitation and restoration of ecological functions: Critical watersheds, catchments and sub-catchments will be mapped and their ecological functioning analyzed. Rehabilitation plans will be developed and implemented for the catchments. The watersheds will be evaluated for their economic and technical value. Besides that invasive species like the Water hyacinth will be controlled and monitored since they have the risk of choking water sources.

Water allocation and utilization framework: A catchment-based Water Allocation Master plan will be developed and implemented. This plan will reflect the rights and obligations of water users to meet the multiple needs and downstream trans-boundary obligations. One of the key targets will be to ensure that all institutions and at least 50% of households have rainwater harvesting facilities. An institutional structure for Water Resource Management still needs to be developed. On top of that Rwanda is planning to develop a trans-boundary cooperation framework with its neighbours, for the sustainable utilization of water resources.

The Tourism Policy and Master plan

Rwanda Tourism

As Rwanda's largest export sector, aggressive growth in tourism will be vital for the achievement of overall national development goals. Tourism revenues are projected to increase from US\$293m in 2013 to US\$860m by 2017. Tourism is seen as a key component of improving the external connectivity of the Rwandan economy, and high-end tourism has been identified as a priority cluster for short-term growth.

Rwanda's parks are the main source of tourism revenues. Government of Rwanda support for tourism started in 1965 with the establishment of the Ministry of Tourism and Information. In 1973, it was replaced by the ORTPN, which was created to promote the tourism industry. Tourism is now an important economic sector and contributes to about two-thirds of foreign exchange earnings in Rwanda. Earnings from foreign tourism rose by 35 percent between 2008 and 2011, with improvements in tourism infrastructure attracting increased numbers of tourists from across the African continent and overseas (World Bank, 2013).

Tourism Policy 2009

The overall objective of the Tourism Policy is to increase tourism revenues in a sustainable manner, generate profits for reinvestment and create jobs. This will be done by developing new and distinctive, market-led products that are clearly positioned and promoted in the marketplace. They will bring spatial and socio-economic balance to the distribution of tourism benefits. For Rwanda, sustainable development incorporates environmental, social and economic elements.

To sustainably increase tourism in Rwanda these objectives include:

- *Product development and diversification* – Develop a range of quality tourism products and services, capable of attracting and meeting the needs of international, regional and domestic visitors.
- *Marketing and awareness* – Project a clear, distinctive, image of Rwanda as a wildlife, eco-tourism, cultural and conference destination that is attractive to a high-value market.
- *Capacity building* – Develop systematic, high quality training, to create a skilled workforce in value jobs at every level of the tourism and hospitality industry.
- *Communities and MSMEs* – Provide support to MSMEs, ensuring that they have the capabilities and capacities to enter the tourism value chain, while also ensuring that communities contribute to and benefit from the tourism industry.
- *Access to Rwanda as a destination* – Ensure that international tourists have minimal hassle in their journey to Rwanda in terms of air and land access, as well as in Visa and other requirements.
- *Framework of regulation* – Establish and maintain regulation that enables the tourism industry to develop in a fast yet sustainable manner.
- *Infrastructure development* – Prioritize the provision of infrastructure within the Destination Management Areas (DMAs) and their associated corridors.
- **Land** – Enable tourism investments through ensuring the availability and security of land tenure for development.
- *Environmental sustainability* – Ensure that the tourism sector is planned and developed to the benefit of future generations of Rwandans, in terms of the sustainability of resource use, the protection of wildlife and the environment.
- *Investment and financing* – Develop incentives and a financial architecture that supports investment in the tourism industry.

The Tourism Master plan, 2009

The objectives of the Master Plan are to provide stakeholders and potential investors in the tourism sector with a guide to developing a world-class tourism destination attracting a steady flow of tourists and to enable the development of a tourism industry able to provide quality services and facilities to visitors, employment for Rwandans and opportunities and revenue for local communities thus contributing directly to poverty reduction.

Three-year action plans were to be formulated and concept plans for priority areas prepared. Particular emphasis was placed on devising mechanisms to enable local communities to participate in the tourism sector and workshops were organized in selected areas to this effect. The Master Plan will support Rwanda to become a major tourism destination in East Africa.

Kivu Belt Tourism Sub-Master Plan

Despite substantial tourism potential, Tourism attractions in the Kivu Belt are clearly underdeveloped. Opportunities exist to make the area more appealing to visitors, and so increase revenue received by the industry. The Kivu Belt Tourism Sub-Master Plan has been developed to address this shortfall.

The Sub-Master plan proposes the following activities for endorsement by GOR:

- Development of several flagship projects in five districts to be developed through a combination of public and private investments;
- Earmark and gazette all necessary land for the exclusive use of the tourism industry in accordance with the Kivu Belt Tourism Sub-Master Plan;
- Start the process of expropriating land necessary for the development of flagship projects;
- Hire the services of a transaction advisor who will work with RDB to package flagship projects ready for development, develop business plans for each flagship project and negotiate their sale to private investors;

Institutional Framework

Rwanda has embarked on considerable institutional transformations in the environment sector. A number of institutions have been formed or restructured to address different environmental needs and priorities. The former ORTPN is now the Department of Tourism and Conservation under the Rwanda Development Board (RDB). The mandate of the department is to conserve the rich biodiversity of Rwanda's protected areas and to develop a sustainable tourism in collaboration with stakeholders for the benefit of all Rwandan people. The Ministry of Natural Resources (MINIRENA) is the overall leading institution of the environmental sector charged with ensuring sustainable management and rational use of natural resources. Under its mandate are two major implementing agencies of environmental sector policies and programs, the Rwanda Environmental Management Authority (REMA) and the Rwanda Natural Resources Authority (RNRA), each with interlinked, but separate mandates.

REMA is mandated to coordinate and oversee the implementation of national environmental policy and associated legislation. RNRA is responsible for implementing national policies, laws, strategies, regulations and government resolutions in matters relating to the promotion, protection and sustainable management of natural resources – land, forests, water and minerals. While national parks are managed by RDB, forest reserves and other natural forests are managed by MINIRENA, RNRA and the Districts, while protected swamps fall under the authority of REMA.

No management role of protected areas or buffer zones is directly assigned to the citizens, although section 5.6.3 of the National Land Policy assigns responsibility to all Rwandans to improve the protection and the management of protected areas. Rather, the role of the surrounding communities within protected areas is limited to provision of labor, participating in awareness campaigns, and monitoring of illegal activities through overnight patrols and participation in emergency activities such as fire fighting.

Allocation of rights to surrounding communities to economic benefits generated by protected areas is provided for in the case of national parks. In 2005, RDB launched a Revenue Sharing Program which allocates 5% of tourism revenues earned by the park to fund community development projects.

Regional Policies

Regional policies provide a framework for collaboration in conservation and PA management. Some of the notable Regional Agreements and Policies include:

- *The African Convention on the Conservation of Nature and Natural Resources - 1968. (Revised 2003, now referred to as the Maputo Convention)*

This is a regional Convention spelling out the commitment of African nations to the conservation of their soil, water, flora and fauna. It provides definiteness for strict nature reserves, national parks, and special reserves. It suggests a national framework for conservation should include protected areas, controls on trade in specimens and trophies, conservation education, national conservation services and inter-state cooperation.

The objectives of this Convention are to:

1. to enhance environmental protection;
2. to foster the conservation and sustainable use of natural resources; and
3. to harmonize and coordinate policies in these fields with a view to achieving ecologically rational, economically sound and socially acceptable development policies and programmes.

PRINCIPLES: In taking action to achieve the objectives of this Convention and implement its provisions, the Parties shall be guided by the following:

1. the right of all peoples to a satisfactory environment favorable to their development;
2. the duty of States, individually and collectively to ensure the enjoyment of the right to development;
3. the duty of States to ensure that developmental and environmental needs are met in a sustainable,

Fundamental Obligations

The Parties shall adopt and implement all measures necessary to achieve the objectives of this Convention, in particular through preventive measures and the application of the precautionary principle, and with due regard to ethical and traditional values as well as scientific knowledge in the interest of present and future generations.

- *The East African Community (EAC) Treaty*

Rwanda has been a member of the East African Community since 2009. The EAC Treaty provides for collaboration between Partner States in the management of the environment and Partner States recognize the need for environmental management and economic utilization of natural resources for sustainable development. The aim is to reduce threats to human health and ecosystems, promote sustainable development, and manage natural resources on a sustainable basis.

- *The Nile Basin Initiative*

The Nile Basin Initiative (NBI) is "a regional intergovernmental partnership that seeks to develop the River Nile in a cooperative manner, share substantial socio-economic benefits and promote regional peace and security." It was launched in 1999 by ministers in charge of water affairs in the riparian countries of the Nile Basin including Rwanda. The NBI provides a regional platform for multi-stakeholder dialogue, information sharing, and joint planning and management of water resources in the Nile Basin. Rwanda's watersheds form the upper reaches of the White Nile and contribute an estimated 8–10 percent of the water in that branch of the Nile.

- *Lake Victoria Basin Commission*

Under its membership to the EAC, Rwanda is part of the Lake Victoria Basin Commission, whose members also include Burundi, Kenya, Tanzania, and Uganda. Established in 2001, the Commission is a mechanism for coordinating the various interventions on the Lake and its Basin, and a centre for information sharing and promotion of investments.

International Policies

The development of multilateral environmental agreements (MEAs) over the last three decades has been the most tangible and concrete measure of success and advancement of international environmental law. However, the implementation of these agreements has been less successful and there has been a growing need to enhance synergies and inter-linkages of various MEAs.

A **multilateral environmental agreement** (MEA) is a legally binding agreement between three or more states relating to the environment. They are predominantly produced by the United Nations. It is called a bilateral environmental agreement if the agreement is between two nation states.

In the last two decades a great change has taken place in international relations. Many new Multilateral Environmental Agreements (MEAs) have come into existence, transforming how countries all over the world deal with environmental issues. This rapid change in international relations is still under way.

They offer an important opportunity to create a fair and effective international environmental governance system. There is also a risk that the new system will not be strong enough to tackle today's environmental challenges. Small and vulnerable countries also struggle to make their concerns heard.

Rwanda has for long been collaborating with the international community in the area of conservation of nature. It is in this context that Rwanda ratified several conventions concerning environment in general, and particularly the areas protected by the convention on biological diversity: UN convention on climatic changes, the convention on international trade of wildlife species in danger (CITES), UN convention on combat against desertification, African phyto-sanitary convention; the African convention on the conservation of nature and natural resources (Alger's Convention); the convention on world property (UNESCO ; RAMSAR convention on humid zones of International importance like the habitat of birds; the convention of migratory birds (CMS or Bonn convention) and the Agreement of Cartagena on bio-security in relation to convention on biological diversity.

The PNV is part of UNESCO Programme "Man and the Biosphere" (MAB) and has had the status of Biosphere reserve since 30 June 1983. Launched in 1971, MAB programme is the basis of sustainable use and protection of biological diversity and improvement of relations between man and his environment in general. A similar designation has been proposed for the Gishwati – Mukura Landscape.

A biosphere reserve must accomplish three complementary functions: protection (protection of landscapes, ecosystems, species and genetic variations; promotion of sustainable human and economic development and logistics (support for education, training and research).

The 1992 CBD defines protected areas as a portion of land, aquatic or sea environment which is geographically delimited, dedicated especially to the protection and the preservation of biological diversity and its natural and cultural resources and managed through legal or other effective means.

In order to comply with such international definitions of protected areas, countries typically use legal instruments to prescribe the boundaries of protected areas, restrictions and rights on the use of resources within those boundaries, and the management regimes for protected areas. In many African countries, including Rwanda, the primary responsibility for managing protected areas as well as prescribing rights to use land and natural resources within protected areas is vested in the government. Governments often point to their mandate to ensure that community or public goods are effectively managed as the rationale for this exclusive vesting of powers over protected areas

Annex 5: List of Persons Consulted

No	Name	Date	Institution /Sector / Cell	Function	Contacts(Tel / e-mail)
1	Goreti Manikuzwe		RNRA	Biodiversity	0788824373
2	Fabrice Mugabo	26/02/2015	REMA	LAFREC Project	0788657116
3	Laetitia Busokoye		REMA	Research & Planning	0788530999
4	Telesphore Ngoga		RDB	Conservation Manager	
5	Francois Bizimungu		RDB	Planning Manager	
6	Eric Nzabandora		Pfunda Tea Company	Agronomist	0785749109
7	Come De Gaulle		Pfunda Tea Company	Manager	0783576425
8	Servilien Turanye		Rutsiro District	DFO & acting as the district Agronomist	0788752673
9	Ladislav Ngezahoguhora		Rutsiro District	Land Manager	0788548361
10	Etienne Havugimana		Rutsiro District	District Planner	0783559122
11	Remy Bimenyimana		Rutsiro District	Acting as environment officer	
12	1. Mujawayezu Console	17/03/2015	COVAKARU Coop/Ruhango/Kavumu	President of artisans	0782945760
	2. Basesayose Vestine			Artisan	_____
	3. Utazayavugwa Marie			Artisan	_____
13	BAGIRWANIMANA Elie	18/3/2015	COAGIRU Coop/Ruhango/Kavumu	Traditional Healer	_____
14	RUHUMURIZA Thacien			President of Traditional healers	0785731640
15	SIBOMANA Felicien	20/3/2015	UNICOAPIGI Coop/Ruhango/Gakeri	President of Beekeepers	0788804064
16	TWIZERIMANA David			Beekeeper	_____
17	MWISENEZA Emmanuel	25/03/2015	MUMICO coop/ nyabirasi/mubuga	President of Miners	_____
18	NIRERE Etienne	17/03/2015	Local government/Ruhango	Executive Secretary of the sector	0788892725
19	NGEZAHAYO Innocent	17/03/2015	Local government/Ruhango	Sector Agronomist	0788513172
20	HABINSHUTI Felicien	23/03/2015	Local government/Kigeyo	Secretary Executive	0786024025
21	NIKUZE Aimée	24/03/2015	Local government/Kigeyo	Sector Agronomist	-
22	NAMBAZA Pascal	25/03/2015	Local government/Nyabirasi	Sector Agronomist	0788604946
23	Mukangarambe Esther	17/03/2015	Village leader/KIGEYO/RUKARAGATA	Farmer	0783422246
24	Ntibiramira j.Damascene	17/03/2015	Cell leader/KIGEYO/NYAGAHINIKA	Executive Secretary of the cell	0788450682

25	Gasigwa J. D'amour	17/03/2015	Cell leader/KIGEYO/Rukaragata	Executive Secretary of the cell	0788804590
26	1. Uwimana 2. Dusabe 3. Ayingeneye Judith 4. Bavugamenshi 5. Mburamatatare	18/03/2015	1 .Indashyikirwa Association (Historically marginalized people).	Farmers	_____
27	Bamporineza Zachalie	18/03/2015	Cell leader/Nyabirasi/Mubuga	Executive Secretary of the cell	0781036527
28	1.Harerimana Leonidas	19/03/2015	Village leader/KIGEYO/NYAGAHINIKA	Farmer	0789193068
29	1. Ntawurusiga Pierre	19/03/2015	Local people/Nyabirasi/Mubuga	Farmer	_____
	2. Uwamahoro Christine				
30	1.Ineza Judith 2.Uwimpuhwe chance 3.M Byishimo claude 4.urwanashyaka 5.Munyana 6.Uwamahoro	19/03/2015	ECO-CLUB/E.P. Mubuga	Students	_____
31	Nzabonimpa Aloys	19/03/2015	Village Leader/Nyabirasi/Gashasho	Farmer	0783350647
32	Higiyo Dieudone	19/03/2015	Village Leader/Nyabirasi/Mubuga	Farmer	0783423052
33	Rutabingwa J.M.V	19/03/2015	Communities Representative/Nyabirasi/Mubuga	Farmer	0788713045
34	Dufiteyezu Justin	20/03/2015	Cell leader/Ruhango/Rundoyi	Executive Secretary of the cell	0786201833
35	Bimenyimana Emanuel Bem	20/03/2015	Cell Leader/Ruhango/Gihira	Executive Secretary of the cell	0786201853
36	1 Twambazimana J.pierre 2. Sebikari pierre 3.Dushimimana Alphred 4. Mutuyimana Samanta 5. Uwamahoro Dianna	20/03/2015	1.ECO-CLUB /G.S Bitenga /RUHANGO/GIHIRA	Students	_____
37	Gakoti Mutangana	20/03/2015	Village leader/Ruhango/Gihira	Farmer	0788766918
38	Banguwiha	20/03/2015	Village leader/Ruhango/Gihira	Farmer	0783423164
39	Ruzindana Emanuel	21/03/2015	Village leader/Kigeyo/Rukaragata	Farmer	0783422260
40	1.Gasasira Phillipe	21/03/2015	Jyambere cooperative/ Local farmers /Kigeyo/Rukaragata	President of Jyambere cooperative	0788593558
	2.Mudasarika Isaie			farmer	
41	Munyaneza Fidele	22/03/2015	Communities Representative/ Mushonyi	Cell Adviser	0788220080
41	Kayihura jean	23/03/2015	Communities Representative/Kigeyo	Sector Adviser	0781148026/0788704333

