REPUBLIC OF RWANDA

FOURTH NATIONAL REPORT TO THE CONVENTION ON BIOLOGICAL DIVERSITY

RWANDA ENVIRONMENT MANAGEMENT AUTHORITY
MINISTRY OF NATURAL RESOURCES

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LIST OF ABBREVIATION

ANP	AKAGERA NATIONAL PARK
EAC	EAST AFRICAN COMMUNITY
CBO	COMMUNITY BASED ORGANISATION
C-GIS	CENTER FOR GEOGRAPHIC INFORMATION SYSTEM
COGEBAV	COMITES DE GESTION DE BASSIN VERVANTS
COMESA	COMMON MARKETFOR EASTERN AND SOUTHERN AFRICA
DEMP	DECENTRALISATION AND ENVIRONMENT MANAGEMENT PROJECT
DFID	UK- DEPARTMENT FOR INTERNATIONAL DEVELOPMENT
DFIGF	DIAN FOSSEY INTERNATIONAL GORRILA FUND
EDPRS	ECONOMIC DEVELOPMENT AND POVERTY REDUCTION STRATEGY
EIA	ENVIRONMENTAL IMPACT ASSESMENT
ESDS	EDUCATION FOR SUSTAINABLE DEVELOPMENT STRATEGY
GEF	GLOBAL ENVIRONMENT FACILITY
GOR	GOVERNMENT OF RWANDA
HIMO	HAUTE INTESITE DE MAIN D'OEUVRE
IMCE	INTEGRATED MANAGEMENT OF CRITICAL ECOSYSTEMS
IRST	INSTITUT DE RECHERCHE SCIENTIFIQUE ET TECHNOLOGIQUE
ISAR	INSTITUT DES SCIENCES AGRICOLES DU RWANDA
MINAGRI	MINISTRY OF AGRICULTURE AND ANIMAL RESOURCES
MINALOC	MINISTRY OF LOCAL GOVERNMENT
MINECOFIN	MINISTRY OF FINANCE AND PLANNING
MINIRENA	MINSTRY OF NATURAL RESOURCES
NAFA	NATIONAL FORESTRY AUTHORITY
NEPAD	NEW ECONOMIC PARTNERSHIP FOR AFRICA'S DEVELOPMENT
NLC	NATIONAL LAND CENTER
NNP	NYUNGWE NATIONAL PARK
NUR	NATIONAL UNIVERSITY OF RWANDA
NYEP	NATIONAL YOUTH AND ENVIRONMENT PROJECT
ORTPN	OFFICE RWANDAIS DU TOURISME ET DES PARKS NATIONAUX
PAB	PROTECTED AREAS BIODIVERSITY PROJECT
PAIGELAC	PROJET D'AMENAGEMENT INTEGRE ET DE GESTION DE LACS INTERIEURS
PEI	POVERTY ENVIRONMENT INITIATIVE
RADA	RWANDA AGRICULTURAL DEVELOPMENT AUTHORITY
RARDA	RWANDA ANIMAL RESOURCES DEVELOPMENT AUTHORITY
RDB	RWANDA DEVELOPMENT BOARD
REMA	RWANDA ENVIRONMENT MANAGEMENT AUTHORITY
SEA	STRATEGIC ENVIRONMENTAL ASSESMENT
SIDA	SWEDISH INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
TIG	TRAVAUX D'INTERET GENERAL (FOR GENOCIDAIRES)
UNDAF	UNITED NATIONS DEVELOPMENT ASSISTANCE FRAMEWORK
VNP	VOLCANO NATIONAL PARK

EXECUTIVE SUMMARY

Its location within the centre of the Albertine Rift, in the western arm of the Africa's Rift Valley, which is considered to be the highest in species richness in Africa makes the country ideal for focus on issues of conservation. Three national parks in Rwanda which are transboundary and linking Rwanda with Democratic Republic of Congo and Uganda (Volcanoes National Park containing the world famous mountain gorillas), with Uganda and United Republic of Tanzania (the Akagera National Park containing the Akagera River) and with Burundi (Nyungwe National Park, where is located the remote source of the River Nile) are the most prominent conservation areas in the country and within the Rift.

As Party to the Convention on Biological Diversity, Rwanda has committed herself to achieving, by 2010, a significant reduction in the rate of biodiversity loss as a contribution to poverty alleviation and to the benefit of all life on earth. This fourth national report assess progress towards the 2010 target, drawing upon an analysis of the current status and trends in biodiversity and actions taken to implement the Convention at the national level, as well as to consider what further efforts are needed.

This fourth National Report to the CBD gives an overview of the status of the implementation of the three objectives of the Convention and achievements towards the CBD's 2010 target and Strategic Plan. The report is composed of four main chapters.

- The first chapter gives an overview of Rwandan biodiversity status, trends and threats.
- The second chapter assesses the implementation of the convention through the National Biodiversity Strategy and Action Plan. The chapter assesses the effectiveness of the strategy, and also identifies obstacles encountered in implementation with a view to overcoming them.

- Chapter III provides information on Rwanda's efforts to integrate biodiversity conservation and sustainable use into relevant sectoral and cross-sectoral plans, programmes and policies as required by Article 6 (b) of the Convention. In this chapter integration is considered in terms of other sectors besides the environment, such as agriculture and animal husbandry, industry-trade and tourism, energy and mining, infrastructure (transport), human settlement, water and sanitation; national and sub-national strategies and programmes such as Economic Development and Poverty Reduction Strategy, Districts Development Plans and other convention processes besides the Convention on Biological Diversity.
- The chapter IV concludes by drawing together key information or findings from previous chapters in order to assess how actions taken to implement the Convention at the national level have contributed to achieving progress towards the 2010 target and the goals and objectives of the Strategic Plan of the Convention.
- The report also provides in appendices information on the preparation of the national report, and progress towards Targets of the Global Strategy for Plant Conservation and Programme of Work on Protected Areas

I. OVERVIEW OF RWANDAN BIODIVERSITY STATUS, TRENDS AND THREATS:

Although Rwanda is a small country (26,338 km^2), the country has a remarkable variety of ecosystems and a variety of flora and fauna. Rwanda's vegetation is a regional mosaic comprising Guinea-Congolese and Sudanese vegetation types which includes savannah with grasses, bushes and trees; mountain rainforests and mountain meadows; forest galleries, swamps and aquatic vegetation (MINITERE, 2007).

- Rwanda shelters 2,150 species of plants. However, the number of plant species found in Rwanda is far from being totally known and new species are still being discovered.

- Rwanda shelters 151 different types of mammal species, 11 of which are currently threatened. Among them are the primates (14 to 16), wich include the threatened mountain gorillas (*Gorilla gorilla berengei*), found in the Volcanoes National Park.
- Rwanda is one of the top birding countries, and 670 different birds have been recorded in Rwanda. Four of them are threatened with extinction in Rwanda : the shoebill (*Balaeniceps rex)*, found in Akagera; Grauer's rush warbler (*Bradyptrus graueri*), found in Volcanoes National Park, in Nyungwe and in the swamps of Rugezi; the Kungwe apalis (*Apalis argentea*), found in Nyungwe and the African or Congo bowl (*Phodilus prigoginei*) found along Lake Kivu (Chemonics International Inc. 2003).

In- situ conservation in Rwanda consists in a well established network of protected areas which consist of three national parks, all of them being transboundary (Akagera National Park, Nyungwe National Park and Volcanoes National Park), forest Reserves (Gishwati Forest, Iwawa Island Forest and Mukura Forest), wetlands of global importance: Rugezi- Bulera- Ruhondo wetland Complex), and forests of cultural importance (Buhanga Forest).
Ex-situ conservation in Rwanda comprise herbaria held in some institutions (IRST, Karisoke Research Center and Kitabi Conservation Training Centre), Arboretum and seed bank.

With the highest population density in Africa, coupled with its dependence on agriculture, the major threats to the biodiversity in Rwanda are mainly linked to population pressure and a crucial problem of poverty. Other threats to the biodiversity are linked to human activities such as loss of habitat by conversion of natural habitats, mining, agriculture introduction of alien and invasive species, etc.

II. OVERVIEW OF THE IMPLEMENTATION OF THE CONVENTION THROUGH THE NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN

In line with the requirements of Article 6 (a) of the Convention, Rwanda, through a financial support from the Global Environment Facility (GEF), developed its National Strategy and Action Plan for Conservation of Biodiversity (NBSAP), which was adopted in 2003.

The Rwanda's strategy and action plan was developed after an identification of the major threats to biodiversity conservation in Rwanda and focus on priority strategic options to address those threats. It is based on the following five major outcomes :

- Improved conservation of protected areas and wetlands,
- Sustainable use of the biodiversity of natural ecosystems and agro-systems,
- Rational use of biotechnology,
- Development and strengthening of policy, institutional, legal and human resource frameworks
- Equitable sharing of benefits derived from the use of biological resources.

Even though, the NBSAP implementation strategy proposed a separate project for its implementation, the assessment revealed that most of the activities planned in the NBSAP were implemented through different sector strategies such as environment, forestry, settlement, tourism and wildlife, research, energy, mining and agriculture. The implementation of different activities proposed in the NBSAP was done through government budget and development partners such GEF, World Bank, DFID, SIDA, Governments of Netherlands and Belgium, etc, through different funded projects and budget support, UN agencies, (UNDP, UNEP, FAO, UN-Habitat, UNESCO,…), local and international NGOs.

The assessment of the implementation of the NBSAP shows that achievements were limited for those activities such as research, use of biotechnology requiring financial and technical support. Activities where implementation was not successful are the following :

- Inventory and characterization of the elements of biodiversity of protected areas and wetlands and inventory of native endemic and / or less known species of economic importance and characterization of their genetic diversity
- In- situ and ex-situ conservation of the native genetic heritage
- Research and promotion of technologies adapted to a rational use of biological resources
- Promotion of sustainable traditional production systems
- Development of mechanisms for the prevention of introduction / import of intrusive species and control and eradication of non native species likely to threaten natural ecosystems and agro-ecosystems
- Definition and implementation of biotechnological transfer and exchange mechanisms.
- improved knowledge of benefits and risks of biotechnology
- development of national procedures and measures for assessment and management of risks caused by genetically modified organisms
- Promotion of an integrated research and development focused on the conservation and management of biodiversity
- Strengthening of links between the parties, the States and specialized institutions for the promotion of technical and scientific co-operation in the field of biodiversity.
- National capacity building for access, use and exchange of information through the clearing house mechanism
- Establishment and strengthening of mechanisms at the national level for the mobilization of the necessary financial resources for the implantation of the convention on biodiversity.

One of the major challenges in the implementation of the NBSAP is the lack of coordination of proposed activities, which makes the monitoring implementation of

the strategy difficult. Other challenges include a generalized lack of capacity in biodiversity related field and inadequacy of financial resources.

III. EFFORTS TO INTEGRATE BIODIVERSITY CONSERVATION AND SUSTAINABLE USE INTO RELEVANT SECTORAL AND CROSS-SECTORAL PLANS, PROGRAMMES AND POLICIES

Biodiversity mainstreaming in Rwanda is part of the general effort of mainstreaming environment in different sectors of development.

Rwanda has successfully mainstreamed biodiversity in other sectors besides the environment, such as agriculture, education, health, rural development, forestry, mining, tourism, finance, trade and industry. Biodiversity issues have also been integrated in the Economic Development and Poverty Reduction Strategy and in the District Development Plans.

The integration of environment and biodiversity in different sectors was done using different mechanisms, including,

- An active participation in the development of different sectoral policies, drafting of laws, orders, administrative measures, regulations and
- Awareness raising and capacity building programs through training (short and long terms) in environmental management for REMA's staff and other institutions, trainings and equipment of District environment officers, media campaigns, consultative meetings with different stakeholders,
- Specific demonstration projects mainly implemented by local government in collaboration with the Private sector, CBOs, NGOs, Women and Youth Councils, Schools environmental clubs,…

biodiversity Mainstreaming into national development strategies and program , done with support of a UNDP UNEP project (Poverty and Environment Initiative) advocated successfully in the inclusion of environment in the Economic Development and Poverty Reduction Strategy (2008-2012) (PRSPII) and in United

Nations Development Assistance Framework (UNDAF) as Rwanda is among the 8 One-UN pilot countries.. This was done through the following:

- Research aimed at generating evidence based advocacy tools (Economic Analysis of the Cost of Environmental Degradation and Pilot Integrated Ecosystem Assessment)
- Media strategy through radio programmes on environmental issues,
- Support to different sectors in EDPRS by developing guidelines to support sectors and monitoring and evaluation tools (Key performance Indicators and Poverty and Environment Indicators).

Through a UNEP pilot initiative, under a project "Capacity building to Alleviate Poverty through Synergetic Implementation of Rio-Multilateral Environment Agreements", the Government of Rwanda, through REMA initiated a process of enhancing synergies in the implementation of the Rio convention. In this regards,

- a national convention coordination unit have been established, this committee is comprised among other with national focal points for different multilateral environmental agreements
- a national integrated implementation plan and a national integrated reporting system on the three Rio Conventions have been developed, and
- capacity building programs for the harmonization of activities related to the implementation of the Rio conventions and other conventions have been undertaken.

IV. PROGRESS TOWARD THE IMPLEMENTATION OF THE CONVENTION

The implementation of the CBD has had a positive impact not only on the conservation and sustainable use of biodiversity in Rwanda, but also on environmental management in general. In this regards, since the ratification of the convention in 1995, activities carried out in implementing the convention have

provided a blueprint for the establishment of an environmental policy and legal framework.

Even though there has been a decrease in the total areas of protected areas in the aftermath of the 1990-1994 war and genocide, which was a necessity to relocate the population, measures to improve on the effectiveness on the management and conservation status of the remaining protected areas have been established. Among them are the restructuring of ORTPN (2003), the establishment of REMA (2005) and NAFA (2008). Besides that, legal instruments with effective enforcement mechanisms contributed to the conservation and sustainable use of biological diversity in Rwanda. In addition, the CBD has led to increase in funding for biodiversity and more public awareness on biodiversity related issues

Though commendable efforts have been made towards the two first objectives of the CBD, Rwanda is still remaining behind in the implementation of the 3rd objective on access and benefit sharing. The absence of an effective legal framework on access to genetic resources and on the protection of traditional knowledge constitutes an open door for possible bio-piracy. Among other gaps that need to be addressed are the following:

- The use of agreed indicators to monitor the status and trends of biodiversity needs to be improved and national targets for addressing the Goals of the 2010 targets have not been developed.
- There are still inadequate financial and human resources in biodiversity. In this regards there is a need to build capacity in fields such as taxonomy, ethno-biology and ecology but also in areas related to biodiversity valuation.
- The knowledge base of Rwandan biodiversity is still limited and there is a need to develop research capacity and use scientific and traditional knowledge in biodiversity conservation programmes.
- There is still a need to have an effective policy and legal framework for biodiversity conservation and sustainable use. The ongoing process of

development of wildlife and biodiversity policies and laws are welcome and are expected to address some issues as the status of biodiversity and wildlife outside protected areas and a legal framework for access to genetic resources.

In order to strengthen the implementation of the convention, there is a need for more capacity building for technical officials in charge of biodiversity related issues and public awareness for the communities and other stakeholders at national level. There is also need to strengthen co-operation at regional and sub-regional level. This can be done through the implementation of different regional and transboundary agreements and programmes.

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CHAPTER I: OVERVIEW OF BIODIVERSITY STATUS, TRENDS AND THREATS

This chapter provides a general overview of Rwanda's biological diversity in terms of ecosystems, habitats and species. It is meant as a general overview of biodiversity in the country to inform decision-makers and other stakeholders, rather than to provide an exhaustive documentation of the status of the country's biological wealth.

After giving an overal picture of the status of biodiverity, trends and threats, the chapter is structured in biome-by-biome format where an overal status of biodiversity for each biome and threats to the biodiversity for each biomes are presented. The conclusion of the chapter gives an overview of impacts of the loss of biodiversity on human well being.

I. OVERVIEW OF RWANDA'S BIODIVERSITY

1. Rwanda's rich biodiversity

Although Rwanda is a small country (26,338 km^2), the country has a remarkable variety of ecosystems and a variety of flora and fauna. Besides, Rwanda lies at the heart of the Albertine Rift eco-region in the western arm of the Africa's Rift Valley. The Albertine Rift eco-region is one of Africa's most biologically diverse regions, home to some 10.3 percent of the earth's mammal species and 40 percent of the continent's mammal species (402 species), is characterized by a huge diversity among birds (1061 species), reptiles and amphibians (293 species, and higher plants (5793 species).

Its location within the centre of the Albertine Rift which is considered to be the highest in species richness in Africa makes the country ideal for focus on issues of conservation. Three national parks in Rwanda which are transboundary and linking Rwanda with Democratic Republic of Congo and Uganda (Volcanoes National Park

containing the world famous mountain gorillas), with Uganda and United Republic of Tanzania (the Akagera National Park containing the Akagera River) and with Burundi (Nyungwe Forest National Park, where is located the remote source of the River Nile) are the most prominent conservation areas in the country and within the Rift.

Similarly to the Albertine Rift, Rwanda's habitats are varied, ranging from afro-montane ecosystem in Northern and Western regions, lowland forests, savanna woodlands and savanna grasslands in Southern and Eastern regions. There are other habitats around volcanic hot springs and old lava flows, especially in the Northern and Western part of the country. Rwanda also has several lakes and wetlands which are rich in different species.

Besides these natural ecosystems, as an agrarian country, Rwanda agro-ecosystems comprise cultivated land, agro-pastoral areas, grassland, grazing and fallow land (MINITERE, 2003 a).

Rwanda's vegetation is a regional mosaic comprising Guinea-Congolese and Sudanese vegetation types which includes savannah with grasses, bushes and trees; mountain rainforests and mountain meadows; forest galleries, swamps and aquatic vegetation (MINITERE, 2007). Rwanda shelters 2,150 species of plants, although the degree of endemism is known and the UNEP World Conservation Monitoring Centre list eight species of trees found in Rwanda as either threatened or otherwise of conservation concerns (Chemonics, 2003). However, the plant species found in Rwanda is far from being totally known and new species are still being discovered, some of them being discovered and identified for the first time in the world.

Rwanda shelters 151 different types of mammal species, 11 of which are currently threatened. Among them are the primates (14 to 16), wich include the threatened mountain gorillas (*Gorilla gorilla berengei*), found in the Volcanoes National Park.

Others includes the owl-faced monkey (*Cercopithecus hamlyni*), the mountain monkey (*Cercopithecus hoestii*) in Nyungwe, the Chimpanzee (*Pan troglodytes*) in Nyungwe and Gishwati, and the Golden monkey (*Cercopithecus mitis kandti*) found in Volcanoes National Park. The country shelters 15 species of antelopes, and has a wide diversity of wild mammal species such as buffaloes, zebras, warthogs, baboons, elephants, hippopotamuses, crocodiles, tortoises and rare species such as the giant pangolin (Chemonics, 2003, MINITERE, 2006).

Rwanda is one of the top birding countries, and 670 different birds have been recorded in Rwanda. Four of them are threatened with extinction in Rwanda : the shoebill (*Balaeniceps rex)*, found in Akagera; Grauer's rush warbler (*Bradyptrus graueri*), found in Volcanoes National Park, in Nyungwe and in the swamps of Rugezi; the Kungwe apalis (*Apalis argentea*), found in Nyungwe and the African or Congo bowl (*Phodilus prigoginei*) found along Lake Kivu (Chemonics, 2003).

2. Conservation status of Rwanda's biodiversity

In- situ conservation in Rwanda consists in a well established network of protected areas which consist of three national parks, all of them being transboundary (Akagera National Park, Nyungwe National Park and Volcanoes National Park), forest Reserves (Gishwati Forest, Iwawa Island Forest and Mukura Forest), wetlands of global importance: Rugezi- Bulera- Ruhondo wetland Complex), and forests of cultural importance (Buhanga Forest).

Ex-situ conservation in Rwanda comprise herbaria held in some institutions (IRST, Karisoke Research Center and Kitabi Conservation Training Centre), Arboretum and seed bank.

- ISAR has an arboretum in Huye District (Ruhande) established in 1933 containing 205 indigenous and introduced species. It is considered as the best and diversified arboretum in Africa.

- ISAR has also a seed centre which was established in 1978 which projected Rwanda into the OECD seed scheme in 1993. This seed centre also serves as a gene bank collection containing trees, crop and medicinal species kept at $4^{o}C$. With Belgium a new genebank is currently under construction at ISAR Rubona Station (Southern Province).
- A national herbarium is located at IRST which is supposed to include all plants species in Rwanda.

3. Overview of threats to Rwanda's biodiversity

With the highest population density in Africa, coupled with its dependence on agriculture, the major threats to the biodiversity in Rwanda are mainly linked to population pressure and a crucial problem of poverty. Other threats to the biodiversity are linked to human activities such as loss of habitat by conversion of natural habitats, mining, agriculture introduction of alien and invasive species, etc.

3.1. Increasing human population density

With a total human population estimated at 9.2 million on a land surface of 26,338 $km^{2,}$ Rwanda has a population density of 321 people per square kilometre and 433 people per square kilometre on arable land making Rwanda the most densely populated country in Sub-Saharan Africa (GoR, 2004).

With the population growth rate of 2.9 per cent per annum, the population of Rwanda is expected to be around 16 million by 2020 unless family planning, education and outreach strategies are intensified (RoR, 2000).

This high population density has increased the pressure on natural ecosystems and species and increased the risk of forest encroachment and poaching and conversion of critical ecosystems such as wetlands for settlement and agriculture.

3.2. Habitat loss , fragmentation and degradation

Due to the high density population a sustained conversion of land and biodiversity habitat has been and is still threatening biodiversity in Rwanda. Some of the most

acute problems in this regard have been loss of forests through clearing for development or conversion to agriculture land and ad hoc reclamation of wetlands; allocation of wetlands for construction and industrial development, especially in urban areas (REMA, 2006).

Forest fragmentation for agriculture and human settlements has resulted in isolation of plant and animal populations in small forest patches, restricting their natural dispersal, and consequently increasing their vulnerability to genetic erosion. The degradation of freshwater wetlands has been severe, due to pollution and siltation from unsustainable land use (including deforestation) which leads to soil erosion.

Pollution in inland freshwater and associated marshes has been severe, due to contamination with sewage dumping of solid and untreated industrial wastes. This has led to the loss of natural functions of these ecosystems (REMA, 2006).

3.3. Loss of traditional crops and livestock variety

With the intensification of agriculture and husbandry through breeding with improved and high productive varieties, indigenous varieties of livestock, traditional varieties of rice and other food crops that are resistant or tolerant of pests, biotic and abiotic stresses under varied agro-ecological conditions have been largely replaced in farming systems by new high yielding varieties. This is threatening indigeneous varieties such as cattle, including the Ankole, and some traditional crops.

3.4. Overexploitation of resource

Overexploiation of bio-resources and destructive harvesting practices have resulted in reduction or loss of populations among many plant and animal species, leading them to verge of extinction. The over explotation of wood products for poles, fuelwood and charcoal has led over the years to the loss of the majority of national forests.

With a receent campaing about the potential of use of bamboos and the success of hand craft, there is an increase of bamboos cutting in Nyungwe and Volcanoes National Parks which can be a threat to the integrity of these parks.

3.5. Introduction of alien and invasive species

The most popular case of invasive species in Rwanda is the water hyacinth *Eicchornea crassipes* which has invaded lakes in Rwanda from Muhazi to Rweru from the River Nyabarongo, and has reached the Lake Victoria through Akagera River. The water hyacinth has invaded several lakes in the Akagera complex, and for example Lake Mihindi has been completely covered by this plant (MINITERE, 2003). Another invasive species that has been introduced in Rwanda is the *Lantana camara*.

Other introductions include fishes such as *Astatoreochromis alluandi, Schilbe mystus* and *Cyprinus carpio* introduced in lake Mugesera and has reached all the water bodies of the Akagera complex. There is also the *Protopterus aethiopicus* introduced in Lake Muhazi in 1989 which is considered by many as invasive (Chemonics, 2003, MINITERE, 2003b).

II. FOREST BIODIVERSITY

1. Status

Rwanda forests and woodlands can be classified into four categories, including the natural forests of the Congo Nile Ridge comprised with Nyungwe National Park (NNP) Gishwati, and Mukura ; the natural forests of the Volcano National Park (VNP), the natural forests in savannah and gallery-forest of the Akagera National Park (ANP) and remnants of gallery-forests and savannahs of Bugesera, Gisaka and Umutara and forest plantations dominated by exotic species (*Eucalyptus spp, Pinus spp, Grevillea robusta*, etc.) and trees scattered on farmlands (agroforestry) and along anti-erosion ditches.

According to a recent mapping inventory, carried out for forests with a surface of 0.5 hectares or higher and with a coverage of more than 20%, the forests of the

country were estimated at 240,746 ha in 2007, i.e. approximately 10% of the surface of the national dry lands (23, 835 sq.km) (MINITERE and CGIS-NUR, 2007). However forest resources in Rwanda include also small woodlots and agro-forestry resources which were not considered in the inventory.

The table below shows the forest classification in Rwanda, based on the national inventory of forest in Rwanda. This classification shows that humid natural forests constitute the majority of the forest cover in Rwanda (33%), followed by Eucalyptus plantations (26%) and degraded natural forests 15.7%.

Table I.1.: Surface areas of the forest cover in Rwanda in 2007

Category of forests	Areas (Ha)	% afforested areas versus the total forests	% afforested areas versus total areas of the national dry lands
Humid natural forests	79 797.86	33.15	3.35
Degraded natural forests	38 003.51	15.79	1.59
Bamboos	4 381.47	1.82	0.18
Savannahs	3 726.81	1.55	0.16
Plantations of Eucalyptus	63 560.75	26.40	2.67
Young plantations of Eucalyptus and coppices	39 204.82	16.28	1.64
Plantations of *Pinus*	12 071.31	5.01	0.51
TOTAL	**240 746.53**	**100.00**	**10.10**

Source: (MINITERE and CGIS-NUR, 2007)

2. Issues and threats

Statistics from the Forest Department show that forest were estimated to cover 659,000 ha in 1960 (MINITERE, 2004). This reflects a loss of approximately 64% of forests in Rwanda from 1960 and 2007, which is more than 1.3 % per year.

The main threats to forests are mainly due to the rapid increase of population which is leading to forest encroachment and deforestation, mainly in search of settlement, agriculture and grazing land. Other threats include illegal logging, charcoal production, and bushfires. Signs of human activities likely to threaten the forests identified during the national forest inventory conducted in 2007included illegal

tree cutting (78.3%), charcoal making (4.9%), livestock grazing (2.5%), farming activities (1.9%), bushfires (1.9%), stem debarking (0.6%), mining (0.5%) and beekeeping (0.4%) (MINITERE and ISAR, 2007).

Table I.2: Trend of Mountain forests in Rwanda from 1960 -2001

PA	Area in 1960	Area in 1990	Area in 2001	Reduction %
Nyungwe	114.000 ha	101.300ha	101.300ha	11,1
Volcans	34.000 ha	16.000 ha	16.000 ha	52,8
Gishwati	28.000 ha	8.800 ha	600 ha	97,85
Mukura	3.000 ha	2.100 ha	800 ha	73,3
Total	179.000 ha	121.160 ha	110.900ha	38,04

Source: MINITERE, 2004

The most important encroachments to forests were mainly recorded in the years that followed the independence (1962) and during the war and genocide (1990-1994) and the post-genocide (1995-1996) periods.

- Encroachment for agriculture purposes resulted in an annual average decrease of 750 ha (1%) between 1958 with photographs and 1972 in Nyungwe forest and tree cutting as well as skimming of precious tree species led to impoverishment of the forest almost beyond recovery, following cutting of seed trees required for natural regeneration of those species
- The Volcano National Park has been constantly under threats due to pressure from the population farming the fertile volcanic soils situated in its immediate vicinity, whereby the density of the population is the highest of the country. It has also been subject to repeated degazetting by the administration without any legal supporting document. It is in this respect that in 1958, 700 ha were cleared to settle the population and between 1969 and 1973, 1,050 ha were converted into agricultural lands to grow pyrethrum (ORTPN, 2004).
- In 1997, the Government of Rwanda decided to reduce the Akagera National Park to an area of 108,500 ha i.e. approximately a third of its original area to settle returnees in the aftermath of the war and genocide (ORTPN, 2005).

- The Gishwati forest which covered an area of 28,000 ha in 1960 has experienced encroachment for agriculture and pasture lands from the 1980s and for settlement of returnees after 1994. The forest covers currently 700 hectares.
- Mukura forest reserve with an area of about 2,100 ha in 1990, the area of the Mukura forest reserve was progressively reduced to 1,600 ha in 2006 (Munanura *and al.,* 2006) due to encroachment for agriculture influenced by the installation of a refugee camp in its immediate vicinity.
- It is estimated that during the 1990-1994 war and genocide, approximately 15,000 ha of forest plantations were completely destroyed and 35,000 ha damaged (MINAGRI, 1998).

Charcoal making to supply the capital Kigali has resulted in the disappearance of the shrubby savannahs and gallery-forests in Bugesera. Over 50,000 ha of woody savannas were registered in 1983, dropping to less than 10,000 ha by 1988 (MINAGRI, 1988).

Between 1996 and 2003, forest fires have destroyed the equivalent of 12,800ha, i.e. approximately 13% of the total area of the Nyungwe forest (ORTPN, 2005). Bushfires are also frequently reported in Akagera National Park in dry seasons.

Poaching in Nyungwe resulted in extermination of great mammals (the buffalo and the elephant) in the forest. According to some authors, the disappearance of large ungulates appears to have upset Nyungwe's ecological balance. Nyungwe's elephant population preferred a certain vine (*Sericostachys scandens).* Without the elephants, the vines have grown to the extent that they are actually threatening to strangle standing trees. The absence of large ungulates also appears to have hampered forest regeneration of burned areas. Because there are no grazing animals to stem the proliferation of ferns and grass that appear after a fire, they remain to hamper seed dispersal and germination (Chemonics, 2003).

III. FRESHWATER AND WETLANDS

1. Status

Rwanda's hydrological network includes numerous lakes and rivers and its associated wetlands. A recent inventory of marshlands in Rwanda conducted in 2008 identified shows 860 marshlands, covering a total surface of 278 536 ha, which corresponds to 10.6 per cent of the country surface, 101 lakes covering 149487 ha, and 861 rivers totalling 6462 km in length (REMA, 2008).

With more than 104 flower species, wetlands and aquatic ecosystems are rich in biodiversity but some lakes such as Kivu, Bulera and Ruhondo are poor in macrophytes (MINITERE, 2003 a).

The richest wetlands in term of biodiversity are Akagera and associated lakes, Akanyaru-Nyabarongo and associated lakes, Kamiranzovu (part of Nyungwe National Park) and Rugezi marshlands which is a Ramsar site (MINIRENA, 2008). Crocodiles, varans and snakes are also well represented in lakes and marshlands of Akanyaru complex, while wetlands around Nyabarongo and Akagera National Park are especially rich in fauna.

2. Issues and threats

The status of most aquatic ecosystems in Rwanda has deteriorated over the years as a result of reclamation for agriculture and settlement, improper land use practices that result in siltation, sand mining and pollution from sewage and industrial effluents. Reclamation of wetlands in urban areas habitats for housing and and industrial development has been prolific, especially in Kigali City.

Rwanda's freshwater biodiversity is also threatened due to accidental or purposeful introduction of alien invasive species of plants and animals. Water hyacinth, one of the world's worst exotic aquatic weeds is threatening lakes and rivers in Rwanda. It

grows rapidly to form thick mats on water surfaces, increases swamps areas, reduces water supply and undermines transport, hydroelectric power production, fisheries and fish breeding. It can also affect human health by harboring mosquitoes (malaria), snails (bilharzias), and snakes (Chemonics, 2003). Water hyacinth has covered large sections of most of the lakes in the eastern province making them difficult to navigate. In some case the weeds have contributed to the drying up of shallow seasonal lakes.

Many consider that the fish *Protopterus aethiopicus* introduced in Lake Muhazi in 1989 as invasive (Chemonics, 2003, MINITERE, 2003b).

IV. AGROBIODIVERSITY

1. Status

Rwanda's total arable land is about 1.4 million hectares, which is 52 per cent of the total surface area of the country. However the actual area cultivated has exceeded 1.6 million ha in recent years. Another 0.47 million ha is under permanent pasture, so well over 70 per cent of the country's total land surface is exploited for agriculture (MINAGRI, 2008).

Rwanda's traditional farming systems have developed over hundreds of years, with farmers managing production systems to best suit local conditions. . This has given rise to a wide range of crop species and land races that are resistant to diseases and insect pests, and is suited for varied conditions of soil and climate. With regard to livestock, local varieties of cattle that show high resistance to disease and tolerance of internal parasites still exist, as do some local breeds of poultry that are resistant to tropical diseases.

In agro-ecosystems are found among the food crops and industrial crops which are coffee, tea and pyrethrum. The agricultural production systems accommodate also many related wild species, the most common being *Eragrostis spp., Bidens pilosa,*

Digitaria spp., Conyza sumatrensis, Cyperus spp. Animal races breed in Rwanda are composed with native and non native breed races including cattle (*Ankole, Sahiwal, Frison, Alps brown, Australian Milk Zebu*), Goat (*Alpine, Anglonubian*), Sheep (*Karakul, Merinos, Dorper*), Pig (*Large white, Landrace, Piétrain*) , Poultry (*Leghorn, Rhodes Island Red, Derco, Sykes, Anak*), Fish (*Tilapia and Clarias*) (MINITERE, 2003a).

2. Issues and threats

Agro and livestock biodiversity in the country are affected with the adoption of high yielding varieties and breeds that are from uniform genetic stock and are relatively vulnerable to pests and disease. They also increase farmers' reliance on agrochemicals to maintain high yields. With the loss of traditional varieties of crops, there will be inevitable loss of valuable knowledge about their cultivation requirements and associated cultural practices over time.

Although traditional farming was engaging in multi-cropping, mono-cropping is being promoted in order to increase food security through land consolidation programs.

With regard to livestock, much of local strains are threatened to disappear due to a strong preference for imported germplasm that is perceived as more productive. They are, however, uniform varieties that are very vulnerable to disease.

Overall, narrowing of the national crop and livestock genetic base is bound to reduce options for crop breeding in the future, increase agricultural vulnerability to pests and, disease, and with time reduce the dietary diversity of rural people.

V. IMPLICATIONS OF BIODIVERSITY LOSS

The loss and degradation of Rwanda's biodiversity has serious implications for its society and economy as large portions of Rwanda's economy are heavily dependent on biodiversity including the tourism industry, agriculture and energy sector. Also

natural ecosystems provide many essential services such as the provision of clean water and air, prevention of soil erosion, pollination of crops, provision of medicinal plants, nutrient cycling, provision of food and shelter and the meeting of spiritual, cultural, aesthetic and recreational needs.

Rwanda has a booming tourism industry, which makes the largest contribution to GDP of all sectors of the economy in 2007. Rwanda's tourism is mainly based on visits in national park, with the Volcanoes National Park the most visited park, much of Rwandan tourism is heavily dependent on biodiversity and a loss of biodiversity could detrimentally affect the industry.

Among the serious consequences of deforestation and forest degradation on human wellbeing are soil erosion and consequent loss of soil fertility. Soil erosion is extremely high in Rwanda which leads not only to reduced agricultural productivity but also to the siltation of aquatic ecosystems. Deforestation of Gishwati in the northern and western highlands of the country has resulted to persistent problems of floods and landslides which is affecting the livelihoods of population in the area.

Rwanda's inland waters are the only source of water for drinking, irrigated agriculture and other domestic requirements for the population. The Poor management of wetlands and rivers and the catchments and degradation of aquatic ecosystems can lead to detrimental effects on water availability and water quality, which is ffecting the economic growth. As most the electricity is hydro-generated, and the degradation of the aquatic ecosystem can have serious impacts on the national energy sector. This happenned with the degradation of Rugezi wetland led to a reduction of water levels in the principle hydro-electrical station which resulted in electricity shortage in 2004-2005 (REMA, 2007).

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CHAPTER II: CURRENT STATUS OF NATIONAL BIODIVERSITY STRATEGIE AND ACTION PLAN

In line with the requirements of Article 6 (a) of the Convention, Rwanda, through a financial support from the Global Environment Facility (GEF), developed its National Strategy and Action Plan for Conservation of Biodiversity (NBSAP), which was adopted in 2003.

This chapter to provide an overview of the progress made in implementation of the Rwanda's national biodiversity strategy and action plan and a review of successes and obstacles encountered in implementation and lessons learned.

After an overview of the process of the development of the Rwanda's NBSAP, an analysis of the achievements in the implementation of different targets and priority action is made before concluding by giving recommendations on the improvement of the implementation of the NBSAP.

I. OVERVIEW OF THE RWANDA'S NBSAP

The Rwanda's strategy and action plan was developed after an identification of the major threats to biodiversity conservation in Rwanda and focus on priority strategic options to address those threats.

The Rwanda's NBSAP is based on five major outcomes organized into twelve objectives, with specific strategies and planned activities to be implemented by different sectors.

Outcome 1: Improved conservation of protected areas and wetlands,

Rwanda's biodiversity is threatened by the population pressure on the protected areas and other critical ecosystems, mainly wetlands. In order to reduce that

pressure, the national strategy proposes to “improve the protection and management of protected areas” and to “improve the knowledge of the diversity of protected areas and wetlands “, as objectives to improve the conservation of protected areas and wetlands.

Outcome 2: Sustainable use of the biodiversity of natural ecosystems and agro-systems,

As an agrarian country, Rwanda identified a pressing need to establish mechanisms for a sustainable use of bio-diversity in agro-ecosystems and other natural ecosystems outside protected areas and wetlands. In this regards, four objectives were identified to achieve “sustainable use of biodiversity of natural ecosystems and agro-systems”:

- Conservation of the genetic diversity of native plant and animal species
- Sustainable use of biological resources of natural ecosystems
- Sustainable use of agro-biodiversity
- Development of an environmentally sustainable and economically viable tourism

Outcome 3: Rational use of biotechnology,

Rwanda recognizes the benefits of using biotechnology and advantages that may result from the adoption of biotechnology, especially in order to achieve food security for her population. However, Rwanda recognizes the need to have an effective framework to harness the benefits of modern biotechnology while minimizing the risks associated with the utilization of biotechnology. It is in this regards that the following objectives for rational use of biotechnology were proposed in the national strategy:

- Improved access to and transfer of biotechnology
- Risk-free of biotechnology

Outcome 4: Development and strengthening of policy, institutional, legal and human resource frameworks

In order to achieve this outcome, three objectives were identified as priorities for national biodiversity conservation:

- Improved policy and legal frameworks for sustainable conservation biodiversity
- Institutional and human resources capacity building for sustainable conservation of biodiversity
- Strengthening of regional and international co-operation for the conservation and sustainable use of biodiversity

Outcome 5: Equitable sharing of benefits derived from the use of biological resources.

In the development of the national strategy, it was agreed that if national biodiversity conservation needed to be effective, it was necessary to have incentives, especially for local communities for biodiversity conservation. It is in this regards that the objective of "strengthening of the rights of grassroots communities for the control and sustainable use of biological resources" was identified as a priority to achieve this outcome on equitable sharing of benefits.

Table II.1: Summary of NBSAP's objectives and strategies

Objectives	Strategies
Outcome 1: Improved conservation of protected areas and wetlands	
1. Improved protection and management of protected areas	1. Development and implementation of land use and management of each protected area
	2. Involvement of the riparian population in the conservation of protected areas:
	3.Development of a master plan for the exploitation of wetlands
2. Improved knowledge of the diversity of protected areas and wetlands	1. Inventory and characterization of the elements of biodiversity of protected areas and wetlands
	2.Regular monitoring of the state of the biodiversity of protected areas and wetlands
Outcome 2: Sustainable use of the biodiversity of natural ecosystems and agro-systems,	

3. Conservation of the genetic diversity of native plant and animal species	1. Inventory of native endemic and / or less known species of economic importance and characterization of their genetic diversity
	2. In- situ and ex-situ conservation of the native genetic heritage
4. Sustainable use of biological resources of natural ecosystems	1. Development of alternatives to the exploitation of biodiversity (e.g. alternative of energy, fishery,… aimed at poverty reduction).
	2. Research and promotion of technologies adapted to a rational use of biological resources
5. Sustainable use of agro-biodiversity	1. Improved performance of native varieties and species
	2. Promotion of sustainable traditional production systems
	3. Development of mechanisms for the prevention of introduction / import of intrusive species and control and eradication of non native species likely to threaten natural ecosystems and agro-ecosystems
6. Development of an environmentally sustainable and economically viable tourism	1. Development of eco-tourism focused infrastructure
	2. Promotion of small and medium scale environmentally viable and diversified tourist activities
Outcome 3: Rational use of biotechnology	
7. Improved access to and transfer of biotechnology	1. Definition and implementation of biotechnological transfer and exchange mechanisms
8. Risk-free of biotechnology	1. improved knowledge of benefits and risks of biotechnology
	2. development of national procedures and measures for assessment and management of risks caused by genetically modified organisms
Outcome 4: Development and strengthening of policy, institutional, legal and human resource frameworks	
9. Improved policy and legal frameworks for sustainable conservation biodiversity	1. Development and updating of policies relating to the conservation of biodiversity and the creation of a conducive environment for their implementation
	2. Development of an integrated policy and legal framework for the conservation, sustainable use of biodiversity and equitable sharing of benefits derived from biological resources
10. Institutional and human resource capacity building for sustainable conservation of biodiversity	1. Establishment of an integrated information, formal and informal education and communication system for conservation and sustainable use of biodiversity
	2. Promotion of an integrated research and development focused on the conservation and management of biodiversity
	3. Establishment and strengthening of biological resources community management structures
	4. Strengthening of partnership and constitution of actors networks for the promotion of conservation of biodiversity and sustainable use of biological resources
11. Strengthening of regional and international co-operation for the conservation and sustainable use of biodiversity	1. Strengthening of regional co-operation for the conservation of protected areas and wetlands
	2. Strengthening of links between the parties, the States and specialized institutions for the promotion of technical and scientific co-operation in the field of biodiversity

	3. National capacity building for access, use and exchange of information through the clearing house mechanism
	4. Establishment and strengthening of mechanisms at the national level for the mobilization of the necessary financial resources for the implantation of the convention on biodiversity
Outcome 5: Equitable sharing of benefits derived from the use of biological resources.	
12. Strengthening of the rights of grassroots communities for the control and sustainable use of biological resources	1. Increased benefits derived by the grassroots communities through the exploitation of biological resources
	2. Establishment of mechanisms for monitoring and control by the grassroots communities on the exploitation of biological resources

II. STATUS OF ITS IMPLEMENTATION OF RWANDA'S NBSAP

The assessment of the implementation of the Rwanda's NBSAP was mainly done through the review of reports from different sectors involved in biodiversity.

Even though, the NBSAP implementation strategy proposed a separate project for its implementation, the assessment revealed that most of the activities planned in the NBSAP were implemented through different sector strategies such as environment, forestry, settlement, tourism and wildlife, research, energy, mining and agriculture.

The implementation of different activities proposed in the NBSAP was done through government budget and development partners such GEF, World Bank, DFID, SIDA, Governments of Netherlands and Belgium, etc, through different funded projects and budget support, UN agencies, (UNDP, UNEP, FAO, UN-Habitat, UNESCO,…), local and international NGOs.

The table below gives an overview of an assessment of the status in the implementation of the specified activities identified in the action plan for biodiversity in Rwanda.

Table II.2: summary of the status of implementation of Rwanda's NBSAP

Outcome 1 . Improved conservation of protected areas and wetlands				
Objectives	**Strategies**	**Planned Activity**	**Status of implementation**	**Level of implem entation**
1. Improved protection and management of protected areas	1. Development and implementation of land use and management of each protected area	- Delineate and represent physically the borders for each protected area - Define management areas - Develop land use for each unit and determine its management mode	- The borders of the three national parks of Rwanda have been put by ORTPN who is in charge of the management of the wildlife in Rwanda. In some cases physical fences or trenches has been established in order to reduce cases of encroachments. - ORTPN has developed lands and management plans for the three national parks. - A management plan of Rugezi Marshland (a Ramsar site) is being prepared. - A national land use master plan is being prepared in the framework of the implementation of the national land policy and land reform which will provide land use plans for different areas of the country and provide delimitation to national protected areas. This national land use master plan is being supported by DFID. (MINITERE, 2007; MINIRENA, 2008)	
	2. Involvement of the riparian population in the conservation of protected areas:	- Put in place local grassroots management committees for protected areas, - Educate, train and support local management committee	- The program is being done by the community conservation department of ORTPN for the vicinities of the national parks. - There are also some NGOs with the same programs. - REMA, through a GEF – World Bank project (IMCE) has established and trained grassroots committees for the management of four wetlands rich in biodiversity and their watersheds (Rugezi, Kamiranzovu, Rweru-Mugesera, and and Akagera) (COGEBAV). - REMA through a UNDP/ Netherland funded project (DEMP I) assisted 5 Districts in the Western Province in the preparation of forests management plans and prepared and implemented environmental management plans for the Lake Kivu, its tributaries and the Nkombo	

			islands in the Lake Kivu (REMA, annual report, 2007-2008) - REMA through a UNDP project (DEMP II) is preparing environmental management plans for the Lake Muhazi, its tributaries with local authorities and communities (REMA, 2008 ; REMA, 2009) - REMA through a UNDP project (NYEP) is preparing environmental management plans for the restoration of the River Nyabarongo (the main tributary to Akagera and Lake Victoria) in collaboration with the National Youth Council which will involve cooperatives of youth (REMA, 2008; REMA, 2009)	
	3.Development of a master plan for the exploitation of wetlands	- Make an inventory and characterize wetlands of national and/or regional interest - Define the management mode for the exploitation of wetlands	- The Ministry of agriculture has prepared a master plan for all wetlands in the country for agriculture purpose. - Through a GEF – World Bank project (IMCE), REMA has completed a national inventory of wetlands based among other on their biodiversity status, in order to identify wetlands requiring special attention for protection (REMA, 2008) - Regulations for wetlands management are being prepared with support of GEF/World Bank and FAO (REMA, 2008; REMA, 2009)	
2. Improved knowledge of the diversity of protected areas and wetlands	1. Inventory and characterization of the elements of biodiversity of protected areas and wetlands	- Inventory of the biological health of protected areas and wetlands - Identify endemic species and in the process of extinction - Spell out measures for the preservation and sustainable use of biodiversity	Some inventories are being done for the fauna and flora of Rwanda by different projects: - A GEF/ UNDP funded project (PAB) is supporting inventories and biodiversity studies in Nyungwe and Volcanoes National Parks (REMA, 2008; REMA, 2009) - With support of UNESCO, REMA and NUR have prepared a program for biodiversity inventory at national level (REMA, 2009). - Measures for the preservation and sustainable use of biodiversity will be included in the national biodiversity policy and act under preparation by REMA (REMA, 2009)	

	2.Regular monitoring of the state of the biodiversity of protected areas and wetlands	- Establishment of monitoring mechanisms: assignment and equipping of the staff - Determine the frequency of updating of the inventory by ecosystem	- ORTPN is regularly monitoring biodiversity of national parks through its research and monitoring department. - The monitoring of the status of biodiversity of other protected areas and wetlands has been instituted in the framework of the preparation of the State of Environment Report mandatory for REMA every two years (GoR, 2006).	
Outcome 2 : Sustainable use of the biodiversity of natural ecosystems and agro-system				
3. Conservation of the genetic diversity of native plant and animal species	1. Inventory of native endemic and / or less known species of economic importance and characterization of their genetic diversity	- Make an inventory of native species of economic importance - Identify endemic and/or less known species - Characterize the genetic diversity of identified species	Some studies related to this objective are being done by research institutions such as ISAR and IRST.	
	2. In- situ and ex-situ conservation of the native genetic heritage	- Identify and protect environments for in-situ conservation - Develop and create favorable environments for ex-situ conservation of native species - Repatriate and reconstitute the native genetic heritage held abroad		
4. Sustainable use of biological resources of natural ecosystems	1. Development of alternatives to the exploitation of biodiversity (e.g. alternative sources of energy, fishery,… aimed at poverty reduction).	- Promotion of modern techniques of stockbreeding and agriculture of performing - Promotion of the exploitation of new and renewable energy and energy saving technologies (biogas, solar energy, improved ovens,…)	- The promotion of modern techniques of stockbreeding is being done by the ministry of agriculture and affiliated agencies (RADA and RARDA) - A project under the ministry of agriculture (PAIGELAC) is promoting sustainable fisheries in national lakes. - Programs of promotion of energy saving stoves, of biogas and other alternative energy are being implemented by different development projects and NGOs. - The use of renewable energy and energy saving technology is one of the priority of the energy sector.	
	2. Research and	- Encourage use of non degrading	Adoption of environmental friendly technologies for	

	promotion of technologies adapted to a rational use of biological resources	technologies for mining, wood cutting, fisheries, agriculture, etc.	different sectors of production is one of the key principles of the national environmental policy. - EIA is compulsory for projects that might degrade the environment (Gor, organic law on environment) - Rehabilitation and management plans for mining activities are compulsory by law for the issuance of mining permit. - REMA, under the UNEP-UNDP, PEI, has prepared guidelines for environment integration in agriculture, forestry and mining which promote the use of non degrading technologies.	
5. Sustainable use of agro-biodiversity	1. Improved performance of native varieties and species	- Make a selection of native germoplasm - Carry out crossing for improvement of performances of native species - Popularize genetic material in production systems	- Programs of improvement of native species by crossing of livestock are on-going under MINAGRI - In the framework of a program for poverty alleviation and social support, "One cow per family", improved livestock are being distributed to the local population.	
	2. Promotion of sustainable traditional production systems	- Identify performing and sustainable traditional production systems - Improve tradition production systems through new technologies inputs - Disseminate improved traditional production systems - Regulate introduction of non native species	Most of these activities are being implemented by the Ministry of agriculture, through the strategy of agriculture transformation. However, even though regulations related to introduction of non native species, the enforcement of these regulations is still low.	
	3. Development of mechanisms for the prevention of introduction / import of intrusive species and control and eradication of non native species likely	- Train and educate the staff in charge of importation and exportation of germoplasm - Monitor non native species likely to threaten ecosystems and native species - Put in place monitoring / assessment of impact of non		

	to threaten natural ecosystems and agro-ecosystems	native species on agro-biodiversity		
6. Development of an environmentally sustainable and economically viable tourism	1. Development of eco-tourism focused infrastructure	- Assess the requirements for eco –tourism focused infrastructure in the vicinity of tourist sites - Develop adequate infrastructure to and in tourist sites - Make an inventory, organize and develop undeveloped tourist sites	- Eco-tourism is being promoted in the country.	
	2. Promotion of small and medium scale environmentally viable and diversified tourist activities	- Promote and integrate cultural groups in tourist activities - Develop attractive handicraft to tourists - Prepare and update a tourist guide at national level	- Cultural activities and handicraft are being promoted in the country and for export.	
Outcome 3 : Rational use of biotechnology				
7. Improved access to and transfer of biotechnology	1. Definition and implementation of biotechnological transfer and exchange mechanisms	- Identify competent institutions responsible for biotechnology, for exchange and define their respective roles - Identify national biotechnology requirements - Provide to these institutions necessary material, technical and human resources - Acquire, assess and disseminate biotechnology products for rational use, - Train specialists in biotechnology	These activities are being implemented under the implementation of the Cartagena Protocol.	
8. Risk-free of biotechnology	1. improved knowledge of benefits and risks of biotechnology	- Identify, monitor regularly the impact and risks of the use of biotechnology.		
	2. development of	- Establish a technology		

	national procedures and measures for assessment and management of risks caused by genetically modified organisms	monitoring and follow up unit. - Control introduction, use, transfer (including cross-border movements) of GMOs - Establish an early warning system for the prevention and monitoring of undesirable effects of biotechnologies		
Outcome 4 : Development and strengthening of policy, institutional, legal and human resource frameworks				
9. Improved policy and legal frameworks for sustainable conservation biodiversity	1. Development and updating of policies relating to the conservation of biodiversity and the creation of a conducive environment for their implementation	- Assess the integration of biodiversity as a component in the existing policies and make proposals for maintaining coherence between these policies and issues of biodiversity - Develop appropriate policies which enhance promotion of conservation and sustainable use of biodiversity and equitable sharing of the benefits derived from the use of biological resources. - Develop programmes and plans for the implementation, monitoring and evaluation of conservation and sustainable use of biodiversity.	- Laws and policies related aimed at the sustainable conservation of biodiversity have been developed and adopted: the environmental policy and organic law, land policy and organic law, wildlife act, etc. - REMA with support of a GEF/ UNDP project (PAB)is preparing a national biodiversity policy and act (REMA, 2009) - A wildlife policy and act is being prepared with support of a GEF/ UNDP project (PAB) by RDB/ORTPN.	
	2. Development of an integrated policy and legal framework for the conservation, sustainable use of biodiversity and equitable sharing of benefits derived from biological resources	- Develop a framework law for biodiversity. - Develop and update relevant laws relating to the conservation and sustainable use of biodiversity - Establish mechanisms for conflict management at the local level concerning biodiversity		

		- Establish mechanisms for the defense of intellectual property rights relating to biodiversity.		
10. Institutional and human resource capacity building for sustainable conservation of biodiversity	1. Establishment of an integrated information, formal and informal education and communication system for conservation and sustainable use of biodiversity	- Promote an educational and sensitization programme for the public. - Strengthen and / or develop at all levels educational programmes on biodiversity.	- There are many education and awareness programs done by NGOs and other institutions on conservation. - Biodiversity is included in environmental education programs conducted by REMA's department of environment education. - In the framework of building national capacity in biodiversity conservation, the NUR has started in 2008 a specific program on biodiversity conservation in the biology department at Masters level, and a training center for biodiversity and environment (Kitabi College of conservation and environment) has been established in 2007. The two programs are supported by Mc Arthur Fundation.	
	2. Promotion of an integrated research and development focused on the conservation and management of biodiversity	- Identify research topics to be carried out for conservation and sustainable management of biodiversity. - Develop research programmes on identified priority topics. - Mobilize necessary resources for building technical capacities for implementation of these research programmes.	- RDB/ ORTPN has identified priorities research topics for national parks as a part of its strategic plan under review. - An environmental research plan is being prepared by REMA (REMA action plan 2009)	
	3. Establishment and strengthening of biological resources community management structures	- Support structures for community management of biological resources. - Study and establish a system for the motivation of the communities in conservation / management of biological resources	This is done through the Community development program of RDB/ORTPN and other projects supporting the management of protected areas: - REMA, through a GEF – World Bank project (IMCE) is supporting local communities living near the following wetlands rich in biodiversity (Rugezi, Kamiranzovu, Rweru-Mugesera, and and Akagera). - Communities near the Nyungwe and Volcanoes National parks are being supported by a GEF – UNDP project (PAB) mainly in regards with	

			alternative livelihoods	
	4. Strengthening of partnership and constitution of actors networks for the promotion of conservation of biodiversity and sustainable use of biological resources	- Develop an information system which enables the acquisition and quick analysis of data and information on biodiversity. - Establishment of appropriate tools which enable easy, quick and large scale access of data and information on biodiversity by different actors in the field of biodiversity	An information system for environment is being developed which will allow the acquisition of all environmental information included on biodiversity.	
11. Strengthening of regional and international co-operation for the conservation and sustainable use of biodiversity	1. Strengthening of regional co-operation for the conservation of protected areas and wetlands	- Participate in the establishment of mechanisms and framework for shared management of biological resources of conflicting interests. - Cooperate with parties involved in the development and implementation of regional programmes of mutual interest aimed at conservation and sustainable use of protected areas and wetlands, taking into account Rwanda's specific needs and interests.	Rwanda is participating in several regional programs (Nile Basin Initiative, Lake Victoria Management Projects, Agreements in conservation for trans boundary protected areas, etc.)	
	2. Strengthening of links between the parties, the States and specialized institutions for the promotion of technical and scientific co-operation in the field of biodiversity	- Develop an appropriate approach for strengthening technical and scientific cooperation with relevant institutions and organization in the field of conservation and sustainable use of biodiversity. - Make the necessary arrangements so as to be a stakeholder in all the relevant	Efforts are being made to increase collaboration in biodiversity research, mainly as part of biodiversity research in Albertine Rift. In this regards a "Network of Conservation Educators in the Albertine Rift" has been established which bring together training centers, Universities and Research Centers from Burundi, Congo (DR), Rwanda, Tanzania Uganda.	

		conventions relating to biodiversity. - Adoption of joint research programmes for developing appropriate technologies in the implementation of conservation on biological diversity.		
	3. National capacity building for access, use and exchange of information through the clearing house mechanism	- Establish a national clearing house mechanism to facilitate exchange of technical, scientific and socio-economic information on biodiversity and biosecurity.	Rwanda's CHM was established with financial support from Belgium, but there is need to improve the efficiency of the program. There are plans to include the biodiversity clearing house in the environmental information network to improve on its management.	
	4. Establishment and strengthening of mechanisms at the national level for the mobilization of the necessary financial resources for the implantation of the convention on biodiversity	- Establish a trust fund for the mobilization of financial resources meant for the conservation of ecosystems of world importance and endangered species. - Strengthen existing national institutions for mobilizing the necessary external funds in the preparation and execution of projects for the convention on biodiversity. - Adopt national capacity building measures and initiatives for attracting external support (financial and technical) in the implementation of conservation of biodiversity.	The establishment of a trust fund for biodiversity alone will not be possible but there are plans to merge all natural resources funds together (environmental fund, forests fund, water fund, …). This fund will allow the financing of environment and biodiversity - The integration of biodiversity issues in different sectors allows the implementation of the CBD by the country. - Studies are being conducted to assess the feasibility of a national environmental fiscal reform which will allow a better financing of environment including biodiversity conservation (REMA, 2008; REMA, 2009).	
Outcome 5 : Equitable sharing of benefits derived from the use of biological resources				
12. Strengthening of the rights of grassroots communities for the control and	1. Increased benefits derived by the grassroots communities through the exploitation of	- Identify and determine quantitatively the economic value of elements of biodiversity. - Multidisciplinary studies to	There are activities for involvement of the grassroots communities in place (revenue sharing program near the national parks), supports to communities in environment management activities, etc	

sustainable use of biological resources	biological resources	determine appropriate arrangement governing equitable sharing of benefits in local communities. - Create job opportunities for local communities. - Putting in place appropriate programmes for providing local communities with alternative or sources of income.		
	2. Establishment of mechanisms for monitoring and control by the grassroots communities on the exploitation of biological resources	- Carry out necessary studies to determine procedures and modalities for the establishment of grassroots control and monitoring mechanisms for the use of biological resources - Create control and monitoring structures at the local level for the use of biological resources. - Strengthen control and monitoring structures through the mobilizing of adequate resources (material, financial and human)		

The assessment of the implementation of the NBSAP shows that achievements were limited for those activities such as research, use of biotechnology requiring financial and technical support. Activities where implementation was not successful are the following :

- Inventory and characterization of the elements of biodiversity of protected areas and wetlands and inventory of native endemic and / or less known species of economic importance and characterization of their genetic diversity
- In- situ and ex-situ conservation of the native genetic heritage
- Research and promotion of technologies adapted to a rational use of biological resources
- Promotion of sustainable traditional production systems
- Development of mechanisms for the prevention of introduction / import of intrusive species and control and eradication of non native species likely to threaten natural ecosystems and agro-ecosystems
- Definition and implementation of biotechnological transfer and exchange mechanisms.
- improved knowledge of benefits and risks of biotechnology
- development of national procedures and measures for assessment and management of risks caused by genetically modified organisms
- Promotion of an integrated research and development focused on the conservation and management of biodiversity
- Strengthening of links between the parties, the States and specialized institutions for the promotion of technical and scientific co-operation in the field of biodiversity.
- National capacity building for access, use and exchange of information through the clearing house mechanism
- Establishment and strengthening of mechanisms at the national level for the mobilization of the necessary financial resources for the implantation of the convention on biodiversity.

One of the major challenges in the implementation of the NBSAP is the lack of coordination of proposed activities, which makes the monitoring implementation of the strategy difficult. Other challenges include a generalized lack of capacity in biodiversity related field and inadequacy of financial resources.

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CHAPTER III: SECTORAL AND CROSS-SECTORAL INTEGRATION OR MAINSTREAMING OF BIODIVERSITY CONSIDERATIONS

Biodiversity mainstreaming in Rwanda is part of the general effort of mainstreaming environment in different sectors of development.

This chapter provides a general overview of Rwanda's efforts to integrate biodiversity conservation and sustainable use into relevant sectoral and cross-sectoral plans, programmes and policies as required by Article 6 (b) of the Convention.

The first part of the chapter givers information related to the integration of biodiversity into other sectors besides the environment, such as agriculture, education, health, rural development, forestry, mining, tourism, finance, trade and industry. The second part gives information on efforts made to mainstream biodiversity into national strategies and programmes such as the Economic Development and Poverty Reduction Strategy, before giving information related to the efforts made in the synergetic implementation of other environmental conventions.

I. MAINSTREAMING OF BIODIVERSITY IN OTHER SECTORS

The overall objective of the Rwanda's Environment Policy is the improvement of man's well-being, the judicious utilization of natural resources and the protection and rational management of ecosystems for sustainable and fair development.

Rwanda recognizes that some of development actions have some inherent competing nature with the environment. These include: agriculture and animal husbandry, industry-trade and tourism, energy and mining, infrastructure (transport), human settlement and sanitation, water, etc. It is in this regards, that the need to integrate environment in these sectors was recognized as primordial in the national efforts to sustainable development.

Efforts to integrate biodiversity issues in other sectors than environment have been done as a part of a government effort to mainstream environment into different sectors, in the framework of implementation of the national environmental policy.

The integration of environment in different sectors was done using different mechanisms, including,

- An active participation in the development of different sectoral policies, drafting of laws, orders, administrative measures, regulations and
- Awareness raising and capacity building programs through training (short and long terms) in environmental management for REMA's staff and other institutions, trainings and equipment of District environment officers, media campaigns, consultative meetings with different stakeholders,
- Specific demonstration projects mainly implemented by local government in collaboration with the Private sector, CBOs, NGOs, TIG, HIMO, Women and Youth Councils, Schools environmental clubs,…

The table below gives an overview of environment integration in agriculture, trade, industry and tourism, infrastructure and settlement, energy and mining, and water and sanitation.

Table III.1: Overview of environment integration in key sectors

Sector	Environment mainstreaming strategies and actions	Achievements
Agriculture, Livestock and Fisheries	***Objective*** **:** *Promote environment friendly agro-pastoral and fishing methods and techniques* : - Development of environment friendly agricultural production systems. - Enhancement of livestock stabling practice to reduce risks of overgrazing and ensure that animal breeding does not exceed the capacity of grazing land; - Regulation and improvement of fishing techniques and methods with consideration to biodiversity and water resource management	- Integration of environmental concerns in the development of the National Agriculture Policy in 2004. - Development of guidelines for mainstreaming environment for the agriculture sector in EDPRS (checklist for agriculture activities). - Restoration of Rugezi wetland through an integrated watershed management approach. - Soil conservation programs by the promotion of radical terracing and afforestation.
Trade, Industry and Tourism	***Objective :*** *Integration of environmental aspects in commercial*	- Development and refinement of legal and regulatory

	and industrial activities and promote environment friendly tourism - Regulation of location and management of industrial and market sites - Promotion of use of biodegradable packing materials and the recycling of wastes - Promotion of less polluting technologies and efficient waste treatment systems - Promotion of ecotourism	framework, which includes the preparation of orders and administrative measures related to trade and industries - Development of guidelines for mainstreaming environment for the trade and industry sector in EDPRS (checklist for Commerce and Industry activities). - Awareness raising through workshops, trainings, and consultative meetings with trade and industry operators - Publication of research studies showing the impact of industrial activities on environment - Ban of plastic bags - Establishment of Rwanda Cleaner Production Center
Energy and mining	***Objective :*** *To increase energy supply while minimizing the negative impact on environment and ensure compliance with the environmental dimension in mining and quarrying activities.* - Promotion of alternatives to the use of biomass in domestic and industries - Regulation the exploitation of mineral resources in order to protect environment	- Integration of environmental concerns into the National Energy Policy. - Development of guidelines for mainstreaming environment for the energy sector in EDPRS (checklist for energy). - Development and refinement of legal and regulatory framework, which includes the preparation of orders and administrative measures related to mining sector - Promotion of energy saving stoves - Promotion of "briquettes" from household wastes as alternatives to charcoal. - Promotion of biogas plants in: secondary schools, prisons and households and solar energy
2.4 Infrastructure and transport	**Objective:** To ensure compliance with environment in all infrastructure activities - To ensure that the environmental impact assessment is conducted before embarking on any infrastructural activity - Regulation of the infrastructure and transport sector taking into account environment	- Development of guidelines for mainstreaming environment for the infrastructure sector in EDPRS (checklist for infrastructure). - Development and refinement of legal and regulatory framework, which includes the preparation of orders and administrative measures related to infrastructure activities. - Awareness raising through workshops, trainings, and consultative meetings .

2.5. Human settlement and Sanitation	***Objective:*** *To include human settlement and sanitation at the centre of environmental issues.* - Establishment of standards and regulation related to waste management ; - Promotion of organized settlement schemes in urban and rural areas for a rational use of the land.	- Integration of environmental concerns into the National Settlement Policy. - Development and refinement of legal and regulatory framework, which includes the preparation of orders and administrative measures related to sanitation. - National hygiene and sanitation strategy - Development of guidelines for mainstreaming environment for the sanitation and health sectors in EDPRS (checklist for water and sanitation, checklist for health). - Promotion of modern and efficient technologies for waste water treatment for building.
Water	***Objective:*** *To ensure that water is used in the various economic and social sectors without endangering environment.* - Take appropriate measures to maintain the balance of hydro-ecological processes; - Establishment of a monitoring system for natural water resources (vegetation-forest-marshes cover) as part of environmental monitoring; - ensure that development projects include prior assessment of environmental impact which will highlight the costs and benefits of the protection of watershed and other underlying ecosystems;	- Integration of environmental concerns into the National Water Policy. - Development of guidelines for mainstreaming environment for the water sector in EDPRS (checklist for water and sanitation). - Promotion of water harvesting technologies - Protection of river banks, lakes shores and their watershed through the promotion of integrated watershed management approach.

II. MAINSTREAMING OF BIODIVERSITY INTO NATIONAL DEVELOPMENT STRATEGIES AND PROGRAMS

Rwanda has made tremendous efforts to mainstream environment and biodiversity conservation into the plans and programs in the country.

1. Environment mainstreaming in the Economic Development and Poverty Reduction Strategy (2008-2012) (PRSPII) and United Nations Development Assistance Framework (UNDAF)

REMA with support of a UNDP UNEP project (Poverty and Environment Initiative) advocated successfully in the inclusion of environment in the Economic Development

and Poverty Reduction Strategy (2008-2012) (PRSPII). This was done through the following:

- Research aimed at generating evidence based advocacy tools (Economic Analysis of the Cost of Environmental Degradation and Pilot Integrated Ecosystem Assessment)
- Media strategy through radio programmes on environmental issues,
- Support to different sectors in EDPRS by developing guidelines to support sectors and monitoring and evaluation tools (Key performance Indicators and Poverty and Environment Indicators).

The result of this support include

- Environment is considered as a sector and as a cross-cutting issue in the EDPRS
- Environmental Sector guidelines prepared have been used to guide log frame development to integrate environmental issues
- Environment features among five areas selected under United Nations Development Assistance Framework (UNDAF) as Rwanda is among the 8 One-UN pilot countries.

Biodiversity in the Rwanda's EDPRS (2008-2012)

- Protected Areas (PA) and Wetlands have been identified for protection as one of the major contributers to national revenue. Therefore Rwanda plans to increase the proportion of Protected areas by 2% in 2012
- Five critically degraded ecosystems (Gishwati, Mukura, Rugezi, Kamiranzovu, Nyabarongo – Akagera network) are planned for rehabilitation for their biodiversity value.
- Rwanda plans to increase forest and agro-forest from 20% to 23% in the EDPRS period and to reduce by 3o % the annual wood consumption.
- Soil erosion and soil fertility decline will be reduced by 24%.

2. Environment mainstreaming in the Sector Strategic Plans and Districts Development Plans

The implementation of the EDPRS has a function – based dimension via sector strategic plans and an area-based dimension via District Development Plans. Sector Strategic Plans elaborate EDPRS objectives and strategies in more details while District Development Plans draw from the EDPRS and the Sector Strategic Plans in order to balance these national priorities with local needs identified at District levels. Both Sector strategic plans and Districts Development Plans have a five year time horizon.

Environmental mainstreaming in Sector Strategic Plans was done through the training of planning officers in environmental mainstreaming and participation in the development process of Districts Development Plans. Environmental mainstreaming in Districts Development Plans was done through the development of guidelines to assist the integration of environment, training of District planning and environmental officers in environmental mainstreaming and support in the development process of Districts Development Plans (REMA, 2009)

III. BIODIVERSITY MAINSTREAMING INTO OTHER RELATED CONVENTION PROCESSES

Through a UNEP pilot initiative, under a project "Capacity building to Alleviate Poverty through Synergetic Implementation of Rio-Multilateral Environment Agreements", the Government of Rwanda, through REMA initiated a process of enhancing synergies in the implementation of the Rio convention.

In this regards,

- a national convention coordination unit have been established, this committee is comprised among other with national focal points for different multilateral environmental agreements
- a national integrated implementation plan and a national integrated reporting system on the three Rio Conventions have been developed, and
- capacity building programs for the harmonisation of activities related to the implementation of the Rio conventions and other conventions have been undertaken.

Apart the synergetic implementation of the Rio Convention, a collaborative mechanism has been established in the implementation of biodiversity related conventions such as Ramsar Convention on Wetlands and CITES convention. Examples of such close collaboration include

- The focal points of CBD and Ramsar have been designated as members of a technical group in charge of the development of a national regulation for wetlands management.
- The focal points of CBD and Ramsar are members of the regional working group on wetlands and biodiversity under the Nile Basin Initiative.
- The focal points of CBD and CITES are members of a technical group in charge of the development of the wildlife policy and act, and the development of biodiversity policy and act.

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CHAPTER IV: CONCLUSIONS

PROGRESS TOWARDS THE 2010 TARGET AND IMPLEMENTATION OF THE STRATEGIC PLAN

The Conference of the Parties, in its decision VI/26, adopted the Strategic Plan of the Convention till 2010. In its mission, the Strategic Plan commits Parties to a more effective and coherent implementation of the three objectives of the Convention to achieve by 2010, a significant reduction in the rate of biodiversity loss. The 2010 Biodiversity Target was endorsed by the World Summit on Sustainable Development held in the same year in Johannesburg, South Africa. The Conference of the Parties elaborated this target at its seventh and eighth meetings and adopted in its decisions VII/30 and VIII/15 a provisional framework of goals and targets for the 2010 target.

This chapter draws together key information from previous chapters in order to assess how actions taken to implement the Convention at the national level have contributed to achieving progress towards the 2010 target and the goals and objectives of the Strategic Plan of the Convention.

I. PROGRESS TOWARDS THE BIODIVERSITY 2010 TARGET

Following the adoption of the CBD Strategic Plan, the Conference of the Parties in its seventh meeting developed a framework to enhance the evaluation of achievements and progress toward its implementation and that of its 2010 Biodiversity Target.

This framework includes the following seven focal areas:

- Reducing the rate of loss of the components of biodiversity, including: (i) biomes, habitats and ecosystems; (ii) species and populations; and (iii) genetic diversity;
- Promoting sustainable use of biodiversity;
- Addressing the major threats to biodiversity, including those arising from invasive alien species, climate change, pollution, and habitat change;

- Maintaining ecosystem integrity, and the provision of goods and services provided by biodiversity in ecosystems, in support of human well-being;
- Protecting traditional knowledge, innovations and practices;
- Ensuring the fair and equitable sharing of benefits arising out of the use of genetic resources; and
- Mobilizing financial and technical resources, especially for developing countries, in particular least developed countries and small island developing States among them, and countries with economies in transition, for implementing the Convention and the Strategic Plan.

The table below provides information on progress achieved by Rwanda towards the achievement of the Biodiversity 2010 Target.

Table IV.1.: Rwanda's Progress towards the Biodiversity 2010 Target

Goals and targets	Relevant indicators	Rwanda Progress
Protect the components of biodiversity		
Goal 1. Promote the conservation of the biological diversity of ecosystems, habitats and biomes		
Target 1.1: At least 10% of each of the world's ecological regions effectively conserved.	• Coverage of protected areas	• Coverage of protected areas has been selected as part of national environmental indicators and as a policy indicator for environment in the EDPRS According to the EDPRS, Rwanda Protected areas cover 228,900 ha (8.7%) of the national surface area and plans to increase the surface of protected areas to 10 % by 2010. A list of marshlands has been designated as new protected areas (total protection and community protected) covering an area of 200 000 ha. An ecological gap analysis for the Rwanda protected areas network has started to identify new sites to be designated as protected areas (cultural forests, islands, etc.)
	• Trends in extent of selected biomes, ecosystems and habitats	• Inventories and mapping of critical ecosystems (wetlands and forests) have been completed.
	• Trends in abundance and distribution of selected species	• Key species have been identified as indicators for biodiversity monitoring in four protected areas (Gorrillas in Volcanoes National Park, Chimpanzee in Nyungwe National Park and Buffalos in Akagera National Park, Grauer's rush warbler in Rugezi Wetlands)

Goals and targets	Relevant indicators	Rwanda Progress
Target 1.2: Areas of particular importance to biodiversity protected	• Trends in extent of selected biomes, ecosystems and habitats • Trends in abundance and distribution of selected species • Coverage of protected areas	See above
Goal 2. Promote the conservation of species diversity		
Target 2.1: Restore, maintain, or reduce the decline of populations of species of selected taxonomic groups.	• Trends in abundance and distribution of selected species • Change in status of threatened species	• Indicators for threatned species have been developped as part of national environmental indicators • Reports show that since 2003, the status of the threatened species is improving in existing protected areas (ORTPN annuals reports) • Coverage of protected areas has been selected as part of national environmental indicators and as a policy indicator for environment in the EDPRS.
Target 2.2: Status of threatened species improved.	• Change in status of threatened species • Trends in abundance and distribution of selected species • Coverage of protected areas	
Goal 3. Promote the conservation of genetic diversity		
Target 3.1: Genetic diversity of crops, livestock, and of harvested species of trees, fish and wildlife and other valuable species conserved, and associated indigenous and local knowledge maintained.	• Trends in genetic diversity of domesticated animals, cultivated plants, and fish species of major socio-economic importance • *Biodiversity used in food and medicine (indicator under development)* • Trends in abundance and distribution of selected species	• Target not yet developed
Promote sustainable use		
Goal 4. Promote sustainable use and consumption.		
Target 4.1: Biodiversity-based products derived from sources that are sustainably managed, and production areas managed consistent with the	• Area of forest, agricultural and aquaculture ecosystems under sustainable management	• Forest cover, area of agriculture land with conservation measures and ares of marshland with management plan are part of national environmental indicators used for

Goals and targets	Relevant indicators	Rwanda Progress
conservation of biodiversity.	• *Proportion of products derived from sustainable sources (indicator under development)* • Trends in abundance and distribution of selected species • Marine trophic index • Nitrogen deposition • Water quality in aquatic ecosystems	national environmental reporting.
Target 4.2. Unsustainable consumption, of biological resources, or that impacts upon biodiversity, reduced.	• Ecological footprint and related concepts	• Target not yet developped • Pollution, water quality and other human impacts on natural resources (impacts of mining, industries, settlement, agriculture,…) are monitored as part of the bi-annual national environment reporting
Target 4.3: No species of wild flora or fauna endangered by international trade.	• Change in status of threatened species	• Illegal activities in protected areas and cases of illegal trade of wildlife are among environmental indicators. International trade of species is regulated under the CITES convention which has been ratified by Rwanda. A list of protected species has been established by a Ministerial Order in 2008, as a by-law of the organic law on environment.
Address threats to biodiversity		
Goal 5. Pressures from habitat loss, land use change and degradation, and unsustainable water use, reduced.		
Target 5.1. Rate of loss and degradation of natural habitats decreased.	• Trends in extent of selected biomes, ecosystems and habitats • Trends in abundance and distribution of selected species • Marine trophic index	• The status and trends of natural habitats (forests, wetlands,…) are are monitored as part of the bi-annual national environment reporting • Key species have been identified as indicators for biodiversity monitoring in protected areas.
Goal 6. Control threats from invasive alien species		

Goals and targets	Relevant indicators	Rwanda Progress
Target 6.1. Pathways for major potential alien invasive species controlled.	• Trends in invasive alien species	• There is no selected indicators of the trends in invasive species, however the trend in Water hyacinth is being monitored in lakes and rivers. • Localised projects for the control of the Water hyacinth are being implemented, however there is no national program for invasive species control. • The capacity in invasive species prevention is relatively low.
Target 6. 2. Management plans in place for major alien species that threaten ecosystems, habitats or species.	• Trends in invasive alien species	
Goal 7. Address challenges to biodiversity from climate change, and pollution		
Target 7.1. Maintain and enhance resilience of the components of biodiversity to adapt to climate change.	• Connectivity/fragmentation of ecosystems	• National indicator not yet developped. • Impacts of pollution and climate change are monitored as part of the national environment reporting. This include the monitoring of water quality in national water bodies.
Target 7.2. Reduce pollution and its impacts on biodiversity.	• Nitrogen deposition • Water quality in aquatic ecosystems	
Maintain goods and services from biodiversity to support human well-being		
Goal 8. Maintain capacity of ecosystems to deliver goods and services and support livelihoods		
Target 8.1. Capacity of ecosystems to deliver goods and services maintained.	• *Biodiversity used in food and medicine (indicator under development)* • Water quality in aquatic ecosystems • Marine trophic index • Incidence of Human-induced ecosystem failure	• The of water quality in national water bodies. Is being monitored as part of the national environment reporting. • There is a high reliance of the Rwandan population of natural resources (more than 90 % of Rwanda population use fuelwood as cooking energy)
Target 8.2. Biological resources that support sustainable livelihoods, local food security and health care, especially of poor people maintained.	• Health and well-being of communities who depend directly on local ecosystem goods and services • *Biodiversity used in food and medicine*	

Goals and targets	Relevant indicators	Rwanda Progress
Protect traditional knowledge, innovations and practices		
Goal 9 Maintain socio-cultural diversity of indigenous and local communities		
Target 9.1. Protect traditional knowledge, innovations and practices.	• Status and trends of linguistic diversity and numbers of speakers of indigenous languages • *Additional indicators to be developed*	• There is no legal instrument to protect indigeneous knoweledge, innovation and practices but this is being taken into account in the development of the national biodiversity policy and law. • Efforts for the promotion of Rwandan culture through traditional handcrafts (Agaseke), cultural danses promotion, etc.
Target 9.2. Protect the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including their rights to benefit-sharing.	*Indicator to be developed*	
Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources		
Goal 10. Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources		
Target 10.1. All access to genetic resources is in line with the Convention on Biological Diversity and its relevant provisions.	*Indicator to be developed*	• There is no legal instrument for access and benefit sharing for biodiversity resources but this is being taken into account in the development of the national biodiversity policy and law.
Target 10.2. Benefits arising from the commercial and other utilization of genetic resources shared in a fair and equitable way with the countries providing such resources in line with the Convention on Biological Diversity and its relevant provisions	*Indicator to be developed*	
Ensure provision of adequate resources		
Goal 11: Parties have improved financial, human, scientific, technical and technological capacity to implement the Convention		
Target 11.1. New and additional financial resources are transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20.	• Official development assistance provided in support of the Convention	NA

Goals and targets	Relevant indicators	Rwanda Progress
Target 11.2. Technology is transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with its Article 20, paragraph 4.	*Indicator to be developed*	NA

II. PROGRESS TOWARDS THE GOALS AND OBJECTIVES OF THE STRATEGIC PLAN OF THE CONVENTION

The CBD Strategic Plan was developped in in order to guide the convention further implementation at the national, regional and global levels. Its purpose is to effectively halt the loss of biodiversity so as to secure the continuity of its beneficial uses through the conservation and sustainable use of its components and the fair and equitable sharing of benefits arising from the use of genetic resources.

The strategic plan has four goals :

- The Convention is fulfilling its leadership role in international biodiversity issues.
- Parties have improved financial, human, scientific, technical, and technological capacity to implement the Convention.
- National biodiversity strategies and action plans and the integration of biodiversity concerns into relevant sectors serve as an effective framework for the implementation of the objectives of the Convention.
- There is a better understanding of the importance of biodiversity and of the Convention, and this has led to broader engagement across society in implementation.

The table below provides information on progress made by Rwanda in the implementation of the CBD Strategic Plan

Table VI.2.: Overview of Rwanda's progress towards the Goals and objectives of the CBD Strategic Plan

Strategic goals and objectives	Possible indicators	Rwanda Progress
Goal 1: The Convention is fulfilling its leadership role in international biodiversity issues.		
1.1 The Convention is setting the global biodiversity agenda.	CBD provisions, COP decisions and 2010 target reflected in workplans of major international forums	• These bjectives are not to be implemented at national level. However as Party to the Convention, Rwanda is committed to the implementation of its three objectives and different COP decisions.
1.2 The Convention is promoting cooperation between all relevant international instruments and processes to enhance policy coherence.		
1.3 Other international processes are actively supporting implementation of the Convention, in a manner consistent with their respective frameworks.		
1.4 The Cartagena Protocol on Biosafety is widely implemented.		• The status of implementation of the Cartagena Protocol on Biosafety have been detailed in the 1st regular report (2007)
1.5 Biodiversity concerns are being integrated into relevant sectoral or cross-sectoral plans, programmes and policies at the regional and global levels.	*Possible indicator to be developed:* *Number of regional/global plans, programmes and policies which specifically address the integration of biodiversity concerns into relevant sectoral or cross-sectoral plans, programmes and policies* *Application of planning tools such as strategic environmental assessment to assess the degree to which biodiversity concerns are being integrated* *Biodiversity integrated into the criteria of multilateral donors and regional development banks*	• Rwanda has integrated biodiversity issues in national development plans (EDPRS) and in different sector as part of environment mainstreaming in different sectors (see chapter 3).
1.6 Parties are collaborating at the regional and subregional levels to implement the Convention.	*Possible indicator to be developed:* *Number of Parties that are part of (sub-) regional biodiversity-related agreements*	• Rwanda is participating in regional activities aimed at establishing collaborative mechanisms for the implementation of the convention. Regional involvement include the East Africa Community, COMESA, NEPAD,

Strategic goals and objectives	Possible indicators	Rwanda Progress
		ASARECA, Nile Basin Initiative, etc.
Goal 2: Parties have improved financial, human, scientific, technical, and technological capacity to implement the Convention.		
2.1 All Parties have adequate capacity for implementation of priority actions in national biodiversity strategy and action plans.		Rwanda has limited capacity to implement the CBD and the Cartagena Protocol.
2.2 Developing country Parties, in particular the least developed and the small island developing States amongst them, and other Parties with economies in transition, have sufficient resources available to implement the three objectives of the Convention.	Official development assistance provided in support of the Convention (OECD-DAC Statistics Committee)	
2.3 Developing country Parties, in particular the least developed and the small island developing States amongst them, and other Parties with economies in transition, have increased resources and technology transfer available to implement the Cartagena Protocol on Biosafety.		
2.4 All Parties have adequate capacity to implement the Cartagena Protocol on Biosafety.		
2.5 Technical and scientific cooperation is making a significant contribution to building capacity.	*Indicator to be developed consistent with VII/30*	
Goal 3: National biodiversity strategies and action plans and the integration of biodiversity concerns into relevant sectors serve as an effective framework for the implementation of the objectives of the Convention.		
3.1 Every Party has effective national strategies, plans and programmes in place to provide a national framework for implementing the three objectives of the Convention and to set clear national priorities.	Number of Parties with national biodiversity strategies	• Rwanda has a national biodiversity strategy and action plan. • Rwanda is developping a biodiversity policy and law
3.2 Every Party to the Cartagena Protocol on Biosafety has a regulatory framework in place and functioning to implement the Protocol.		• Rwanda has developped a national biosafety framework with the GEF support. However, the funds for its implementation are not yet

Strategic goals and objectives	Possible indicators	Rwanda Progress
		available.
3.3 Biodiversity concerns are being integrated into relevant national sectoral and cross-sectoral plans, programmes and policies.	*To be developed* *Percentage of Parties with relevant national sectoral and cross-sectoral plans, programmes and policies in which biodiversity concerns are integrated*	• Biodiversity has been integrated into different national plans and development strategy as part of the integration of environment in different sectors (see chapter 3).
3.4 The priorities in national biodiversity strategies and action plans are being actively implemented, as a means to achieve national implementation of the Convention, and as a significant contribution towards the global biodiversity agenda.	*To be developed* *Number of national biodiversity strategies and action plans that are being actively implemented*	• Priorities identified in the the national biodiversity strategy and action plan are being implemented (see chapter 2.)
Goal 4: There is a better understanding of the importance of biodiversity and of the Convention, and this has led to broader engagement across society in implementation.		
4.1 All Parties are implementing a communication, education, and public awareness strategy and promoting public participation in support of the Convention.	*Possible indicator to be developed:* *Number of Parties implementing a communication, education and public awareness strategy and promoting public participation* *Percentage of public awareness programmes/projects about the importance of biodiversity* *Percentage of Parties with biodiversity on their public school curricula*	• Education of biodiversity issues including issues related to the Cartagena Protocol on Biosafety is being done under the general program of environmental education and awareness implemented by the Rwanda Environment Management Authority. • Efforts to bring on board different stakeholders (including private sector) are being for all environment management related issues. This is done through traning, workshop, incentives, etc. • A strategy for Private Public Partmership for environmental management has been developped in 2008. • Participation of local communities in all decision making process is being promoted as part of the national decentralization policy.
4.2 Every Party to the Cartagena Protocol on Biosafety is promoting and facilitating public awareness, education and participation in support of the Protocol.		
4.3 Indigenous and local communities are effectively involved in implementation and in the processes of the Convention, at national, regional and international levels.	*To be developed by the Ad Hoc Open-ended Working Group on Article 8(j)*	
4.4 Key actors and stakeholders, including the private	*To be developed*	

Strategic goals and objectives	Possible indicators	Rwanda Progress
sector, are engaged in partnership to implement the Convention and are integrating biodiversity concerns into their relevant sectoral and cross-sectoral plans, programmes and policies.	*Indicator targeting private sector engagement,* *e.g. Voluntary type 2 partnerships in support of the implementation of the Convention*	

III. CONCLUSIONS

The implementation of the CBD has had a positive impact not only on the conservation and sustainable use of biodiversity in Rwanda, but also on environmental management in general. In this regards, since the ratification of the convention in 1995, activities carried out in implementing the convention have provided a blueprint for the estbalishment of an environmental policy and legal framework.

The implementation of the CBD through mainly the NBSAP has led to better conservation of existing protected areas. Even though there has been a decrease in the total areas of protected areas in the aftermath of the 1990-1994 war and genocide, which was a necessity to relocate the population, measures to improve on the effectivness on the management and conservation status of the remaining protected areas have been established. Among them are the restructuring of ORTPN (2003), the establishment of REMA (2005) and NAFA (2008). Besides that, legal instruments with effective enforcement mechanisms contributed to the conservation and sustainable use of biological diversity in Rwanda. In addition, the CBD has led to increase in funding for biodiversity and more public awareness on biodiversity related issues. With regards to biodiversity mainstreaming in national development programmes, the Rwanda EDPRS environmental priorities involve ecosystems, the rehabilitation of degraded areas and strengthening newly established central and decentralised institutions, where biodiversity conservation and protected areas management will be one of the priority areas of intervention. This shows the commitment of Rwanda towards biodiversity conservation and sustainable use.

Though commendable efforts have been made towards the two first objectives of the CBD, Rwanda is still remaining behind in the implementation of the 3rd objective on access and benefit sharing. The absence of an effective legal framework on access to genetic resources and on the protection of traditional knoweledge constitute an open door for possible bio-piracy. Among other gaps that need to be addressed are the following :

- The use of agreed indicators to monitor the status and trends of biodiversity needs to be improved and national targets for addressing the Goals of the 2010 targets have not been developped.
- There is still inadaquate financial and human resources in biodiversity. In this regards there is a need to build capacity in fields such as taxonomy, ethno-biology and ecology but also in areas related to biodiversity valuation.
- The knowledge base of Rwandan biodiversity is still limited and there is a need to develop research capacity and use scientific and traditional knowledge in biodiversity conservation programmes.
- There is still a need to have an effective policy and legal framework for biodiversity conservation and sustainable use. The ongoing process of development of wildlife and biodiversity policies and laws are welcome and are expected to address some issues as the status of biodiversity and wildlife outside protected areas and a legal framework for access to genetic resources.

In order to strehgthen the implementation of the convention, there is a need for more capacity building for technical officials in charge of biodiversity related issues and public awareness for the communities and other stakeholders at national level. There is also need to strengthen co-operation at regional and sub-regional level. This can be done through the implementation of different regional and transboundary agreements and programmes.

APPENDIX I - INFORMATION CONCERNING REPORTING PARTY AND PREPARATION OF NATIONAL REPORT

I. REPORTING PARTY

Contracting Party	Rwanda
NATIONAL FOCAL POINT	
Full name of the institution	**Rwanda Environment Management Authority**
Name and title of contact officer	**Aimée MPAMBARA,** Director Research, Environmental Planning and Development
Mailing address	**P.o. Box 7436 Kacyiru / Kigali**
Telephone	**+25025258101**
Fax	**+25025258017**
E-mail	**mpambara aimee@rema.gov.rw**
CONTACT OFFICER FOR NATIONAL REPORT (IF DIFFERENT FROM ABOVE)	
Full name of the institution	
Name and title of contact officer	
Mailing address	
Telephone	
Fax	
E-mail	
SUBMISSION	
Signature of officer responsible for submitting national report	**Vincent Karega,** **Minister of State in charge of environment and Mines**
Date of submission	**May 2009**

II. PROCESS OF PREPARATION OF NATIONAL REPORT

The 4th National Report to the Convention of Biological Diversity was prepared during the period of November to April 2009. The Rwanda Environment Management Authority (REMA) led the process of drafting the report with close assistance and co-operation from the Rwanda Development Board / Tourism and Conservation Department and the Rwandan Institute for Agricultural Research (ISAR).

National experts from these institutions, Bizimungu Francois (RDB/ ORTPN), Gapusi Rwihaniza Jean (ISAR) and Aimée Mpambara (REMA) drafted the report using the following methods:

- Extensive review of literature, policy, legislation, and strategies;
- Interviews with relevant persons in charge of biodiversity related issues
- Review of activities reports and action plans of the institutions in charge of biodiversity conservation.

The preparation of the report also build on the drafts prepared in the process of the preparation of the Rwanda State of Environment Report and Outlook (2009) and the Environmental and Natural Resources Sector Strategic plan (2009-2012) both coordinated by REMA. The draft report was discussed in a stakeholder workshop to authenticate the findings and to get feedback and additional information on the study.The whole process was coordinated by Aimée Mpambara, the CBD national focal point.

Key documents used as sources during the preparation of the report were:

- National Biodiversity Strategy and Action Plan
- Rwanda Vision 2020
- Economic Development and Poverty Reduction Strategy

APPENDIX III - PROGRESS TOWARDS TARGETS OF THE GLOBAL STRATEGY FOR PLANT CONSERVATION AND THE PROGRAMME OF WORK ON PROTECTED AREAS

I. PROGRESS TOWARDS THE TARGETS OF THE GLOBAL STRATEGY FOR PLANT CONSERVATION

The table below provides an overview of the progress made by Rwanda towards the 16 targets of the Global Strategy for Plant Conservation. The implementation of the Global Strategy for Plant Conservation has mainly been through existing programs in research institutions such as ISAR and IRST.

The main challenges faced by Rwanda in the implementation of the strategy are mainly due to the lack of financial and human capacity, inadequate funds for data collection and compilation.

Table II.1. Progress towards the Targets of the Global Strategy for Plant Conservation

Target	Progress made by Rwanda
Target 1: A widely accessible working list of known plant species, as a step towards a complete world flora	- A list of plants species has been prepared and there are different research programs aimed at updating Rwanda plants species. Among them are lists for plants in Nyungwe National Park (2008), an update of trees species in Rwanda (in press). - Trees species are conserved in ISAR 's arboretum in Huye District established in 1933 containing 205 indigenous and introduced species. - ISAR has a seed centre which was established in 1978 which projected Rwanda into the OECD seed scheme in 1993. This seed centre also serves as a gene bank collection containing trees, crop and medicinal species kept at 4^{o}C. With Belgium a new genebank is currently under construction at ISAR Rubona Station (Southern Province). - A national herbarium is located at IRST which is supposed to include all plants species in Rwanda. - REMA is preparing an online biodiversity catalogue which includes a working list of plants in Rwanda.
Target 2: A preliminary assessment of the conservation status of all known plant species, at national, regional and international levels	- The conservation status of Rwanda plant species is being assessed in the framework of research aimed at updating Rwanda plants species. - The conservation status of plant species is being assessed in the framework of past and ongoing biodiversity inventories. However, there is a need to centralised the

	results of different status.
Target 3: Development of models with protocols for plant conservation and sustainable use, based on research and practical experience	- ISAR has a seed centre which also serves as a gene bank collection containing trees, crop and medicinal species kept at 4°C. With Belgium a new genebank is currently under construction at ISAR Rubona Station (Southern Province).
Target 4: At least 10 per cent of each of the world's ecological regions effectively conserved	- Almost 10% of the national territory has the status of protected areas and the majority of the national ecological zones is actually preserved. Provisions of the organic law on environment (article 19) also allow an implicit protection of wetlands recognized as sanctuaries of a rich biological diversity.
Target 5: Protection of 50 per cent of the most important areas for plant diversity assured	- Important areas for plant diversity in Rwanda are mainly in Protected Areas and are already in good conservation states. However, there some areas with rare species which are not protected but efforts are under way for the conservation of those sites.
Target 6: At least 30 per cent of production lands managed consistent with the conservation of plant diversity	- Programs are in place for rehabilitation of degraded forests, river banks and lakes shores which are resulting in the improvement of the status of conservation of plant diversity associated with those areas.
Target 7: 60 per cent of the world's threatened species conserved in situ.	- Most of threatened species are found in protected areas and therefore conserved.
Target 8: 60 per cent of threatened plant species in accessible *ex situ* collections, preferably in the country of origin, and 10 per cent of them included in recovery and restoration programmes	- ISAR has a seed centre which also serves as a gene bank collection containing trees, crop and medicinal species kept at 4°C. With Belgium a new genebank is currently under construction at ISAR Rubona Station (Southern Province). - ISAR is conducting some recovery programs for some threatened indigenous species, especially crops.
Target 9: 70 per cent of the genetic diversity of crops and other major socio-economically valuable plant species conserved, and associated indigenous and local knowledge maintained	- ISAR has a seed centre which also serves as a gene bank collection containing trees, crop and medicinal species kept at 4°C. With Belgium a new genebank is currently under construction at ISAR Rubona Station (Southern Province). - ISAR is conducting some recovery programs for some threatened indigenous species, especially crops.
Target 10: Management plans in place for at least 100 major alien species that threaten plants, plant communities and associated habitats and ecosystems	- Programs are under way to eradicate alien species but there is no specific plans for alien species that threaten plants, plant communities and associated habitats and ecosystems, and the low level of law enforcement in introduction of alien species constitutes a threat to plants diversity in Rwanda.
Target 11: No species of wild flora endangered by international trade	As party to CITES, the international trade of endangered wild species is controlled. However, there is a need to build the capacity of customers officers in plants inspections.
Target 12: 30 percent of plant-based products derived from sources that are sustainably managed	Sustainable management plans for plant extractions are being instituted in Protected areas with support of different NGOs
Target 13: The decline of plant resources, and associated indigenous and local knowledge innovations and practices, that support sustainable livelihoods, local food security and health care, halted.	Several institutions (IRST, Karisoke Research center) are involved in researches on traditional medicine and valorisation of traditional knowledge.

Target 14: The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes.	Public education and public awareness programmes related to plants are being conducted by different institutions and NGOs.
Target 15: The number of trained people working with appropriate facilities in plant conservation increased, according to national needs, to achieve the targets of this Strategy.	The establishment of Kitabi Conservation and Environment Management Training Center and a Program in Biology Conservation at the National University of Rwanda will help in increasing the number of trained people in plant conservation.
Target 16: Networks for plant conservation activities established or strengthened at national, regional and international levels	Different institutions in Rwanda are involved in regional and international networks such as OECD seed bank, East Africa Plant Resources, etc.

II. PROGRESS TOWARDS TARGETS OF THE PROGRAMME OF WORK ON PROTECTED AREAS

The table below shows the status of implementation of activities of the program of work on protected areas. The assessment of the implementation of the program of work on protected areas showed that the country has made considerable efforts to implement the program of work which was done in the framework of implementation of other national programmes.

The main challenges faced by Rwanda in the implementation of the program of work are mainly due to the lack of capacity of the institutions involved in protected areas management, lack of alternative source of funding for the protected areas network, human-wildlife conflicts and land scarcity, lack of incentive for biodiversity conservation, and lack of awareness on the benefits of conservation.

A major challenge faced by Rwanda in the implementation of the program of work is linked to the lack of specific funds for its implementation. It is expected that the integration of the biodiversity programs into the general planning of the environmental sector, following the mainstreaming of environment into the EDPRS will allow to overcome this challenge.

Table II.2: Implementation of the CBD Programme of Work on Protected areas in Rwanda.

Suggested activities of the Parties	**Progress made by Rwanda**
Programme Element 1: Direct actions for planning, selecting, establishing, strengthening, and managing, protected area systems and sites	
Goal 1.1: To establish and strengthen national and regional systems of protected areas integrated into a global network as a contribution to globally agreed goals ***Target****: By 2010, terrestrially and 2012 in the marine area, a global network of comprehensive, representative and effectively managed national and regional protected area system is established as a contribution to (i) the goal of the Strategic Plan of the Convention and the World Summit on Sustainable Development of achieving a significant reduction in the rate of biodiversity loss by 2010; (ii) the Millennium Development Goals - particularly goal 7 on ensuring environmental sustainability; and (iii) the Global Strategy for Plant Conservation.*	
By 2006, establish suitable time-bound and measurable national and regional level protected area targets and indicators	Targets and indicators have been established for the management of three national parks (2006) and in the framework of EDPRS (2006) in the environmental sector.
As a matter of urgency, by 2006, take action to establish or expand protected areas in any large, intact or relatively un-fragmented or highly	Increase the surface of protected areas for biodiversity preservation has been established as one of the priorities of environment in the EDPRS: • Actions are under way to expand the

irreplaceable natural areas, or areas under high threat, as well as areas securing the most threatened species in the context of national priorities, and taking into consideration the conservation needs of migratory species	area of the Volcanoes National Park. • 38 wetlands have been identified as critical ecosystems to be protected
As a matter of urgency, by 2006 terrestrially and by 2008 in the marine environment, take action to address the under-representation of marine and inland water ecosystems in existing national and regional systems of protected areas, taking into account marine ecosystems beyond areas of national jurisdiction in accordance with applicable international law, and trans-boundary inland water ecosystems	Under the IMCE projects, inventories of wetlands to identify those which will need to be included in the national protected areas system have been conducted by REMA in 2006, among identified wetlands and inland lakes identified, some are trans-boundary.
By 2006, conduct, with the full and effective participation of indigenous and local communities and relevant stakeholders, national-level reviews of existing and potential forms of conservation, and their suitability for achieving biodiversity conservation goals, including innovative types of governance for protected areas that need to be recognized and promoted through legal, policy, financial institutional and community mechanisms, such as protected areas run by Government agencies at various levels, co-managed protected areas, private protected areas, indigenous and local community conserved areas	This is being done in the process of the assessment of the status of environment in Rwanda which involves various stakeholders.
By 2006 complete protected area system gap analysis at national and regional levels based on the requirements for representative systems of protected areas that adequately conserve terrestrial, marine and inland water biodiversity and ecosystems. National plans should also be developed to provide interim measures to protect highly threatened or highly valued areas wherever this is necessary.	Not yet done but planned to start in 2009, in the framework of implementation of the EDPRS.
By 2009, designate the protected areas as identified through the national or regional gap analysis (including precise maps) and complete by 2010 terrestrially and 2012 in the marine environments the establishment of comprehensive and ecologically representative national and regional systems of protected areas	Rwanda plans to designate new protected areas after the completion of the ecological gap analysis.
Encourage the establishment of protected areas that benefit indigenous and local communities, including by respecting, preserving, and maintaining their traditional knowledge in accordance with article 8(j) and related provisions	In the framework of encouraging that protected areas benefit local communities, a revenue sharing program with local communities around national parks has been established since 2004 Rwanda plans to have new community based protected areas which will focus on maintaining and promoting traditional knowledge of local community.
Goal 1.2: To integrate protected areas into broader land- and seascapes and sectors so as to maintain ecological structure and function	

Target: *By 2015, all protected areas and protected area systems are integrated into the wider land- and seascape, and relevant sectors, by applying the ecosystem approach and taking into account ecological connectivity and the concept, where appropriate, of ecological networks.*	
Evaluate by 2006 national and sub-national experiences and lessons learned on specific efforts to integrate protected areas into broader land- and seascapes and sectoral plans and strategies such as poverty reduction strategies.	Not yet done
Identify and implement, by 2008, practical steps for improving the integration of protected areas into broader land- and seascapes, including policy, legal, planning and other measures	Not yet done
Integrate regional, national and sub-national systems of protected areas into broader land- and seascape, *inter alia* by establishing and managing ecological networks, ecological corridors and/or buffer zones, where appropriate, to maintain ecological processes and also taking into account the needs of migratory species	Not yet done.
Develop tools of ecological connectivity, such as ecological corridors, linking together protected areas where necessary or beneficial as determined by national priorities for the conservation of biodiversity	The GoR is looking at modalities to establish an ecological corridor between the Gishwati forest and Nyungwe National Park with the support of Great Apes Trust.
Rehabilitate and restore habitats and degraded ecosystems, as appropriate, as a contribution to building ecological networks, ecological corridors and/or buffer zones	Rehabilitation and restoration of degraded ecosystems is one of the programs of the environmental sector in the EDPRS. Studies and restoration activities have started by REMA since 2007, and include rehabilitation of degraded areas in VNP and NNP, Gishwati forest, etc.
Goal 1.3: To establish and strengthen regional networks, transboundary protected areas (TBPAs) and collaboration between neighbouring protected areas across national boundaries ***Target:*** *Establish and strengthen by 2010/2012 transboundary protected areas, other forms of collaboration between neighbouring protected areas across national boundaries and regional networks, to enhance the conservation and sustainable use of biological diversity, implementing the ecosystem approach, and improving international cooperation.*	
Collaborate with other parties and relevant partners to establish effective regional networks of protected areas, particularly in areas identified as common conservation priorities (e.g. barrier reef systems, large scale river basins, mountain systems, large remaining forest areas and critical habitat for endangered species), and establish multi-country coordination mechanisms as appropriate to support the establishment and effective long term management of such networks	Different initiatives exists for collaboration with different partners to establish an effective regional network of protected areas: - Establishment of Greater Virunga Transboundary Executive Secretariat for the conservation of a Mountain Gorillas in DRC, Rwanda and Uganda. - Strategic plan for conservation in the Albertine Rift. - Nile Basin Inititative programme on wetland and biodiversity for the conservation of Cyohoha basin between Rwanda and Burundi
Collaborate with other Parties and relevant partners through the United Nations Informal Consultative Process on the Law of the Sea (UNICPOLOS) to establish and manage protected areas in marine areas beyond the limits of national jurisdiction, in accordance with international law, including the UN	**N/A**

Convention on the Law of the Sea, and based on scientific information	
Establish, where appropriate, new TBPAs with adjacent Parties and countries and strengthen effective collaborative management of existing TBPAs	Efforts to strengthen collaboration for the management of TBPAs are being made by Rwanda. • To improve the collaboration in the management of TBPAs in Virunga Massif (DRC, Rwanda and Uganda) a Greater Virunga Transboundary Executive Secretariat have been is in operation since January 2008, and work closely with national authorities in the three countries. • In 2008, a Memorandum of Understanding has been signed between Rwanda and Burundi for the management of Nyungwe National Park and Kibira Forest (in Burundi).
Promote collaboration between protected areas across national boundaries	• ORTPN work in close collaboration with national authorities in charge of protected areas in Burundi, DRC and Uganda. • Plans are to start discussions with Tanzania to strengthen collaboration in PA management, especially for Akagera National Park, in the framework of East Africa Community. • A collaborative partnership exists for the conservation in the Albertine Rift Region, which involves national authorities and NGOs involved in PA management.
Goal 1.4: To substantially improve site-based protected area planning and management ***Target****: All protected areas to have effective management in existence by 2012, using participatory and science-based site planning processes that incorporate clear biodiversity objectives, targets, management strategies and monitoring programmes, drawing upon existing methodologies and a long-term management plan with active stakeholder involvement.*	
Create a highly participatory process, involving indigenous and local communities and relevant stakeholders, as part of site-based planning in accordance with the ecosystem approach, and use relevant ecological and socio-economic data required to develop effective planning processes	The use of eco-system approach in the planning process is not well applied.
Identify appropriate measurable biodiversity conservation targets for sites, drawing on criteria laid out in Annex I to the Convention on Biological Diversity and other relevant criteria	Targets for the conservation of key endangered species have been identified for the three national parks Targets for the conservation status of protected areas have been established.
Include in the site-planning process an analysis of opportunities for the protected area to contribute to conservation and sustainable use of biodiversity at local and regional scales as well as an analysis of threats and means of addressing them	SWOT analysis were conducted during the preparation of management for national parks, but there is a need to establish mechanisms to include the analysis of opportunities for the protected area to contribute to conservation and sustainable use of biodiversity for other protected areas.
As appropriate, but no later than 2010, develop or update management plans for protected areas, built on the above process, to better achieve the three objectives of the Convention	Management plans have been developed for the three national parks but not for other protected areas.
Integrate climate change adaptation measures in	Not yet done

protected area planning, management strategies, and in the design of protected area systems	
Ensure that protected areas are effectively managed or supervised through staff that is well-trained and skilled, properly and appropriately equipped, and supported, to carry out their fundamental role in the management and conservation of protected areas	Efforts are being made to train and equip ORTPN staff involved in the management of the parks. There are ongoing capacity building programs and support for districts environmental officers to carry out their role in environmental management in general and for those from districts near protected areas in the management of protected areas.
Goal 1.5: To prevent and mitigate the negative impacts of key threats to protected areas ***Target:*** *By 2008, effective mechanisms for identifying and preventing, and/or mitigating the negative impacts of key threats to protected areas are in place.*	
Apply, as appropriate, timely environmental impact assessments to any plan or project with the potential to have effects on protected areas, and ensure timely information flow among all concerned parties to that end, taking into account decision VI/7 A of the Conference of the Parties on guidelines for incorporating biodiversity related issues into environmental impact assessment legislation and/or processes and in strategic environmental assessments	By the organic law on environment (2005), EIA is conducted before the implementation of any project, and impacts on protected areas are among the criteria of the assessment. REMA which is in charge of overseeing the implantation of the environmental law, is the authority which reviews and approves EIA for all projects.
Develop by 2010 national approaches to liability and redress measures, incorporating the polluter pays principle or other appropriate mechanisms in relation to damages to protected areas	The principle of polluter pays is well incorporated in environment law and in EIA Guideline. However the approaches for the enforcement of this principle are yet to be operationalised.
Establish and implement measures for the rehabilitation and restoration of the ecological integrity of protected areas	The rehabilitation and restoration of degraded of ecosystems is one of the key sub-programme of the environmental sector in EDPRS. Rehabilitation of degraded ecosystems is being done for protected areas: • rehabilitation of Nyungwe National Park by rehabilitation of zones affected by fires and removal of exotic plant species • removal of exotic species within Volcanoes National Park • removal of invasive species (Water hyacinth) in Akagera National Park's lakes • rehabilitation of Rugezi wetland • rehabilitation of rivers (Sebeya, Nyabarongo) and lake shores (Kivu)
Take measures to control risks associated with invasive alien species in protected areas	Efforts are being made to control the water hyacinth in different water bodies including lakes of the Akagera National Park
Assess key threats to protected areas and develop and implement strategies to prevent and/or mitigate such threats	ORTPN has a research and monitoring unit in each National Park who is doing regular assessment in order to prevent threats and advises for mitigation measure. Regular assessments, including the analysis of threats on the status of environment, including protected areas, are being conducted by REMA in order to develop strategies for environmental management.
Develop policies, improve governance, and ensure enforcement of urgent measures that can halt the	Policies and legislative measures have been developed to halt the illegal exploitation of

illegal exploitation of resources from protected areas, and strengthen international and regional cooperation to eliminate illegal trade in such resources taking into account sustainable customary resource use of indigenous and local communities in accordance with article 10(c) of the Convention	resources from protected areas and strengthen international and regional cooperation to eliminate illegal trade in such resources: • Organic law on environment and associated decrees • Law establishing ORTPN • Implementation of international conventions (CITES, Ramsar,…)
Programme Element 2: Governance, Participation, Equity and Benefit Sharing	
Goal 2.1: To promote equity and benefit-sharing ***Target:*** *Establish by 2008 mechanisms for the equitable sharing of both costs and benefits arising from the establishment and management of protected areas.*	
Assess the economic and socio-cultural costs, benefits and impacts arising from the establishment and maintenance of protected areas, particularly for indigenous and local communities, and adjust policies to avoid and mitigate negative impacts, and where appropriate compensate costs and equitably share benefits in accordance with the national legislation.	Assessments of impacts of protected areas on the population are done regularly but there is a need to improve on the implementation of recommendations of these assessments.
Recognize and promote a broad set of protected area governance types related to their potential for achieving biodiversity conservation goals in accordance with the Convention, which may include areas conserved by indigenous and local communities and private nature reserves. The promotion of these areas should be by legal and/or policy, financial and community mechanisms	Currently, protected areas have same type of governance and all of them are managed by the Government.
Establish policies and institutional mechanisms with full participation of indigenous and local communities, to facilitate the legal recognition and effective management of indigenous and local community conserved areas in a manner consistent with the goals of conserving biodiversity and the knowledge, innovations and practices of indigenous and local communities	Rwanda doesn't have local community conserved areas.
Use social and economic benefits generated by protected areas for poverty reduction, consistent with protected-area management objectives	Rwanda protected area are established, both, with the purpose of protect biodiversity and contribute to poverty reduction of the community and the country
Engage indigenous and local communities and relevant stakeholders in participatory planning and governance, recalling the principles of the ecosystem approach	Efforts are being made to ensure the participation of the population in the national planning process from the village level and the participation of the local community is being encouraged in the areas neighboring protected areas.
Establish or strengthen national policies to deal with access to genetic resources within protected areas and fair and equitable sharing of benefits arising from their utilization, drawing upon the Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization as appropriate	Not yet done but planned in the framework of development of biodiversity policy which will be developed in 2009. The preparation of the national biodiversity policy will be coordinated by REMA.
Goal 2.2: To enhance and secure involvement of indigenous and local communities and relevant stakeholders ***Target:*** *Full and effective participation by 2008, of indigenous and local communities, in full respect of their rights and recognition of their responsibilities, consistent with national law and applicable*	

international obligations, and the participation of relevant stakeholders, in the management of existing, and the establishment and management of new, protected areas	
Carry out participatory national reviews of the status, needs and context-specific mechanisms for involving stakeholders, ensuring gender and social equity, in protected areas policy and management, at the level of national policy, protected area systems and individual sites	Such kind of reviews is not yet carried, but, participation and involvement of all stakeholders, gender and social equity are encouraged for all environment management related activities.
Implement specific plans and initiatives to effectively involve indigenous and local communities, with respect for their rights consistent with national legislation and applicable international obligations, and stakeholders at all levels of protected areas planning, establishment, governance and management, with particular emphasis on identifying and removing barriers preventing adequate participation	Several plans and initiatives are being implemented to encourage the participation of the population in the environment management in the framework of the national decentralization policy.
Support participatory assessment exercises among stakeholders to identify and harness the wealth of knowledge, skills, resources and institutions of importance for conservation that are available in society	The valorization of community knowledge is recommended by the national policy but there is a need to improve on this valorization.
Promote an enabling environment (legislation, policies, capacities, and resources) for the involvement of indigenous and local communities and relevant stakeholders in decision making, and the development of their capacities and opportunities to establish and manage protected areas, including community-conserved and private protected areas	The participation of all stakeholders and local community in decision making process is encouraged by the Government in all sectors of development.
Programme Element 3: Enabling Activities	
Goal 3.1: To provide an enabling policy, institutional and socio-economic environment for protected areas ***Target:*** *By 2008 review and revise policies as appropriate, including use of social and economic valuation and incentives, to provide a supportive enabling environment for more effective establishment and management of protected areas and protected areas systems.*	
Ensure that any resettlement of indigenous communities as a consequence of the establishment or management of protected areas will only take place with their prior informed consent that may be given according to national legislation and applicable international obligations	The Rwandan Constitution requires that before displacement or resettlement of the populations in any part of the country, the population is informed and agree on the compensation modalities.
By 2006, identify legislative and institutional gaps and barriers that impede the effective establishment and management of protected areas, and by 2009, effectively address these gaps and barriers	Legislative and institutional gap analysis has been conducted for environmental management in the framework of environmental policy and strategy (2003) and resulted in the establishment of REMA. A comprehensive analysis of institutional capacity of ORTPN was conducted before its restructuration in 2003.
Conduct national-level assessments of the contributions of protected areas, considering as appropriate environmental services, to the country's economy and culture, and to the achievement of the Millennium Development Goals at the national level; and integrate the use of	Assessment of the contribution of protected areas in the national economy has been conducted for the national parks, Rugezi wetlands and Gishwati Forest but there is a need to strengthen the national capacity in the valuation of environment.

economic valuation and natural resource accounting tools into national planning processes in order to identify the hidden and non-hidden economic benefits provided by protected areas and who appropriates these benefits	
Harmonize sectoral policies and laws to ensure that they support the conservation and effective management of the protected area system	Not yet made, but since 2007, efforts are being made to integrate environment and biodiversity conservation in different sectors.
Consider governance principles, such as the rule of law, decentralization, participatory decision-making mechanisms for accountability and equitable dispute resolution institutions and procedures	Rule of law, decentralization and participatory decision-making process are the key values of the GoR policies in all sectors
Identify and remove perverse incentives and inconsistencies in sectoral policies that increase pressure on protected areas, or take action to mitigate their perverse effects. Whenever feasible, redirect these to positive incentives for conservation	Efforts are being made to remove inconsistencies in sectoral policies and mechanisms are being put in place to have incentives for conservation and environment management in general.
Identify and establish positive incentives that support the integrity and maintenance of protected areas and the involvement of indigenous and local communities and stakeholders in conservation	This is done under the general environmental fiscal reform exercise undertaken by REMA.
Adopt legal frameworks to national, regional and sub-national protected areas systems of countries where appropriate	A legal framework for the management of protected areas exists in Rwanda.
Develop national incentive mechanisms and institutions and legislative frameworks to support the establishment of the full range of protected areas that achieve biodiversity conservation objectives including on private lands and private reserves where appropriate	Not yet done
Identify and foster economic opportunities and markets at local, national and international levels for goods and services produced by protected areas and/or reliant on the ecosystem services that protected areas provide, consistent with protected area objectives and promote the equitable sharing of the benefits	Not yet done but there is an ongoing process of an environmental fiscal reform by REMA to foster economic opportunities for environmental and ecosystem services. This process has started in 2008 and will continue in 2009 under the Poverty Environment Initiative.
Develop necessary mechanisms for institutions with responsibilities for conservation of biological diversity at the regional, national and local level to achieve institutional and financial sustainability	This will be done under the environmental fiscal reform.
Cooperate with neighbouring countries to establish an enabling environment for transboundary protected areas and for neighbouring protected areas across national boundaries and other similar approaches including regional networks	Cooperative frameworks have been established between • Rwanda, DRC and Uganda, for the management of Volcanoes National Park (Rwanda), Virunga National Park (DRC)and Mghahinga National Park (Uganda) and a Transboundary Secretariat for Virunga Massif is operational since January 2008. • Rwanda and Burundi for the management of Nyungwe National Park (Rwanda) and Kibira Forest (Burundi).
Goal 3.2: To build capacity for the planning, establishment and management of protected areas ***Target:*** *By 2010, comprehensive capacity building programmes and initiatives are implemented to develop knowledge and skills at individual, community and institutional levels, and raise professional standards.*	

By 2006 complete national protected-area capacity needs assessments, and establish capacity building programmes on the basis of these assessments including the creation of curricula, resources and programs for the sustained delivery of protected areas management training	Capacity building need assessments for REMA and ORTPN have been conducted in the framework of the public service capacity assessment in Rwanda in 2007-2008. Capacity building programmes are being prepared for environment and biodiversity management by different institutions, such as REMA, Kitabi Conservation and Environment Management Training Center, NGOs, …
Establish effective mechanisms to document existing knowledge and experiences on protected area management, including traditional knowledge in accordance with Article 8 (j) and Related Provisions, and identify knowledge and skills gaps	Not yet done but IRST has started documenting some expertise and traditional knowledge such as in traditional medecine.
Exchange lessons learnt, information and capacity-building experiences among countries and relevant organizations, through the Clearing-house Mechanisms and other means	There are existing mechanisms for information exchange between Rwanda and neighboring countries in different regional fora but there is a need to reinforce the national CHM.
Strengthen the capacities of institutions to establish cross-sectoral collaboration for protected area management at the regional, national and local levels	Efforts are being made to strengthen the capacities of institutions to establish cross-sectoral collaboration for environmental management in general, at central level (strengthening of REMA, NAFA and ORTPN), district levels and local levels through the decentralization program.
Improve the capacity of protected areas institutions to develop sustainable financing through fiscal incentives, environmental services, and other instruments	Currently protected areas are financed through the visit fees by tourist and government budget, but there are many initiatives going on to develop the financing of environment and conservation.
Goal 3.3: To develop, apply and transfer appropriate technologies for protected areas ***Target:*** *By 2010 the development, validation, and transfer of appropriate technologies and innovative approaches for the effective management of protected areas is substantially improved, taking into account decisions of the Conference of the Parties on technology transfer and cooperation.*	
Document and make available to the Executive Secretary appropriate technologies for conservation and sustainable use of biological diversity of protected areas and management of protected areas	Not yet done in a systematical way.
Assess needs for relevant technologies for protected area management involving indigenous and local communities and stakeholders such as the, research institutions, non-Governmental organizations and the private sector	
Encourage development and use of appropriate technology, including technologies of indigenous and local communities with their participation, approval and involvement in accordance with Article 8(j) and Related Provisions, for habitat rehabilitation and restoration, resource mapping, biological inventory, and rapid assessment of biodiversity, monitoring, *in situ* and *ex situ* conservation, sustainable use, etc	
Promote an enabling environment for the transfer of technology in accordance with decision VII/29 of the Conference of Parties on technology transfer and cooperation to improve protected area management	

Increase technology transfer and cooperation to improve protected area management	
Goal 3.4: To ensure financial sustainability of protected areas and national and regional systems of protected areas ***Target:*** *By 2008, sufficient financial, technical and other resources to meet the costs to effectively implement and manage national and regional systems of protected areas are secured, including both from national and international sources, particularly to support the needs of developing countries and countries with economies in transition and small island developing States.*	
Conduct a national-level study by 2005 of the effectiveness in using existing financial resources and of financial needs related to the national system of protected areas and identify options for meeting these needs through a mixture of national and international resources and taking into account the whole range of possible funding instruments, such as public funding, debt for nature swaps, elimination of perverse incentives and subsidies, private funding, taxes and fees for ecological services	A comprehensive study of environmental financing is being done by REMA in collaboration with the Ministry of Finance and Planning.
By 2008, establish and begin to implement country-level sustainable financing plans that support national systems of protected areas, including necessary regulatory, legislative, policy, institutional and other measures	Not yet done but mechanisms are being developed by REMA for sustainable financing of environment including protected areas systems.
Support and further develop international funding programmes to support implementation of national and regional systems of protected areas in developing countries and countries with economies in transition and small island developing States	Not applicable to Rwanda
Collaborate with other countries to develop and implement sustainable financing programmes for national and regional systems of protected areas	This is done under regional projects and programmes for environmental management.
Provide regular information on protected areas financing to relevant institutions and mechanisms, including through future national reports under the Convention on Biological Diversity, and to the World Database on Protected Areas	Information on protected areas financing are being incorporated in CBD national reports and state of environment reports prepared by REMA.
Encourage integration of protected areas needs into national and, where applicable, regional development and financing strategies and development cooperation programmes	Efforts are being made to integrate environment and biodiversity conservation in Government budget to facilitate their funding.
Goal 3.5: To strengthen communication, education and public awareness ***Target:*** *By 2008 public awareness, understanding and appreciation of the importance and benefits of protected areas is significantly increased.*	
Establish or strengthen strategies and programmes of education and public awareness on the importance of protected areas in terms of their role in biodiversity conservation and sustainable socio-economic development, in close collaboration with the Communication, Education and Public Awareness Initiative (CEPA) under the Convention on Biological Diversity and targeted towards all stakeholders	Public and public awareness on biodiversity is included in the general environmental education program prepared by REMA and being implemented by several institutions. REMA has finalized an Education for sustainable development strategy which includes a part on biodiversity and protected, which is expected to constitute the major framework for environment education and awareness for different stakeholders.
Identify core themes for education, awareness and communication programmes relevant to protected areas, including *inter alia* their contribution to	Core themes for education, awareness and communication programmes including ones related to protected areas have been identified in the

economy and culture to achieve specific end results such as compliance by resource users and other stakeholders or an increased understanding of science-based knowledge by indigenous and local communities and policy makers and an increased understanding of the needs, priorities and value of indigenous and local communities' knowledge, innovations and practices by Governments, non-Governmental organizations and other relevant stakeholders	framework of REMA's education for sustainable strategy.
Strengthen, and where necessary, establish information mechanisms directed at target groups such as the private sector, policy makers, development institutions, community-based organizations, the youth, the media, and the general public	Though, sensitization of all these categories of people is done and information is provided to different target groups there is a need to have an effective mechanism for information sharing.
Develop mechanisms for constructive dialogue and exchange of information and experiences among protected-area managers, and between protected area managers and indigenous and local communities and their organizations and other environment educators and actors	Dialogue and exchange of information and experiences among protected-area managers, and between protected area managers and indigenous and local communities and their organizations, exist.
Incorporate the subject of protected areas as an integral component of the school curricula as well as in informal education	This have been done in the framework of integration of environment management in school curricula, • in primary and secondary school • environment law have been integrated in law program. A program in biology conservation have been introduced at the National University
Establish mechanism and evaluate the impacts of communication, education and public awareness programmes on biodiversity conservation to ensure that they improve public awareness, change behavior and support the achievement of protected area objectives	Not yet done, as the communication strategy has just been finalized and just started to be implanted.
Programme Element 4: Standards, assessment, and monitoring	
Goal 4.1 - To develop and adopt minimum standards and best practices for national and regional protected area systems ***Target:*** *By 2008, standards, criteria, and best practices for planning, selecting, establishing, managing and governance of national and regional systems of protected areas are developed and adopted.*	
Collaborate with other Parties and relevant organizations, particularly IUCN, on the development, testing, review and promotion of voluntary protected areas standards and best practices on planning and management, governance and participation	Mechanisms for collaboration with relevant organization involved in biodiversity conservation are in place.
Develop and implement an efficient, long-term monitoring system of the outcomes being achieved through protected area systems in relation to the goals and targets of this work programme	The monitoring and evaluation system for the protected areas is part of the monitoring system of environment status in general.
Draw upon monitoring results to adapt and improve protected area management based on the ecosystem approach	Management plans are based on results from the monitoring of the protected areas.
Goal 4.2: To evaluate and improve the effectiveness of protected areas management ***Target:*** *By 2010, frameworks for monitoring, evaluating and reporting protected areas management effectiveness at sites, national and regional systems, and transboundary protected area levels adopted and implemented by Parties.*	

Develop and adopt, by 2006, appropriate methods, standards, criteria and indicators for evaluating the effectiveness of protected area management and governance, and set up a related database, taking into account the IUCN-WCPA framework for evaluating management effectiveness, and other relevant methodologies, which should be adapted to local conditions	Indicators for the evaluation of the management of protected areas have been developed in the framework of the preparation of an Environmental Information System and Statistics by REMA in 2006-2007, but and a database set up and the process is being readapted to make it more user friendly.
Implement management effectiveness evaluations of at least 30 percent of each Party's protected areas by 2010 and of national protected area systems and, as appropriate, ecological networks	The assessment of management of PA systems is included in the state of environment report process, which is mandatory by the law establishing REMA.
Include information resulting from evaluation of protected areas management effectiveness in national reports under the Convention on Biological Diversity	Results of the evaluation of PA management in the state of environment report are used in the preparation of CBD national reports for themes related to the convention.
Implement key recommendations arising from site- and system-level management effectiveness evaluations, as an integral part of adaptive management strategies	Strategies are taken for the implementation of key recommendations of the state of environment report to improve environmental management in Rwanda, and this is also the case for recommendations related to PA.
Goal 4.3: To assess and monitor protected area status and trends ***Target:*** *By 2010, national and regional systems are established to enable effective monitoring of protected-area coverage, status and trends at national, regional and global scales, and to assist in evaluating progress in meeting global biodiversity targets*.	
Implement national and regional programmes to monitor and assess the status and trends of biodiversity within protected area systems and sites	National and regional programmes to assess biodiversity are regularly implemented in national parks by ORTPN and its partners. Programmes to monitor the status of environment, including protected areas, are implemented by REMA regularly especially in the framework of environmental reporting.
Measure progress towards achieving protected area targets based on periodic monitoring and report on progress towards these targets in future national reports under the Convention on Biological Diversity as well as in a thematic report at COP-9	Progress towards achieving protected areas targets area monitored regularly and results disseminated: • A report on the implementation of PoWPA have been prepared and submitted to the CBD in 2007 • Progress in implementing the PoWPA will be integrated in the 4th national report.
Improve and update national and regional databases on protected areas and consolidate the World Database on Protected Areas as key support mechanisms in the assessment and monitoring of protected area status and trends	Activity under way at national level since 2007.
Participate in the World Database on Protected Areas maintained by UNEP-WCMC, and the United Nations List of Protected Areas and the State of the World's Protected Areas assessment process	Not yet
Goal 4.4: To ensure that scientific knowledge contributes to the establishment and effectiveness of protected areas and protected area Systems ***Target****: Scientific knowledge relevant to protected areas is further developed as a contribution to their establishment, effectiveness, and management.*	
Encourage the establishment and establishment use of new technologies including geographic information system and remote sensing tools for	The use of GIS and remote sensing is being promoted for environmental monitoring in the country and especially in national parks and forests.

monitoring protected areas	
Improve research, scientific and technical cooperation related to protected areas at national, regional and international levels	Cooperation in environmental research is encouraged by the Governement but there is a need to establish proper mechanisms to ensure its effectiveness.
Promote interdisciplinary research, to improve understanding of the ecological social and economic aspects of protected areas, including methods and techniques for valuation of goods and services from protected areas	This is done by REMA's research department which is in charge of coordinating and disseminating environmental research, and ORTPN which coordinate researches in protected areas. Both institutions are in the process of preparing their research strategies.
Encourage studies to improve the knowledge of the distribution, status and trends of biological diversity	This is done by REMA and ORTPN. Several research activities are being conducted to improve the knowledge of the national biological diversity by public high learning and research institutes (NUR), NGOs (IGCP, WCS, DFGF's Karisoke Research Center, etc).
Encourage collaborative research between scientists and indigenous and local communities in accordance with Article 8(j) in connection with the establishment and the effective management of protected areas	Collaboration between researchers is encouraged and in some cases researchers collaborate with local communities. However, there is a need to have a legal framework to ensure that traditional knowledge is protected and local communities benefit from these collaborations.
Promote the dissemination of scientific information from and on protected areas including through the clearing-house mechanism	Information from research in protected areas are published in different reports and organized conference, however their publication through the CHM needs to be improved.
Promote the dissemination of, and facilitate access to, scientific and technical information, in particular publications on protected areas, with special attention to the needs of developing countries and countries with economies in transition, in particular least developed countries and small island developing States	N/A
Develop and strengthen working partnerships with appropriate organizations and institutions which undertake research studies leading to an improved understanding of biodiversity in protected areas	Some partnership exists in the field of biodiversity research but needs to be developed and strengthened.

P.o. Box 7436 Kacyiru/ Kigali
Rwanda
Tel : +250252580101
E-mail : remainfo@rema.gov.rw