Convention on Biological Diversity

THIRD NATIONAL REPORT for the Republic of Mauritius

Ministry of Environment and National Development Unit in collaboration with the UNEP/GEF

October 2006

Contents

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Information on the preparation of the report

Box I.

Please provide information on the preparation of this report, including information on stakeholders involved and material used as a basis for the report.
The preparation of this report was carried out through a participatory process involving the relevant stakeholders from the public and private sectors, parastatals and statutory bodies, research organisations, academics and NGOs. Three thematic working groups were established and these are as follows: Group 1: Forest and Terrestrial Biodiversity Group 2: Agrobiodiversity and Biotechnology Group 3: Inland Water, Marine and Coastal Aquatic Biodiversity Each group was facilitated by a local resource person and or team leader and 17 stakeholders' meetings were carried out spanned over a period of 8 months. A national consultant was hired to consolidate the inputs from the three groups. Further consultations were also held with the SBSTTA Focal Point and the three resource persons, process which culminated with the preparation of a draft Third National Report. The draft report circulated to all relevant stakeholders. Two workshops were also held in Mauritius and Rodrigues to present, discuss and validate the content of the report. Finally, the report was finalized by incorporating views and suggestions whilst addressing comments from all stakeholders. A 'National Report Coordination Committee' (NRCC) was set up to steer the whole preparation process including the consultative process. It comprised the main stakeholders involved with the conservation and management of biological diversity in Mauritius. The meetings of the NRCC were chaired by the representative of the Ministry of Environment and National Development Unit. The Government acknowledges the technical and financial supports of the UNEP/GEF and the CBD Secretariat in the preparation and submission of the Third National Report on the Convention on Biological Diversity.

B. PRIORITY SETTING, TARGETS AND OBSTACLES

Box II.

Please provide an overview of the status and trends of various components of biological diversity in your country based on the information and data available.

Biodiversity conservation and management in the Republic of Mauritius has remained one of the national priorities for over three decades. Government has demonstrated its strong commitments through a number of national reports prepared and presented in international meetings over the last 15 years. A number of policies and regulatory measures have been established and institutional framework strengthened with the expansion in institutional mandates. However, certain areas still require further strengthening in terms of human resources capacity, institutional and legislative strengthening, Research and Development whilst financial resources and latest state of art technologies remain the key limiting factors.

An overview of the status and trends of the various components of biological diversity under the various thematic sectors are as follows:

1. Forest Biodiversity (including Terrestrial and Islets biodiversity resources)

Overview

Republic of Mauritius has an area of about 2000 km2, of which about 30% is under plantation forestry, secondary alien vegetation or native forest remnants. However, according to the NEAP (1999), only about 1.6% of the original native vegetation of the island remains. More recent estimates give an even lower figure (MWF, unpublished data). This comprises forest of grades 1 and 2 *sensu* Page and D'Argent (1997), in other words composed of more than 50% native plant cover. Thus, the vast majority of Mauritius' natural green space is essentially composed of alien plants communities providing exceptionally poor habitat for most native animals (Cheke, 1987) and plants (pers. obs). Rodrigues which is second inhabited island has an area of 109 km^2. Situated 570 km to the northeast of Mauritius, the island is hilly with a central spine culminating in the highest peak, Mont. Limon (393 m). Rodrigues is the only Mascarene Island with extensive limestone deposits and caves. A large fringing reef surrounds the island forming a lagoon within which lie eighteen small islets. The detailed accounts of Leguat from the early 18th century paint an idyllic picture of 'valleys covered with palm-trees, plantains (lataniers) and ebonys', with an important endemic biodiversity. Today, Rodrigues is one of the most degraded tropical islands in the world, and much of the terrestrial biodiversity is extinct, or highly threatened. In contrast, Rodrigues has the most substantial and best-developed reefs in the Mascarenes (Montaggioni and Faure, 1980), and the coral reefs are amongst the most preserved in the Western Indian Ocean.

The native terrestrial biodiversity is mainly confined to marginal lands of low suitability to agriculture such as steep mountain and valley slopes or to marshy and rocky soils. The largest such area occurs in and around the Black River Gorges National Park in the South West, followed by the Bamboo Mountain Range in the South East and the Moka-Port Louis Ranges in the North West. A few isolated mountain peaks also harbour remnants of native forest, for example, Mt Blanche, Corps de Garde, Le Pouce and Le Morne Brabant. Several lagoon and offshore islets also have important biodiversity value, although all has suffered from human activities to a certain extent.

Mauritius has now an updated and approved National Forestry Policy whose overall goal is to create public awareness of role of the forest sector in national development and human wellbeing and to ensure the conservation and sustainable management of forests and forest ecosystems of the country for the benefit of present and future generations.

1.1 Current threats to Mauritian Forest Biodiversity

1.1.1 Habitat fragmentation

Due mainly to extensive past deforestation, forest remnants on Mauritius nowadays subsist in an

extremely fragmented state, meaning that the previous large contiguous populations of all native species have now been reduced into small and for most cases severely isolated populations. Even notwithstanding other threats, ecological theory predicts that the susceptibility to extinction of many of these populations and species must have been greatly increased simply because of this habitat fragmentation (Primack, 1998). This category of threat tends to be generally underestimated and overlooked because its effects are relatively slow and gradual and are usually apparent only through long-term monitoring. In Mauritius, there is evidence that this threat is not only theoretical. Safford (1997), talking about endemic passerine birds, already notes *'Most isolated [forest] patches have lost species*', indicating that habitat fragmentation, compounded by other threats, has already caused documented local extinctions.

Solutions that are being envisaged to mitigate the threat posed by habitat fragmentation include improvement of habitat quality through conservation management, creation of habitat corridors, reforestation and species re-introductions.

1.1.2 Invasive alien species (IAS)

Species are constantly being introduced in new habitats by humans either deliberately or accidentally. With the 'relaxed' control, many alien species tend to undergo population explosions, and reach pest proportions. This is true for example for Chinese guava (*Psidium cattleianum*, Myrtaceae), a native of Brazil, which in Mauritius can reach densities of up to about seven million stems at or above 1.3m high per km^2 (Ramlugun, 2003). The effect of the resulting competition for light, water and minerals with native plants is massive, leading to major reduction in reproductive output, documented for example in the Tambalacoque (*Sideroxylon grandiflorum*, Sapotaceae) to 40 times that of trees growing free of alien weeds (Baider and Florens, in press). Invasive alien plants also increase native plants mortality and reduces growth rate (Baider and Florens unpublished data), contributing further to the gradual replacement of native communities by alien plants which in turn constitute poor habitats for most native animals. There are dozens of aggressive invasive alien weeds threatening Mauritian biodiversity from coastal habitats to the highest mountains.

Many invasive alien animals also present a major threat to both native fauna and flora. For example, endemic birds like the Pink Pigeons (*Columba mayeri*) are constantly at risk of predation by feral cats (*Felis catus*); and rats (*Rattus* spp.) have been documented to destroy up to 60% of the seed crop of Bois Colophane (*Canarium paniculatum*, Burseraceae) (Auchoybur, 2003) doubtless contributing to the poor regeneration of the tree despite in-situ conservation management. Monkeys (*Macaca fascicularis*), rats (*Rattus rattus* and *Rattus norvegicus*), pigs (*Sus scrofa*), and deer (*Cervus timorensis*) are directly detrimental to the native vegetation, and are either indirectly or, together with the lesser Indian mongoose (*Herpestes auropunctatus*). Invasive alien species is nowadays considered the most serious threat to Mauritian native terrestrial biodiversity.

In Rodrigues, IAS represents the major current threat to terrestrial biodiversity. IAS has been introduced in an ongoing process ever since the initial human colonisation. The native vegetation can now only be seen in restricted areas on mountaintops (such as Grande Montagne, Mont Cimetière, Cascade Mourouk, and Mont Malartic) and in steep valleys and cliff faces. The few remaining areas of native vegetation are badly degraded through the invasion by exotic plants such as "piquant loulou" (Acacia nilotica), jamrosa (Syzygium jambos), bois d'oiseaux (Litsea glutinosa), aloes (Furcraea foetida), vieille fille (Lantana camara) and ravenale (Ravenala madagascariensis). A number of other plants potentially threaten native vegetation, including poivre marron (Schinus terebinthifolius), roussaillier (Eugenia uniflora) and Chinese guava (Psidium cattleianum). Even recent well-intended management measures such as extensive reafforestation programmes, to protect watersheds and prevent soil erosion, have almost exclusively planted non-native species, some of which have become highly invasive.

Introduced animals are a problem too (e.g rats), including recent introductions of the shrew and house gecko from mainland Mauritius. Deer, monkeys and the red- whiskered bulbul, which are common pests in Mauritius are still absent from Rodrigues.

Action that would be required to counter the threat posed by IAS include legal blacklisting to prevent

entry in the country of further species likely to pose serious threats to native biodiversity, more effective border control to reduce risks of introduction of new IAS, good monitoring system to detect new pest outbreak and development of improve control methods for already established IAS. A National Invasive Alien Species Control Strategy is also being prepared at the level of the National Parks and Conservation Service of (NPCS) the Ministry of Agro – Industry in collaboration with the relevant national stakeholders. A National IAS Steering Committee has also been set up to steer the project and local funds have been earmarked for this project under the second Environmental Investment Programme.

1.1.3 Habitat destruction

Habitat destruction is the most direct and rapid cause of biodiversity loss. The overwhelming majority of the island's native forests have been destroyed in the past mainly for agricultural purposes. The latest such deforestation took place in the 1970's through to the early 1980's when large areas of native vegetation were turned into forestry plantations (Cheke, 1987). These introductions have somehow deteriorated the landscape and greatly impoverished the habitat of the existing fauna. Very few native species have been documented to derive some benefit from such forestry plantations (Safford & Jones, 1993), and even so as a result of interaction with alien predators. It is thus most likely that under an eventual efficient predator control program, forestry plantations may shift from having a beneficial to a detrimental role on the same species owing to the poor foraging grounds they offer. The major plantations are of *Pinus elliottii* and *P. tasda* (65%), *Cryptomeria japonica* (13%), *Araucaria* spp., *Juniperus bermudiana*, and *Eucalyptus tereticornis* (16%) together with smaller areas under *E. robusta*, and *Tabebuia pallida*. From 1973 to 1981, 3,025 ha of key Pink Pigeon (*Columba mayeri*) and Echo Parakeet (*Pittoscula eques echo*) habitat were turned into forestry plantation resulting in population crashes of both species (Jones, 1987). The Mauritius Fody (*Foudia rubra*), Olive White Eye (*Zosterops chloronothos*) and Flycatcher (*Terpsiphone bourbonnensis*) also declined markedly shortly following this deforestation (Safford, 1997).

Native habitat destruction and accompanying fragmentation is still happening nowadays although the full extent is not known, for example, creating grasslands and hunting grounds for deer and for residential and infrastructural development. Deforestation over the years for creating pastures for deer has occurred mainly on privately owned forest land. One recent example for which the government took the bold decision of re-directling a highway project is the case of the Southern East Highway Project which was initially meant to build a highway through the valley of Ferney, an area of native forest home to a diverse native flora of at least 140 species of fern and higher plants and several native animal species including at least ten vertebrate species and the best population of Mauritius Kestrel (*Falco punctatus*). Two endemic species of higher plant are currently known only from the area. An Environmental Monitoring Committee has been set up to come up with solutions and a hired team of international experts has recently suggested mitigation measures. A conservation project to manage and protect those biodiversity rich areas is under formulation.

Despite some high profile conservation success stories like with the Mauritius Kestrel, Pink Pigeon and Echo Parakeet, currently, the combination of past extensive habitat destruction and fragmentation, and impact of invasive species is contributing toward a general decline of native species. One such example is the conspicuous endemic carnivorous snail *Plicadomus sulcatus* (Streptaxidae) which despite its large size and over 300 field surveys have not been seen alive since more than two decades now (Griffiths and Florens, unpublished data).

1.2 Native biodiversity

Knowledge of the native terrestrial biodiversity present on Mauritius is generally fairly complete regarding higher plants, vertebrates and some groups of invertebrates such as land snails and butterflies, although new records and new species continue to be recognised or discovered nearly every year (Griffiths, 2000; Griffiths & Florens, 2004). **Table 1** presents a summary of the diversity, rate of endemism and extinction rate of selected groups.

Table 1: Native diversity in selected groups in Mauritius, with respective total number of extinctions

	Total Native	Total Endemic	Total Extinct	Endemic Extinct
Angiosperms[1]	671	311 (46%)	77 (11%)	42 (14%)
Mammals[2]	5	2 (40%)	2 (40%)	1 (50%)
Birds[2]	30	24 (80%)	18 (60%)	15 (63%)
Reptiles[2]	17	16 (94%)	5 (29%)	5 (31%)
Butterflies[3]	37	5 (14%)	4 (11%)	1(20%)
Snails[4]	125	81 (65%)	43 (34%)	36 (44)%

1.Page & D' Argent 1997; 2.Cheke, A. S. & Hume, J. P. in press; 3.Williams 1989; 4.Griffiths & Florens in prep

1.2.1 Native Fauna

1.2.1.1 Vertebrates

Out of 42 species of endemic land vertebrates that are documented to exist or have existed on Mauritius, at least 19 are extinct, including the Dodo (*Raphus cucullatus*) a symbol of extinction known over the world.

Rodrigues formerly contained at least twelve species of endemic bird, including the flightless solitaire (*Pezophaps solitaria*), two species of giant tortoise, two species of giant gecko, two species of night gecko, an unidentified lizard and one endemic fruit bat.

At least 11 species of endemic birds, two species of giant lizards and two species of giant land tortoises have gone extinct. A brief account of the different groups is given in the following sections for Mauritius and Rodrigues.

1.2.1.2 Mammals

There were three species of *Pteropus* fruit bat in Mauritius namely *P. niger*, *P. subniger*, and *P. rodricensis*, two of which are already extinct and the last one, (that is, *P. niger*) is threatened and as such protected. Unfortunately this latter species is also perceived as a major pest to orchards. Its contribution to losses, which can also be by disease, cyclones, droughts and damage by insects and alien birds, has however not yet been measured. Two small insectivorous bats also exist on Mauritius. A regional study incorporating Mauritius is being planned for 2005 to determine the status of these species and investigate whether more than two species exists. The only surviving mammal in Rodrigues is the Rodrigues Fruit Bat (*P. rodicensis*).

1.2.1.3 Reptiles

Of the 17 native reptile species that once inhabited Mauritius, five are extinct and seven of the remaining 12 are restricted to the remnant islets, making them very vulnerable to extinction. A current closer study of the genus Phelsuma (the ornate day geckos) may reveal some more species. The native morning gecko (*Lepidodactylus lugubris*) now survives on Ile aux Cocos.

1.2.1.4 Birds

Only 13 of the approximately 30 species of land birds known to be present in Mauritius now remain. Of these, nine are threatened according to IUCN 2002. No bird species have become extinct recently due to the successful species recovery programmes.

The Mauritian Kestrel, with a population of four known birds in 1974 have now recovered to 800 animals due to captive breeding, augmentation and reintroduction in the wild carried out by the Mauritius Wildlife Foundation (MWF) and NPCS. Now the programme has been extended to Echo parakeets. Out of the 12 known individuals in 1987, the population has risen to 270.

The Pink Pigeon is another example. Out of 25 known birds in 1970, the population has now reached about 500 due to another successful species recovery program. There are now four semi-wild mainland populations, all in Black River Gorges National Park and a fifth one on Ile aux Aigrettes. There are concerns that the high incidence of diseases among these birds may be exacerbated by their crowding conditions itself a result of substantial supplementary feeding.

Of the other land bird species, the Cuckoo Shrike (*Coracina typica*), the Bulbul (*Hypsipetes olivaceus*), the Olive White Eye, the Fody and the Flycatcher are all threatened by alien predators, poor and degrading habitat quality and habitat fragmentation among other problems.

In Rodrigues, of these vertebrates only two species remain, the Rodrigues warbler (*Acrocephalus rodricanus*), the Rodrigues fody *(Foudia flavicans*).

1.2.1.5 Invertebrates

Terrestrial invertebrates are generally poorly studied and known on Mauritius compared to vertebrates. Butterflies are the best know group with 39 native species recorded from Mauritius, of which only five are endemic. An estimated 11% of this fauna is extinct. A Darwin Initiative project is currently underway to document diversity of other less well-known groups.

Terrestrial land snails constitute another well-studied group with currently 125 known native species. Since the early 1990's, an average of about one new species is being discovered every year. Eight of these were described in December (Griffiths & Florens, 2004). Unfortunately, about a third of the snail fauna is already extinct with most of the extant ones threatened (Griffiths & Florens, in prep). Only one species (*Omphalotropis plicosa*) not seen for 150 years and classified as extinct by the IUCN has been recently rediscovered alive in 2003 in the Black River Gorges National Park.

For Rodrigues, little is known about the native invertebrates, although there is a study in progress todocument the diversity through a Darwin Initiative Project.

1.2.2 Native flora

1.2.2.1 Inventory

The inventory and description of the indigenous and endemic species of higher plants and ferns of Mauritius is nowadays virtually complete through the work of the Flore des Mascareignes project which started in the mid 1970's and is meant to be completed in 2006. The vast majority of native species have been described making the discovery of new species or new records a very rare event nowadays. Latest such discoveries include six native orchid species (Roberts and Wilcock, 2003) among which is the smallest known Mascarene orchid *Taeniophyllum coxii* first recorded in Mauritius in 2000 (Roberts et al., 2004) and a new endemic species of *Cynanchum* (Apocynaceae s. l.) discovered on Gunner's Quoin in 2003 (Bosser in press).

Page and D'Argent, (1997) recorded about 671 species of native higher plants in Mauritius, but that figure includes about 30 aquatic species. Of the terrestrial species (and some freshwater aquatics), 311 are endemics. Some 77 of these native or endemic species are classified as extinct. Of the extant flowering plant species, about 35% are classified as Critically Threatened or Endangered as per IUCN criteria (Bachraz & Tezoo, 1997). The IUCN Criteria of these plants are currently being revised by the National Threatened Native Plants Committee (NTNPC) and it appears already that an even larger percentage of species would qualify as threatened with extinction.

Rodrigues has five endemic genera of plants, and 133 indigenous plant species have been recorded (Wiehe 1949,Cadet 1975). Today 123 species remain, including 37 endemics (Strahm 1989). Nine of the endemic species populations are comprised of less than 10 mature individuals in the wild, including three species, which are known from just a single individual (*Ramosmania rodriguesii*, *Dombeya rodriguesiana* and *Gouania leguatii).*

1.2.2.2 Recent relocation of species previously classified as extinct

A few Mauritian endemic higher plant species not recorded for over a century and believed to have disappeared, have been rediscovered recently. This include *Trochetia parviflora* rediscovered in 2001 after a gap of 138 years (Florens et al. 2001); and more recently in 2004 *Pandanus iceryi* (about 160 plants) and P. cf. *macrostigma* (three plants) in Ferney, and *Dicliptera falcata*, with some 80 plants, on Gunner's Quoin and Grand Peak. The latest such discovery was made in April 2005 in the Corps de Garde Nature Reserve where the Mauritian endemic *Pilea trilobata* (Urticaceae) was relocated after a gap of 156 years. These discoveries are mainly the result of the unprecedented relatively high number of capable botanists currently working in a variety of institutions such as the NPCS, MWF, The Mauritius Herbarium (MSIRI) and the University of Mauritius along with the recent publication of some volumes of the Flore des Mascareignes that permitted easier identification of species.

No recent location of species previously classified as extinct were reported during the last ten years.

1.2.3 National Threatened Native Plants Committee (NTNPC)

The NTNPC resumed its activities in 2004. The objectives of the committee have recently been reviewed and include:

a) Providing advice to conservation stakeholders regarding the conservation of the native plant diversity (at genetic, species and community levels) of the Republic of Mauritius.
b) Advise on the development of policy and action plans so as to be compliant with obligations under the Convention of Biological Diversity (CBD) and other relevant regional and international conventions.
c) Providing support in the maintenance of a database on native plants and review their status periodically according to IUCN criteria.
d) Help in the monitoring of native plants in the wild and in ex-situ facilities and
e) Promote public education and awareness on native plants diversity.

1.2.4 Species recovery program

Propagation of many species in imminent risk of extinction has been successful in a large number of cases through efforts of dedicated staff in various ex-situ facilities, including the propagation facilities of the NPCS in Curepipe. However, despite efforts, some species are currently still under very high risk of extinction, one example being the endemic palm *Hyophorbe amaricaulis* of which only one individual remains. All efforts need to be put in propagating this and a few other species in comparable high threat of imminent extinction. Further recommendations to that effect have recently been formulated by the NTNPC.

Propagation attempts are being carried out on a small number of endangered endemic species by the Plant Genetic Resource (PGR) Unit of the Ministry of Ago Industry and Fisheries (MAIF). These are *Elaeocarpus bojeri*, *Chassalia boryana*, *Croton revaughanii* and *Badula crassa*. The first two species have been successfully propagated. However attempts at multiplying *C. revaughanii* and *B. crassa* did not succeed and new attempts are on-going.

Many of the developments in terrestrial conservation in recent years have been positive. The reafforestation programme (albeit with exotics) has resulted in an increase in the populations of Rodrigues fruit bats: from 70-100 individuals in 1974 to >5000 individuals in 2003 (Cheke 1974, Powell *pers comm*.2005), fodies: from 5-6 pairs in 1968 to more than 900 birds in 1999 (Cheke 1987, Impey *et al* 2002), and warblers: from 23 birds in 1974 to >150 birds in 1999 (Cheke 1987, Showler *et al* 2002)).

Wild individuals of endemic plant species (and critically endangered indigenous species) are monitored to allow collection of seeds or cuttings for propagation. Almost all of the rare species have been successfully propagated. There has been collaboration with Kew Gardens (UK) to rescue Café Marron (*Ramosmania rodriguesi*) by propagation from cuttings. Eleven plants were returned to Mauritius, eight of which went to Rodrigues.

1.2.5 National legislation

The laws of particular relevance to terrestrial biodiversity conservation in Mauritius currently are:

I. The Environment Protection Act (2002)
II. The Forest and Reserves Act (1983 and amendment of 2003)
III. The Wildlife and National Parks Act (1993)
IV. The Plant Protection Act (2006)

These laws together with the international conventions of which Mauritius is signatory demonstrates real political will to address biodiversity conservation issues. Most of these legislations are comprehensive but there remains room for improvement regarding enforcement. Further improvement is needed for towards legal protection to far more threatened species (*a proposition along this line has been made by the NTNPC*)as well as increase penalties for law contraventions and increase area of land currently under legal protection particularly the dry lowland forest areas.

There is also a need to streamline legislation in order to reduce the current overlap and particularly the potential for conflicts between the Forests and Reserves Act and the Wildlife and National Parks Act. Currently there is also a very weak legal instrument to protect the country against entry of alien species posing threat to its native biodiversity. The National Invasive Alien Species Committee, set up in 2003, is currently trying to improve the situation by suggesting the inclusion on the Plant Act, which is in revision, of a Black List of worst invasive weeds to be prevented of entry in Mauritius. Given the importance of alien species in causing major damages to countries (for example 140 billion US $ worth per year in the US (McGrath, 2005)), a special legislation to curb this major and fast worsening problem is a priority in the near future.

1.2.6 Nature Reserves and National Parks

There are 14 Nature Reserves, two private reserves and eight National Parks in Mauritius. These, along with their respective areas are given in **Table 2**.

Table 2: Private Reserves, Nature Reserves and National Parks of Mauritius and their areas

Place	Area (ha)
Mainland – National Park	
Black River Gorges National Park	6754.00
Mainland – Nature Reserve	
Perrier	1.44
Les Mares	5.10
Gouly Pere	10.95
Cabinet	17.73
Bois Sec	5.91
Le Pouce	68.80
Corps de Garde	90.33
Mainland – Private Reserve (Royal Society of Arts and Science of Mauritius)	
Mondrain	5.00
Emile Series	8.00
Offshore islets – National Parks	
Pigeon Rock	0.63
Ile D'Ambre	128.00
Rocher des Oiseaux	0.10
Ile aux Fous	0.30
Ile aux Vacoas	1.36
Ile aux Fouquets	2.49

Ilot Flamants	0.80
Ile aux Oiseaux	0.70
Offshore islets – Nature Reserve	
Round Island	168.84
Ile aux Serpents	31.66
Flat Island	253.00
Gabriel Island	42.20
Gunner's Quoin	75.98
Ilot Mariannes	1.98
Ile aux Aigrettes	24.96

In Rodrigues, Grande Montagne (14 ha), Anse Quitor (10 ha) and two islets to the west of the island, Ile aux Sables (8 ha) and Ile aux Cocos (14.4 ha) have all been declared Nature Reserves (under the Forest and Reserves Act 1983).

There are currently 11 managed plots called Conservation Management Area (CMA) on Mauritius, ranging from 0.34 to 18 ha and totalling 45 ha. CMAs are areas of native forest chosen as samples of distinctive ecosystem types which are furthermore still relatively well preserved. These areas receive active conservation management in an attempt to reverse the alien-driven degradation process. This management comprises initial and maintenance weeding of invasive alien plants and fencing against Java Deer (*Cervus timorensis*) and feral pigs (*Sus scrofa*) which are two large alien mammals perceived as very damaging to native vegetation. The fence also helps keep humans outside these ecologically sensitive areas. Some CMAs like that of Brise Fer receive some other form of alien species control such as trapping of feral cats and mongooses and at times have had rat control done through poisoning. The main management is done by the NPCS, with trapping and poisoning done by the MWF.

In addition to the CMA's, there are 10.5 ha of forest which have been weeded only and 27 ha which have been fenced only bringing the total area receiving some form of conservation management to 82.5 ha. CMAs while being an excellent means to halt and reverse forest degradation however include a total of about 2% of remnant native forests, which is 0.04% of Mauritius.

1.2.6.1 Management of the Nature Reserves and National Parks

Mainland Nature Reserves are managed by the Forestry Services while the National Parks and most offshore islet Nature Reserves benefit from management by the NPCS. The Ile aux Aigrettes Nature Reserve is leased for management to the Mauritian Wildlife Foundation. Management Plans for most of these areas exist or are being currently developed. While the investment in this management has paid off in many ways, sometimes even responsible for drastically reversing population declines, there is room for improvement. Scientific research based on sound and rigorous techniques and adequate interpretation of the data generated is essential in improving output. Further skilled technicians and researchers are required. It is very encouraging that the NPCS for example is willing to be increasingly moving towards carrying out research activities.

The main current management activities are:

I. Active *in-situ* conservation management in CMAs and some Nature Reserves
II. Propagation of endangered plant species *ex-situ* for reintroduction *in-situ*

In Rodrgues, the Forestry Service and the Mauritian Wildlife Foundation (MWF) have jointly undertaken significant work in the restoration of Grande Montagne and Anse Quitor reserves where about 80,000 native and endemic plants have been planted to date (2005). There is a private project by Francois Leguat Ltd to recreate 20 hectares of original forest at Anse Quitor. So far 35,000 native and endemic plants have been planted (2004).

1.2.7 Caves in Mauritius

A program for the conservation of caves was initiated by the Ministry of Environment around the year 1992. A study was undertaken by G Middleton and J Hauchler in 1998 to survey and assess caves in

Mauritius and Rodrigues with a view to formulate proposals for future management.

The survey revealed that there are some 78 caves in Mauritius and about 20 in Rodrigues which are faced with a number of serious threats. The resources and values of the caves were conveniently categorised as utilitarian, scientific (geological, hydrological, mineralogical, biodiversity resources, and cultural.

The biodiversity in the cave were also looked at indicating presence of cave swiflets, free-tailed bats and also invertebrates of which a number is reported to be endemic.

Potential conservation measures that were recommended are as follows:

1. Community education for the conservation of caves and its importance
2. Creation of cave reserve
3. Cave protection legislation
4. Management agreements

Some 20 caves have been identified in Rodrigues. They are in a pristine condition and have not suffered from any damages / human impacts. Mighty Stalagmites and Stalactites form part of this impressive scene and is a great attraction for tourists and residents.

In some of these caves fossils of turtles and the legendary Solitaire have been found. With the future setting up of a museum in Rodrigues these fossils can be preserved and used for educational purposes.

The Rodrigues Environment Coordinating committee has made proposals for the establishment of a management plan for the caves

1.2.8 Offshore islets

There are 49 islets around Mauritius of broadly three main origin; sandy, calcarenitic and volcanic. Virtually all of the islets have been to varying degrees been altered by human activities with substantial degradation and loss of biodiversity as a result. These islets typically harbor a low diversity per area of native plants and animals once common to the coastal and lowland regions of the mainland. However some of these species are of utmost conservation value as they are endemic species which have vanished from mainland Mauritius and maintain today extremely localized, hence vulnerable populations on one or more of the islets. Out of the 17 recognised native reptile species that once inhabited main land Mauritius, five are now extinct and another five out of the remaining 12 are restricted to populations on islets. Round Island holds the greatest diversity of reptiles with eight species, one of which, the burrowing boa (*Bolyeria multicarinata*) may however be extinct as it has not been located for about three decades despite good searching efforts.

Round Island also serves as a refuge for shore and marine birds including the Red Tailed (*Phaethon rubricauda*) and White Tailed (*Phaethon lepturus*) Tropic Birds and the Wedged Tailed Shearwater (*Puffinus pacificus*). Round Island is also known to harbour the only population of petrel (*Pterodroma arminjoniana*) breeding in the entire Indian Ocean.

Rodrigues is surrounded by 20 offshore islets. Of these two have been proclaimed as Nature reserves under the forest and reserve act(1983), The two islets of Ile aux Sables (8 ha) and Ile aux Cocos (14.4 ha) harbour breeding sites for many sea birds (especially the fairy tern (*Gygis alba*) brown noddy (*Anous stolidus)*, lesser noddy (*A. tenuirostris)* and sooty tern (*Sterna fuscata*)). Ile aux Cocos is home to the native morning gecko, a population of *Pisonia grandis* (bois mapou) and the endemic beetle (*Cratopus inormatus)*.

In 2001, a Task Force on islets was set up to assess the causes and extent of degradation on islets and to propose short and long term remedial measures for their restoration and protection. Recommendations included adoption of immediate measures to stop further degradation, creation of islet National Park comprising and setting up a comprehensive long term plan and management of the islets for their optimal utilisation.

The development of a Strategy and Management Plan for 16 islets was entrusted onto the AGRER (a Belgium Firm). The main points of the strategic plan are:

a. The development of a management strategy for the protection and enhancement of the existing natural resources.
b. Encouraging support for conservation through a public awareness campaign, education and the use of some islets to raise awareness of biodiversity and conservation issues
c. The need for the enforcement of laws to reduce habitat degradation and destruction, littering, poaching, and theft of plants and animal species.

Following recommendations of this report, eight islets have been proclaimed as Islet National Parks given in 2004 (refer to **Table 2** above). Additionally, management plans have been prepared for Ile aux Sables, Ile aux Cocos as well as Gombrani Island and Crab Island (which are also of potential conservation importance) through a consultancy by AGRER (2004).

As part of a phase II, the management plan of some 16 islets will be prepared. The tender documents are ready for invitation of bids.

2. Agricultural biodiversity

2.1 Agro-biodiversity in Mauritius

Agro-biodiversity is mainly dominated by sugarcane, the pillar of commercial crop and backbone of the economy together but to a varying extent by species belonging to plants, farm animals, food crop and agriculture.

2.1.1 Policies

The policies of Government as concerned agricultural biodiversity are to promote the agricultural biodiversity conservation, management and sustainable use, in line with the relevant decision on the CBD Conference of Parties and consistent with the Treaty on Plant Genetic Resources for Food and Agriculture. The policies aim at increasing efforts to mitigate adverse effects on agro- biodiversity within the agro ecosystems, promote conservation both in-situ and ex-situ and sustainable use of the genetic resources for its potential value for food and agriculture. In addition, the policies promote fair and equitable sharing of benefits arising for the use of genetic resources.

In 1985, Government of Mauritius published a White Paper for a "National Conservation Strategy" (NCS), in which it defined the major objectives for the conservation of its natural resources based on the same objectives as the World Conservation Strategy, namely,

(i) to maintain essential ecological processes and life support system (for example soil regeneration and protection, the recycling of nutrients, and the cleansing of waters) on which human survival depend;
(ii) to preserve genetic diversity, on which depend the breeding programmes necessary for the protection and improvement of cultivated plants and domesticated animals as well as for scientific advancement;
(iii) to ensure the sustainable utilisation of species and ecosystems, for example, fish and other wildlife, forests and grazing lands.

Some of the priorities to attain the above- mentioned aims and objectives were as follows:-

(a) Avoid extinction of endangered and threatened species of flora and fauna by providing sound planning, allocation and management of land and water uses supported by an on-site preservation in protected areas and an off-site protection such as zoo's and botanical gardens;
(b) Preserve as wide a genetic diversity as possible of many varieties of the same plants and animals;

(c) Preserve as many habitats as possible;
(d) Maintain existing nature reserves and to create new ones;
(e) Co-operate with international bodies in the furtherance of biosphere reserves;
(f) Expand e conservation management areas to other key biodiversity hot spots areas, and
(g) Encourage the protection of wetlands and river reserves.

2.1.2 Agro-biodiversity Resources

2.1.2.1 Sugar cane

Sugar cane cultivation started with its introduction by the Dutch (1635 -1710). The first noble sugar cane variety, *Saccharrum officinarum*, was introduced in 1639. New introductions were made in 1782 under the French occupation (1715 – 1810) and were intensified under the British rule (1810 – 1968). Mauritius was among the pioneers to start a breeding program for sugar cane as early as 1891 and a structural approach to breeding new varieties was adopte d with the establishment of the 'Station Agronomique' in 1893. The department of Agriculture, created in 1913, introduced a large number of varieties, including wild species, from various countries. The programme was strengthened with the creation of the 'Sugar Research Station' in 1931 and further expanded with the creation of Mauritius Sugar Industry Research Institute (MSIRI) in 1953. A dynamic exchange policy of germplasm with other breeding stations worldwide is maintained to date by MSIRI.

Sugarcane, a member of the Poaceae (Gramineae) family belonging to the *saccharrum* genus is not native to Mauritius. Several species are recognized: *S. spontaneum* (2n =40-128), *S. robustum* (2n=60-205), *S. barberi* (2n =81-104), *S. sinense* (2n=11-120), and *S. edule* (2n=60-80).

S. officinarum is the main donor of the sucrose genes whereas *S. spontaneum* has been widely used in breeding partner providing resistance to diseases, vigor, adaptation for stress conditions and other agronomic traits. *S. robustum* has been used to a limited extent for developing commercial varieties and species. *S. sinensis* and *S. barberi* which are of inter-specific origin and cultivation in the past have limited use in breeding. *S. edule* is not used in breeding.

A number of associated genera, *Erianthus*, *Ripidium*, *Miscanthus*, *Narenga* and *Sclerostachya* are closely involved in the evolution of sugar cane, and the first two more frequently used in the new breeding programme.

Germplasm Collection

MSIRI maintains a collection of about 2000 genotype of sugar cane, which includes the basic S*accharrum spp*. and allied genera, early generations of inter-specific hybrids, commercial type hybrids, developed locally (37%) and imported from other breeding stations (33%).

The institution has exported about 190 varieties to 23 different countries. It maintains a seed bank consisting of seeds from its hybridization programme and from the inbreeding of a number of wild clones.

Characterization and utilization

The evaluation and characterization of the germplasm are activities that are integrated in the breeding programme. Information on the agronomic, morphological, genomics and pest reaction of the clones are kept in relational databases and retrieved for use in breeding work. About 2000 to 2500 crosses from around 600 genetic combinations are made each year and about 100 000 new varieties are produced annually for evaluation.

2.1.2.2 Other crops

The loss of many of the old genetic materials have occurred as a result of fierce competition in the

production of high yielding varieties, especially with the recent growing interest in improving the quality of the agricultural products for the export market.

A total number of 222 varieties of 24 different crops have been introduced and evaluated by the AREU since 1998 and farmers are encouraged to grow selected release varieties. This practice narrows the genetic base within species which is indeed determinant to food security and genetic erosion. The number of genetic accessions is a direct measure of food security.

Some ongoing Crop Improvement Programme at AREU

AREU is implementing crop improvement on numerous priority crops in line with the Non Sugar Sector Strategic Plan. A crop breeding programme is on going on onion and anthurium aimed at producing better cultivars in these commodities.

For onion, out of 13 crosses performed in 1998 and 1999 and after successive screening, 9 promising lines have been retained. These are being evaluated under multi-location trials and the best line is expected to be released in November 2006.

For anthurium, out of 11 crosses performed from selected local cultivars, 5 promising breeding lines have retained and are being screened for desirable flower traits. Release of new variety took place in August 2006.

Mutation Breeding Programme is also being implemented on tobacco and Colocasia. New breeding programme on green beans and maintenance breeding programme on the local cultivars of some commonly grown vegetables are also underway.

Germplasm Collection

In 1995, the Agricultural Services through the Plant Genetic Resources (PGR) Unit in the Horticulture Division has taken the duty of collecting local germplasm for food and agriculture. In support to the current breeding programme, AREU has a limited germplasm collection of onion and *Colocasia* while for anthurium, new germplasm materials are being introduced from Holland.

2.1.3 *Ex-situ* and *In- situ* Conservation

The PGR unit has two genetic banks, the basic collections are kept at Curepipe seed gene bank and the working collection at Roches Brunes. There are also two field gene banks, one situated at Nouvelle Decouverte (in the humid zone) and one at Roches Brunes (for the dry zone) to keep plants which are propagated vegatively. In-vitro culture for the collection of germplasm has not yet been explored, but the intention is there. In view of the optimization of the existing facilities, the PGR unit has extended its mandate to other flora of national importance in the Republic of Mauritius.

Actually, there are 452 accessions in the gene bank consisting of the following genera: *Amaranthus*, *Allium*, *Brassica*, Cucurbitaceae, *Lycopersicum*, *Phaseolus*, Solanaceae, and *Vigna*.

In addition, litchi (*Litchi chinesis*) and longane Dragon's Eye (*Euphoria longan*), a number of the native forest species are still being maintained by the PGR Unit of the Ministry of Agro-Industry and Fisheries at the Sir Seewoosagur Ramgoolam Botanical Garden.

There is a number of interesting landraces which have shown wide adaptation to the local condition and which are widely used for cultivation, despite the pressure due to new varieties. There are 2 landraces of bean (*P. vulgaris*) – local red and white navy bean, which are typical to Rodrigues cowpea (*Vigna unguiculata sussp. unguiculata*), long yard bean (*Vigna unguiculata. var sesquipedalis*) and 'onion local' (*Allium spp.*), which is characterized by its good keeping quality, compact bulb and has a strong pungent smell.

2.1.4 Wild relatives

Some wild relatives of the cultivated species that are found in the genebank are:

(i) tomato - *Lycopersicon esculentum*
(ii) pigeon pea - *Cajanus cajan*
(iii) wild cucumber – *Cucumis sativa*
(iv) Potato - *Solanum tuberosum*
(v) Eggplants: *Solanum melogena*

Another wild species of pea called "lentille creole" (*Vigna glabra*) is considered to be among the rare species. The seeds are stored in the *Vigna* collection at the Gembloux, L'Université Agricole Belgium. It is extensively used in the breeding of bean against *Fusarium* wilt. Three wild coffee species are native to Mauritius. These are *Coffea macrocarpa*, *C. myrtifolia* and *C. mauritiana*. The last two species are endemic to Mauritius and the content of caffeine in *C. mauritiana* is quite low.

2.1.5 Fruits, root crops and tubers species

These species of plants are collected, multiplied and conserved in the field gene bank. These species are still new for the local production and at times for export with special mention to litchi and pineapple. It should be recalled that the variety of pineapple was bred in the Mascarenes Islands and it is produced only by Mauritius, Reunion, Madagascar and South Africa for its typical acid taste. For potato, a germplasm comprising of 120 imported clones and another 20 locally developed clones are maintained

2.2 Traditional genetic resources (including medicinal plants) and Traditional Knowledge

With the increase use of modern agriculture and adoption of novel improved varieties, traditional genetic resources are rapidly fading out. Many species that were plentiful are now few in numbers and some are even considered to be threatened. Traditional varieties and knowledge are the key motive force of artisanal development and sustainability.

Specimen of the species of medicinal plants and also ornamentals are becoming scarce and threatened. There are about 69 species identified, many of them are native and about 10 % are endemics e.g Mazambron marron (*Lomatophyllum purpureum*), and Bois de Ronde (*Erythroxylon* spp.). At times, with the purpose of increasing food production, human action has led to genetic degradation of some species. Also traditional knowledge is slowly disappearing. The traditional knowledge had been orally transmitted from generation to generation. But with the influx of modern scientific knowledge and high yielded varieties, traditional knowledge has been cast aside. So far no detailed inventory of the traditional knowledge has been documented. It is indeed a huge gap.

It should be noted that the presence of heterogeneous agro-ecological condition as prevailed in Mauritius, genetic and species diversity has a special significance for maintenance and enhancement of productivity in agricultural crops. The situation is now more pertinent with the threat of climatic change. Such diversity provides security for farmers against diseases, pests, drought and other stresses. The traditional knowledge is the foundation of organic farming, the new trend of crop management where a thorough knowledge of agriculture is needed, i.e. natural predators, combination of crops for fertility and production. Traditional knowledge represents centuries of accumulated experiences and skills of peasants who often sustained yields under adverse farming conditions and marginal land using locally available resources. Previously, they used a rotation of crop and mixed cropping in such a way as to control insects and to maintain the fertility of the soil.

In view of its value to sustainable development, immediate steps needs to be initiated to gather and preserve the local traditional knowledge before these are lost forever.

Safeguard for traditional knowledge has been covered in the CBD Treaty of PGRFA and to some extent in WIPO, an international institution dealing with property rights.

2.3 Environment Friendly Practices

2.3.1 Organic farming

In 1996, the National Federation of Young Farmers' Club (NFYFC) launched the organic farming movement after hosting a workshop with the International Federation of Organic Agricultural Management (IFOAM) for the region of Africa. With the support of the University of Mauritius (UoM), the UNDP, the UNDP GEF-SGP, an aggressive campaign of composting was launched following the successful implementation of a pilot/ demonstration compost plant in Belle Mare. The EU/IOC Regional project, 'Appui Regionale a la Promotion d'une Education pour la Gestion de l'Environnement (ARPEGE)' has also been promoting since January 2004 the concept of composting in over 50 schools in Mauritius and Rodrigues.

Mauritius is producing organic sugar for a niche market. In the 5 years plan, the organic farming form part of the sugar reform programme. Means to convert municipal waste into organic materials are being explored. These will be used in the conventional agriculture, maintenance of fertility in the soil and energy production.

Researches are being carried out by both AREU and the Agricultural Services of the MAIF on a wide range of cultivation crops through organic farming. A regulatory framework pertaining to organic farming needs to be worked out to formalize its entry into the trade arena because organic produce has a complex market with very stringent regulation.

The above study has the merit of creating greater awareness of environmental problem among rural and urban dwellers, local communities and the policy decision makers.

2.3.2 Integrated Pest Management

Extensive and indiscriminate use of pesticide in food crops has often resulted in the upsurge of other problems such as residues in the food chain, resistance of pests to chemicals, destruction of natural environment and pollution of the environment. In order to restore the natural equilibrium between pests and natural enemies, the Agricultural Services of the MAIF has envisaged an integrated pest management approach on major pests. Experiment on rhinoceros beetle had been conclusive and applied thereon.

Sugarcane

Although some 45 insect species have been recorded in sugar cane in Mauritius, insecticides are not used in wide scale or on a routine basis for their control. Biological control strategies through the introduction and release of natural enemies have always been adopted and most pest populations are kept below economic injury levels. Cultural control measures such as ploughing, management of weeds, varying dates of planting or harvest have also been adopted. Increasing habitat diversity by growing food plants for natural enemies is also recommended. occasional localised infestations by armyworms, locusts or white grubs are managed by application of specific insecticides taking into consideration the level of infestation, the capacity of the sugar cane to recover and environment conditions. Other pests such as scale insects are managed by cutting back or thrashing infested canes. Research is being carried out to develop resistant varieties, while the use of entomopathogenic fungi to control sugar cane pests is being investigated.

Potato

Integrated Pest Management strategy has also been recommended for the potato pests. This includes use of yellow traps to monitor populations of leaf miner, timing of insecticide application on the basis of pest thresholds, alternating use of chemical with different modes of action and sound crop husbandary. With this strategy the amount of insecticides used in potato plantations has been reduced.

2.3.3 Fruit fly control and others

Bait Application Techniques (BAT) and Male Annihilation Technique (MAT) are adopted to control fruit flies. BAT makes use of a bait insecticide mixture to attract and kill both male and female flies. In MAT, the block killer is impregnated with a pheromone and an insecticide, which are used to attract and kill male flies. Sterile insect technique is used in both fruit flies and melon flies. It consists of releasing sterile males which are bred in laboratory and released to the environment. The sterile male crosses with fertile female thus producing infertile eggs. In this way the population of the insects is kept under check.

Biological control of cyprus aphids (C*inara cupressivora*) is being attempted using the parasite *Panesia juniperorum.* It has been imported from the Kenya Forest Research Institute.

Aleurodicus dispersus commonly known as spiraling white flies was first recorded in Mauritius in July 2000 as a source of severe problems on ornamentals and fruit trees. A predator *Nephaspis bicolor*, from the Republic of Trinidad and Tobago was released in both Mauritius and Rodrigues to control the insect. The experiment is still on going.

The Rhinoceros beetle (*Oryctes rhinoceros*) attacks both coconuts and ornamentals palms. It created havoc between 1962 and 1969 and its spread was controlled by the virus *Baculovirus oryctes.* Since 1970, the virus has firmly been established and the insect is kept under check.

2.4 Conservation of farm animal genetic resources

The animal genetic resources are under threat as many of the local breeds are being replaced by few imported breeds which grew well when pampered. Furthermore, with development in Mauritius, stringent environmental laws are being in force and this somehow prevents the upliftment of livestock conservation. Farmers and breeders are custodians of this vital pool of biodiversity. It is vital to conserve these breeds before it is too late.

The MAIF through its Animal Production Division and AREU has a plan for the conservation of animal genetic resources. A specific fund would be will be earmarked for the execution of the work according to the Non Sugar Sector Strategic Plan. In this area both physical, financial, personnel resources are required.

The Livestock Research Department of AREU is currently carrying out a number of programmes on the following: (i) characterisation of Creole cattle, (ii) conservation programme for the Creole cattle, (iii) breed census of cattle, goats, pigs and sheep in Mauritius and Rodrigues, (iv) compilation of literature review on FAnGR in Mauritius and (v) started characterization work of the local goats.

As far as germplasm conservation is concerned, the only work done by AREU is the creation of a nucleus of Creole cattle at Curepipe Livestock Research Station.

Local breed – Origin and Evolution

Chicken: The local chicken also known as the Rodriguan chicken in Rodrigues is presumably a mixture of Rhode Island Red, Australorp and Naked Neck breeds introduced on the islands two to three centuries ago by the early settlers. In Rodrigues, the keeping of local breed constitutes an important source of both food and income whereas in Mauritius, its contribution to local poultry production is negligible because of importation of improved breeds.

Cattle: The Creole breed of cattle was introduced by the Dutch in the 16th Century. Subsequently new germplasm in the form of live animals was introduced for example, Jersey, Friesian, Sahiwal, Ongole, Boran and Brahman. Over and above live animals, new germplasm was also introduced through importation of semen for artificial insemination and same is still being done to date.

Goats: The majority of the goats in Mauritius belong to what is called the local breed. In fact it is most probably a mixture of the different breeds that were introduced over time. Recently in the 80's and 90's several breeds such as the Jamna Pari, the Anglo-Nubian and the Boer were imported to try and boost the goat sector. However these introductions have not been successful with the result that the first two no longer exist in the pure state while the Boer still exists due to more recent introductions.

Sheep: This is the species which has witnessed the most in terms of new breeds introduced. Some examples are the Dorper, Black Head Persian, Romanov, Vendeen, Causse du Lot and the Blanc du Massif Central.

Pigs: The pig population is made up mostly of the Large White and Landrace breeds with a few farmers possessing some mongoose pigs. It is amongst this species that the impact of new breeds has been most devastating. The exotic breeds have almost completely displacing the mongoose pig while the overall herd status was increasing.

Deer: The only known introduction of the Rusa deer was in 1639 from Java and since then its population has increased to over 70,000 nowadays.

2.5 Medicinal Plants

In 1993, the Chinese Agricultural Technical Team (CATT) had a collection of medicinal plants at SSRBG comprising of local and exotic plants. A new committee under the chairmanship of the National Parks and Conservation Service (NPCS) was set up with international stakeholders to review and recommend appropriate measures for the upgrading of the medicinal plant corner. The medicinal corner comprises a list of 73 species as follows:-

Species	***Number of species***
Native	7
Endemic	2
Alien	64
Total	73

Researches on the medical properties of local plants are ongoing by the University of Mauritius. The recent one is on the anti oxidant from tea plant (*Camelia sinensis*) and other fruits.

The Mauritius Research Council (MRC) is financing projects on isolation of active ingredients of some medicinal endemic plants of Mauritius and the work is being carried by the University of Mauritius. An awareness raising workshop on Traditional Medicine was also organized by the MRC in April 2003.

However the medicinal plants components need an urgent attention as Ayurvedic medicine is becoming increasingly popular. A survey of traditional medicine, so far transmitted orally need to be documented urgently so as to value traditional knowledge as emphasized in Article 8j.

3. Biotechnology

3.1 Relevance and Importance

Biotechnology has become a prominent tool in agricultural research. It opens tremendous avenues for progress towards understanding of problems encountered and opens prospects of new horizon of development. It has many traditional applications that have been applied in Mauritius for many years as in processing of dairy products such as yoghurts, in brewing and transformation of molasses into alcohol amongst others.

Since 1980, with the application of modern technology, new economic prospects have been opened. Modern biotechnology is defined as "the application of:

a. In vitro nucleic acid techniques, including recombinants deoxyribonucleic acid (DNA) and direct injection of nucleic acid into cells or organelles or
b. Fusion of cells beyond the taxonomic family that overcome natural physiological reproduction or recombination barriers and that are not technically used in traditional breeding and selection" (Cartagena Protocol - Article 3)

The requirements related to 'Handling of Biotechnology and Distribution of its Benefits' and also Biosafety have been spelt under Article 19 of the CBD text and also referred to in a number of CBD CoPs Decisions.

Also, Mauritius is one of countries which carried out study on 'National Biosafety Framework' with the support of the UNEP and GEF.

3.2 Application areas on the local scene

There are five institutions that use biotechnological tools in implementing their research programme. These are (i) Agricultural Services of MoA, FT & NR, (ii) MSIRI, (iii) FARC/AREU, (iv) University of Mauritius (UoM) and (v) Microlab. UoM is involved both in teaching/training and in carrying out research pertaining to biotechnology.

3.2.1 Breeding

Biotechnology offers new opportunities for breeding of new varieties of different crop species. It assists in genome mapping, marker assisted selection fingerprinting of cultivars and diversity studies. In recent years, different marker systems such as Amplified Fragment Length Polymorphisms (AFLPs) and Simple Sequence Repeats (SSRs) or microsatellites have been developed and applied to sugarcane.

Genetic transformation technology, which has the potential to rapidly improve varieties, has been used to develop herbicide resistant sugarcane varieties. Besides herbicide resistance, transgenic sugarcane for drought tolerance is being developed.

3.2.2 Tissue culture

Tissue culture techniques are widely applied in a number of institutions for the rapid multiplication of a wide range of plant species. These include:-

Barkly Experimental Station (MAIF)	Banana, Anthurium, Orchids, Gerbera, Pineapple and Strawberries
FARC/AREU	Banana, Anthurium and Gerbera.
UoM	Tissue culture of orchids, asparagus, endemic plants and medicinal plants.
MSIRI	Sugar cane, potato. The MSIRI produces some 200 000 plantlets of sugarcane annually that are used to establish nurseries from which cuttings are supplied to growers. MSIRI also produces potato plantlets of clones that have been selected locally for minitubers production for the seed multiplication programme
Microlab Co. (Private Enterprise)	Anthurium

The Government is contemplating of the production of microtubers from elite potato cultivars, i.e. potato seed production.

3.2.3 Diagnosis

Molecular techniques, based on serological tests using monoclonal and recombinant antibodies and nucleic acid sequence based techniques are used for the diagnosis of plant and animal diseases.

The techniques are:-

i. Polymerase chain reaction (PCR)
ii. Reverse transcriptase PCR (RT-PCR)
iii. Random Amplified Polymorphic DNA (RAPD)
iv. Immuno-capture PCR

These techniques are applied by the MSIRI, AREU and Agricultural Services and UOM for disease diagnosis, epidemiological studies, and clean seed production and for studying genetic variability among strains of pathogens. An elaborate programme on biotechnology has been prepared by FARC (2004) where emphasis has been placed on problems facing modern agricultural practices.

In the Veterinary Section of the MAIF, vaccines against 'Newcastle' disease and fowl pox are being manufactured using imported seed vaccines in the laboratory.

3.2.4 Studies related to human health

A study on the genetic epidemiology of breast cancer using PCR has been undertaken by the UoM and funded by the MRC. The MRC is also currently funding a clinical (in vitro) study addressing the potential benefits of anti oxidants present in black tea. Research on antioxidants and secondary metabolites from medicinal plants is being undertaken at the UoM.

3.3 Use of Biotechnology in Biodiversity

For safeguarding endangered species, in vitro tissue culture including embryo culture is being adopted. Five wooden species are being experimented for propagation. Experiment on embryo culture for the unique palm *Hyophorbe amariculis* is at an advanced stage of experimentation. Roots and shoots were developed. Due to staff constraints, the experiment has slowed down. However, one of the embryos of *hyophorbe amariculis* has developed a rudimentary leaf. Further experimentation is being pursued. Attempts on multiplication of some endangered species are being undertaken at the MIAF.

It is envisaged to consider the use of tissue culture and cryopreservation techniques for the conservation of vegetative propagated plants. No doubt, biotechnology is a very important tool in the conservation and sustainable strategy of biodiversity.

Government is focusing more attention on biotechnologies. Small scale farm and organic agriculture, which contribute to food production and food security, are other options for sustainable and fundamental agriculture.

4. Legal instrument available locally

With the prominence of biological resources for its economic value and rapid development of genetic engineering, a number of non environmental laws have come up, e.g. Intellectual Property Right (IPR), exchange mechanism. These developments are generally a consequence of the fact that the developing countries hold most of the biological resources, while the developed countries hold most of the technology needed for commercializing them.

So far Mauritius has signed the Cartagena Protocol on Biosafety in 2002. At local level, legislations are in place to safeguard biodiversity. These are the Genetically Modified Organisms Act (2004) and the Plant Protection Act (2006). A Seed Bill and Breeder's Right Bill are currently at the level of the State Law Office (SLO).

The Genetically Modified Organisms Act (2004) has been enacted. This law provides for measures 'to regulate the responsible planning, development, use, marketing and application of genetically modified organisms (GMOs) in the food and agricultural sector of Mauritius. It also ensures that all activities involving the use of GMOs and products thereof would be carried out in such a way to limit harmful consequences to the environment and risk to human health. It should be noted that only part of the bill has become in force.

The Plant Act dating back to 1976 has been repealed with the advent of new techniques and advances in agricultural science. The new Plant Protection Act 2006 will protect the local agriculture from foreign incursion and at the same time harmonizing with the international phytosanitary norms.

The Breeder's Right Bill with a tinge of Plant Genetic Resources had already been prepared and at present requires the attention of the State Law Office (SLO).

To complete the agricultural panorama, a Seed Bill is also under preparation. It includes the following aspects; quality, import, export, marketing and seed production. This will help to control and regulate seeds coming in and leaving Mauritius.

The Government has also signed the Treaty of Plant Genetic Resources and the Crop Global Trust where Material Transfer Agreement (MTA) is being discussed.

Although legal instruments are in place, their implementation will require several years, problems being financial and qualified human resources. For the implementation of the GMO Act, capacity building in risk assessment and monitoring would be required.

5. Inland Water Ecosystem, Coastal and Marine Biodiversity

5.1 Inland Water Biodiversity

The freshwater biodiversity of Mauritius is mainly contained within some 90 rivers and rivulets for Mauritius and 43 for Rodrigues (Map of Mauritius and Rodrigues Y682 (DOS 529) of 1983)), several human-made reservoirs like La Ferme and Mare aux Vacoas, natural lakes such as Bassin Blanc Crater lake, as well as ponds and marshy areas.

Native higher plant diversity

There are currently eight surviving endemic Vacoas species (*Pandanus* spp.), out of the ten known to grow in marshes and streams or to be restricted to wet places very close to rivers (Bosser & Guého, 2003). According to the Flore des Mascareignes (1974-2003), but excluding the Cyperaceae which is not yet treated, there are also an additional 24 native higher plant species from 14 families that are strongly associated with freshwater ecosystems. These include eight submerged aquatic species examples being *Utricullaria gibba* and *U. stellaris*, the only native carnivorous plants of Mauritius; two floating aquatics, *Lemna perpusilla* and *Spirodela punctata* and 14 species that are rooted under water but have aerial shoots. Some native Cyperaceae fall in this later group but are not counted here as this family of plant is currently being reviewed under the Flore des Mascareignes Project.

All of the eight surviving *Pandanus* spp. mentioned above are endemic to Mauritius with half of them maintaining world populations estimated at 200 or less, including *P. palustris* with only about 30 known individuals. Of the other 24 species mentioned above, only three are endemic to Mauritius, including one, which appears to be extinct (*Eriocaulon johnstoni*). Another species is endemic to Mauritius and Réunion.

Vertebrates

In contrast with the terrestrial vertebrates, the freshwater vertebrate fauna of Mauritius is markedly low in diversity and endemism. A survey, apparently the most thorough yet, was carried out recently on the species of fish of Mauritian rivers (ARDA, 2003), the results of which are given here. Of the 18 fish species found, five are introduced including four Poeciliidae (*Genera Gambusia*, *Poecilia* and *Xiphophorus*) and one Cichlidae (*Oreochromis niloticus*). None of the 13 native fish species found during the survey is endemic to Mauritius. However, two are Mascarene endemics and another two are endemic to the Mascarene-Madagascar region. The others are of much wider distribution; five are Indo-African and four are Indo-Pacific species. One fish endemic to the Mascarenes (*Microphis argulus*) was not found during that particular survey. It is interesting to note that a genetic study is underway to determine whether one of the Mascarene endemic fish species could not in fact comprise two species, one endemic to each of Mauritius and Réunion.

Regarding population densities, an alarming trend was revealed whereby most native fish species occur in far lower numbers in Mauritius than in corresponding habitat types on nearby Réunion. This situation seems attributable to a greater extent of habitat degradation on Mauritius caused by domestic, industrial and agricultural pollutions which has decreased both the area and quality of habitat.

Invertebrates

Macrocrustaceans

A recent survey (ARDA, 2003) also revealed ten species of macrocrustaceans belonging to two families (the Atyidae, with six *Caridina* spp. and one *Atyoida*) and the Palaemonidae (with two *Macrobrachium* and one *Palaemon*). Three of these species are endemic to Mauritius, and one to the Mascarenes while the rest are of Indo-Pacific distribution. Most of these species occur at higher densities than in corresponding habitats on Réunion, which bodes well for their future. However, the edible 'Camaron' (*Macrobrachium lar*) is now rather rare as a result of its exploitation.

Molluscs

18 species of freshwater and one of brackish water snails are known from Mauritius. This includes seven introduced and one cryptogenic species. One of these alien species (the Golden Mystery Snail *Pomacea bridgesi*) appears to have naturalised recently having been first recorded in the wild in 1999. It is a known agricultural pest elsewhere and given its sheer large size and prolific reproductive abilities, it is likely to cause significant ecological impact in freshwater bodies of the island. It is a common aquarium species, which somehow found its way to several rivers where it is now to be found in great abundance. It is currently undergoing a rapid range expansion. The case of *P. bridgesi* is a strong signal that adequate control on importation of aquarium and pet species is currently still lacking.

Only one of the ten native species (the planorbid *Gyraulus mauritianus*) may be endemic to Mauritius. This species has also been found on Seychelles where it may however represent a recent introduction. On Mauritius it is very common. Overall, the native aquatic non-marine malacofauna is dominated by the Neritidae (five species) followed by the Thiaridae (two species). All but one of these (the thiarid *Thiara amarula*) are common species on the island, despite the fact that two of them are often collected to be boiled and eaten. These are the neritids *Septaria borbonica* and *Neritina gagates*. Rodrigues has a poorer freshwater malacofauna consisting of six native species of which one (*Afrogyrus rodriguezensis*) is endemic to the island. The rest are all common and widespread species. Three freshwater snails species have been introduced and are now naturalised in Rodrigues' rivers.

5.2 Coastal and Marine Biodiversity

The coastal zone is defined as any area within a km or such distance as may be prescribed from the high water mark, and extending both into the sea and inland (EPA Act, 2002). Although the Republic of Mauritius has a total land area of 2040 km^2, its Exclusive Economic Zone (EEZ) extends over a vast

1.9 million km^2. Coral reefs extend over a length of 150 km enclosing a lagoon area of 243 km^2 (Initial National Communication, 1999).

In Rodrigues, a wide expanse of reef platform extends for 90 km around the island, most markedly towards the west. The reef flat occurs 1 or 2 km from the land in the east of the island (though sometimes as little as 50 m) and as much as 10 km in the west. Passes, creeks and channels break the otherwise continuous reef flat in several places. The coral reef encompasses a shallow lagoon of 240km^2.

Mauritius also claims extension of continental shelf under the UNCLOS (UN Convention Law of the Sea), which would add importance to marine biodiversity and resources (MoE & NDU 2005).The major living resources within the coastal and marine areas comprise fisheries, coral reefs, mangroves, seaweeds, and sea grasses and the non-living resources include sand, lagoons for recreation and common salt. Unexploited resources include substrate manganese nodules, tidal movements and solar radiation.

Marine biodiversity is an important resource for Mauritius, through fisheries and tourism. It is the source of earning for about 45,000 individuals from direct and indirect employment and accounts to about 1% of the GDP (*Source: CSO, Economic and Social Indicators, February 2005*). Lagoon fisheries account for 1% of GDP and provide livelihood for about 3200 registered fishermen including some 1100 fishers working on fishing banks (MoF, 2005). Fishing exports accounted for US$ 139 million in 2003 (MoE & NDU 2005). Artisanal fishing in Mauritius is marketed but used at subsistence levels in Agalega and Saint Brandon. The maximum sustainable yield (MSY) is estimated at 1700 t. In 2003, artisanal fishing catch reached 1,166 t (MoF, 2005). However lagoon fishing currently exceeds sustainable levels of exploitation (MoE & NDU, 2005). Fishing catches comprise of about 42 spp. of fish and seven of crustacean.

There were a total of 1,975 registered fishers in 2005, including 72 seine net fishers. Total catch from the seine net fishery amounted to 189 t during 2005.

Seafood hub

A joint public private sector initiative on the seafood hub has been initiated and is being actively promoted by the government as a new potential economic sector for Mauritius. The seafood hub will be an efficient and attractive environment for the supply of value added processes and services related to the sourcing and marketing of seafood products (MoF, 2005).

Aquaculture has long been practiced in fish farms (“barachois”). Young fish are collected from the open sea and are released and reared in fish farms, and later harvested. There are about 13 “barachois” in Mauritius which however contributes negligibly to the total fish yield of Mauritius.

Technical cooperation

The MAIF (Fisheries Division) in its attempt to promote sustainable fisheries is in the process of conducting an evaluation of the fisheries potential as well as the development of a management plan for sustainable exploitation of fishery resources in Saint Brandon with the technical assistance of the FAO.

The regional Indicative Strategic Development Plan of SADC which provides for guiding principles and orientations for the sustainable management and development of the fisheries sector for the next 10 to 15 years was finalised in 2003. The three key areas highlighted were:

1. Regional Fisheries Information System
2. Regional Fisheries Training
3. Aquaculture for Local community Development

5.2.1 Native Marine Biodiversity

To date, only 1700 marine species have been recorded around Mauritius including 786 fish of which about 5% are of commercial value (42 species). Seven species of shrimps of the genus *Penaid* are known next to Mauritian shores and two inhabit deeper waters. There is one endemic species of oyster (*Crassostrea edulis*).

Sea cows were common in Mauritian lagoons at the time of first settlement, but have been hunted to local extinction. Sea turtles which used to come to lay their eggs on Mauritian beaches in large numbers have suffered intense hunting pressures and depredation by alien animals and have virtually vanished (Cheke, 1987). Some turtles breeding on other islands of the region (e.g. St Brandon, Europa) do forage in Mauritan waters. There is however one encouraging recent record of turtle laying eggs in Mauritius. Both the Green Turtle (*Chelonia midas)* and the Hawksbill Turtle (*Eretmochelys imbricate)* have been declared protected species under the Wildlife and National Parks Act 1993.

Whales cross Mauritian waters in migratory seasons. Some species of dolphins are resident. In all 17 species of marine mammals are recorded to live in or cross Mauritian waters. In addition, very occasionally stranded seals may find themselves within Mauritian waters.

Taxonomic studies have been made on forty-nine amphipod (Crustacea) species, 26 melitids and 23 corophiideans, in a study carried out by the University of Mauritius (Appadoo, 2005). Among these, nineteen new species are recorded and described (see all references annexed) and twelve species are new records for the island. A high degree of endemism (38%) is recorded in the melitid and corophiideans of Mauritius.

The Rodrigues Marine Biodiversity Workshop held in 2001 and organised by the *Shoals of Capricorn* Programme resulted in the identification of over 1000 species. 130 species of coral were identified (which increases the total number of species now recorded to 160), including an endemic species, *Acropora rodriguensis*. 494 fish species were recorded, however it is likely that the total number of fish species exceeds 600. Nine new fish species were recorded, of which 2 endemic species have now been officially identified: the damselfish *Pomacentrus rodriguesensis* and the dottyback, *Chlidichthys foudioides*. 109 species of bivalve and 74 species of echinoderms were also recorded. In addition, 3 new species of isopod (*Bemlos pustulatus, Globosolembos rodriguensis* and *Neomegamphopus malabarensis*), 1 new species of polyplacophora (*Cryptoconchus oliveri*) and 15 new species of bivalve were identified. Coral reefs in Rodrigues are relatively healthy with up to 70% live coral cover recorded on the reef slopes, with low dead coral and macro-algal cove.

The marine biodiversity of Rodrigues has been further studied following the First International Biodiversity Workshop (for Rodrigues) in 2001. Taxonomic studies and in some cases checklists have been published for marine algae, corals, crustaceans (amphipods and isopods), molluscs, echinoderms and coastal fishes (Oliver & Holmes, 2004).

Marine and Aquatic Protected Areas

The primary mechanism for conservation of biodiversity and maintaining ecological functions is the establishment and management of protected areas. There are six fishing reserves around Mauritius, covering an approximate area of about 60 km^2. They are Port Louis, Poudre d'Or, Trou d'Eau Douce, Grand Port, Poste Lafayette and Black River.

In October 1997, two marine parks were proclaimed. They are the Blue Bay (353 ha) and the Balaclava (485 ha) Marine Parks. Monitoring is undertaken both at the Blue Bay and Balaclava Marine Parks. The objectives are:

(a) To maintain ecological diversity
(b) To maintain sample ecosystems
(c) To provide for education, research and monitoring
(d) To provide for recreational and tourism.
(e) Multiple uses in a regulated way.

The drawback of the system is that the park management has no control over the activities taking place outside the park boundaries in the adjoining area. These activities may have negative impact in

the physical environment and the resources of the park.

Monitoring of coral growth and recruitment are activities carried out within the marine ecosystem around Mauritius at eight dedicated sites (Albion, Pointe aux Sables, Trou aux Biches, Anse la Raie, Trou d'Eau Douce, Bambous Virieux, Bel Ombre and Ile aux Benitiers). A long-term monitoring of corals, benthos and fish population and water quality in the two marine parks has been established.

Seawater quality is also monitored in fourteen sites around Mauritius. These are Anse La Raie, Baie du Tombeau, Bain des Dames, Balaclava, Bambous Virieux, Bel Ombre, Blue Bay, Grand Baie, Harbour, Ile aux Bénitiers, Pointe aux Sables, Poudre d'Or, Trou aux Biches, and Trou d'Eau Douce. In 2003, Phosphate values exceeded the guideline limits at Baie du Tombeau, Bain des Dames and Pointe aux Sables, while in Poudre d'Or, all three parameters monitored (phosphate, nitrate and Chemical Oxygen Demand) exceeded established limits (MoF, 2005).

There are also several Islet Nature Reserves and National Parks around Mauritius. The lagoon and sea are surrounding those islets declared Islet National Park (up to an extent of 1 km) also form part of the Islet National Park. Management plans need to be prepared and monitoring of ecosystem carried out.

In Rodrigues, at present there are 5 closed areas where seine net fishing is prohibited, declared under the Fisheries Act 75 of 1984 and covering an area of 16km^2: These are Pointe Venus – Pointe la Gueule, Pointe la Gueule – Pointe Manioc, Baie Topaze, Anse Quitor and Grande Passe. *Shoals Rodrigues* has proposed 4 marine reserves in the north of the island at Grand Bassin (14.1km^2), Passe Demi (7.2km^2), Passe Cabri (1.5km^2) and Riviere Banane (1.5km^2). These areas were identified following consultations with fishing communities and have now been agreed by the Rodrigues Regional Assembly and management regulations prepared. A Marine Protected Area is also currently being de-limited at Mourouk in the south of the island.

5.2.2 Threats to the Marine Biodiversity

Marine and aquatic biodiversity are facing pressure due to historical and current threats as:

- Habitat destruction (deforestation/ land degradation and siltation of lagoon, filling of marshy areas and wetlands, sand and coral mining)
- Illegal exploitation (fish, turtles, sea mammals)
- Domestic, agricultural and industrial waste discharge (liquid and solid from non-point sources)
- Aliens species introductions (accidental and sometimes deliberate)
- Effects of past urbanisation of coastal areas (breakwaters, slipways)
- Overwhelming pressure for development of the very few coastal remnants ecosystems (hotels, subdivisions ('morcellements'), jetties, roads)

Certain problems also persist due to lack or inadequate integrated management approach in the recent past, for example the use of gabion to protect against coastal erosion without prior thorough studies of impacts on ecosystem. A relatively low level of public awareness is also contributing to damaging the marine environment.

5.2.2.1 Overexploitation and ecosystem disruption

The EEZ has an immense potential as economical resource for Mauritius in the future. Some problems, however are arising such as the drop in total fish production (fresh weight) by 53% from 1993 to 2002 (19,690 to 9,334 tons) (MoE & NDU 2005). Fish catch per fisherman day in and off lagoon declined by about 19% from 1999 to 2003 (5.3 kg to 4.3 kg, MoF 2004). There is an increased demand for fish which currently contributes towards encouraging fishermen to over-fish, thus exacerbating the problems as this leads to an unsustainable situation.

The lagoon ecosystem is also being disrupted by physical damage to coral reef and lagoon bottom by various activities such as reef walking, use of boat poles, careless diving and anchoring of boats and traps. Other activities contributing to ecosystem disruption also include cleaning of beaches for

tourism (removal of coral and sea grass) and illegal opening of passes for boats, uncontrolled collection of fish for aquarium trade. There is a need for legislation to be reviewed to avoid continued degradation (MoE & NDU 2005).

Collection of coral and shells are prohibited by law but have not stopped, as species from the region are often found on the market, for example *Lambis violacea* from St Brandon. Sea turtle used to be fished and their parts sold, for example at the Port Louis market, even after a ban was imposed. Tighter control has reduced this trade but appears to have not stopped totally.

In Rodrigues, certain fishing activities within the lagoon appear to be impacting heavily on fish stocks and seine net catches have decreased from 264 t in 1994 to 189 t in 2005. There has also been a decline in Catch per Unit Effort in recent years and the majority of species such as 'Cordonnier', 'Capitaine', 'Carangue' and 'Corne' are being caught before they reach maturity, indicating serious recruitment overfishing. Octopus catches fell by 50% from 774.5 t in 1994 to 323.8 t in 2004 and the majority of octopus is also being caught before they reach maturity. There are also low numbers of large invertebrates such as 'Benitiers' and 'Kono Kono' within the lagoon, suggesting over exploitation. In addition, the techniques used by the fishers create further problems: fishers work on foot and, through trampling and deliberate breakage, cause substantial damage to the lagoon coral and algal habitats in which they fish.

5.2.2.2 Urbanisation of coastal areas

Historical deforestation has destroyed virtually all natural coastal areas with only small isolated and degraded remnants left today on mainland Mauritius. Some islets around Mauritius however still harbour some native coastal ecosystem which in some cases is still very well preserved, for e.g. on Ile Mariannes. Several of these islets are protected either as National Parks or Nature Reserves, but nonetheless require active management to conserve their biodiversity. Islets are covered in more detail under the section on Forest Biodiversity above. Currently coastal development for tourism and housing is still taking its toll particularly in terms of wetland destruction (mainly those under private land ownership) and the coastal environment is consequently degrading further.

Various policy guidelines for construction exist under the new National Development Strategy (NDS, 2003). However key barriers for the implementation of the policy guidelines remain. The main reasons appear to be the absence of proper institutional and legal framework, and also the issue of private land ownership.

Beach erosion in public beaches has been assessed under the "Study on Coastal Erosion in Mauritius" carried out by Baird and Associates in 2003. Construction of sea walls and recreational jetties are some of the main causes of this unnatural rate of erosion. Beach losses have also been linked to sand mining which was banned in 2001(MoE &NDU 2005).

Lagoon water is degrading in certain areas of the country (MoE & NDU 2005), with abnormal high number of red tides and algae population boost in some beaches. At certain location, the absence of appropriate sewerage system near the seaside seems to contribute towards increase in lagoon nutrient causing eutrophication, leading to local population decline of some marine species, and sometimes to severe damage to coral reefs. Several project works pertaining to waste water treatment and also long sea outfall are being implemented in the Grand Baie and Baie du Tombeau areas while others are planned in the near future for the popular coastal zone like Flic en Flac. Legislation and guidelines for development of shoreline has been revised, for e.g. standards for discharge of industrial effluent and cesspool emptying is expected shortly. The National Sewerage Master Plan of 1994 is being implemented and it is expected that about 50% of household will be connected to public sewerage system by the year 2010.

The Albion Fisheries Research Centre produced and launched CASI maps of coastal area of Mauritius in 1996 and 1999, respectively. These CASI maps are being used to monitor changes in coastline (pers. comm: MoF, Mr Nallee).

The habitat changes in the lagoon are caused from various land and marine based activities. There is evidence of pollution in the coastal waters from industrial zones – e.g. Poudre d'Or, Pointe aux Sables and Bain des Dames.

In Rodrigues, sedimentation as a result of soil erosion and run-off is a serious problem, particularly following periods of heavy rainfall. All bays to the east of Port Mathurin are subjected to heavy siltation and channels around the island contain a large amount of terrigenous material and have reduced in depth over the past years. High levels of sedimentation which occur after heavy rainfall smother coral colonies, resulting in reduced growth and reproduction and eventual death. High sediment areas such as Baie Topaze and Baie aux Huîtres also have very low numbers of fish and invertebrates.

5.2.2.3 Mangroves

Mangroves are important assets to the inshore ecology and should be protected and propagated where suitable. It acts as wind belts, shore line protection, habitat for crustacean and other wildlife including birds, as well as nurseries and breeding ground for marine life.

Mauritius lost 30% of mangrove cover in 7 years (1987-1994, from 20 km^2 to 14km^2). Through years, the extent of mangroves cover has significantly decreased through illegal cutting for firewood, construction purposes and for providing passage for boats. There are two species - *Rhizopora mucronata* and *Bruguiera gymnorhiza*. A propagation programme has been initiated in the late 1990's and is ongoing. Between 1998 and 2003 some 198,500 mangrove seedlings were planted, giving an average of about 33,000 seedlings per year (MoF, 2005). As an indication of area concerned, between 2000 and 2002, the area planted in mangrove covered 5.9 ha (MoF, 2004, 2005). The average survival rate recorded for seedlings planted between 1998 and 2002 stood at 70% (MoF, 2003).

5.2.2.4 Wetlands

Wetland has been defined in the Fisheries and Marine Resources Act of 1998. It means (a) an area of marsh whether (i) natural or artificial; or (ii) permanently or temporarily with water which is static or flowing, brackish, or salty; and (b) includes areas of marine water.

Much of the wetlands at Grand Baie, Pereybere, Tombeau Bay, and Flic en Flac have been reclaimed for hotel and residential development. The Ministry of Environment estimates that 20% of wetland had been filled in the Northern tourist zone of Mauritius and 50% in Flic en Flac region. Half of remaining wetlands (marshes and mangroves) are under pressure mainly in North, South-West and Belle Mare tourist zones (NES 1999). During heavy rains, flooding has been reported in many of the places where marshy areas have been filled.

Measures have been initiated to preserve the wetlands at Rivulet Terre Rouge Estuary Bird Sanctuary which has been declared a Ramsar Site, the first for Mauritius. It was created in 1999 with an area of 26ha comprising mostly of mud flats and muddy sands. Around 1000-1200 birds migrate yearly, of 11 regular species and 4-5 vagrant species (NPCS 1997, unpublished). Part of another wetland, Mare Sarcelle at Bras D'Eau has been declared a Reserve under the Wildlife and National Parks Act of 1993. A wetland bill is under preparation at the level of the Ministry of Agro Industry and Fisheries.

5.2.2.5 Lagoon sand mining

Lagoon sand mining which was causing substantial damage to the marine ecosystem while exacerbating erosion problems, has been banned in September 2001 in Mauritius whilst in Rodrigues, there is a controlled extraction (alternative to coral sand being very costly and limiyted). Those engaged in this activity were compensated and many, like the 96 ex-sand miners in 2002, have been given training in FAD fishery (MoF, 2004). Lagoon sand itself has been largely substituted for by rock sand. There are claims that some marine life recovery is perceptible in areas that used to be mined.

5.2.2.6 Global Warming and Coral Bleaching

Abnormal high temperatures and heavy rainfall in 1998 caused coral bleaching in Mauritius, affecting 39% of corals in Balaclava Marine Park and 31% in Blue Bay Marine Park (Goorah *et al.*, 1998). Recent studies indicated a recovery of coral colonies with about 90 % total live coral cover (MoF, 2005).

Coral bleaching was also observed in the lagoonal patch reefs, reef flats and reef slopes. Surveys conducted out at four sites, namely, Ile aux Benitiers, Belle Mare, Poudre d'Or and Albion. The percentages of completely bleached corals at these sites were 56%, 11%, 22% and 2% while that of partially bleached corals were 8%, 27%, 17% and 16% respectively. By June 2003, 95% of the bleached corals had recovered, 2% were recovering and 3% had died (MoF, 2005).

The coral reefs of Rodrigues escaped the mass coral bleaching event of 1997/1998, however fairly severe coral bleaching occurred in 2002 and 2005. This resulted in mortality, particularly of branching and tabular *Acropora* species, on the reef flat and shallow reef slope down to 5-6m depth. Sites in the north and west of the island were particularly badly affected.

Global warming may also result in an increase in the frequency and intensity of cyclones and recent cyclones have been found to cause damage to coral colonies down to 10-12m depth due to physical destruction of corals and smothering by sediment.

Sheppard (2003) projects major coral bleaching events such as that which affected Indian Ocean reefs in 1998, to recur in shallow waters about every five years by 2010-2025 and affecting areas till the 15^0 S latitude, thus including some Mauritian territories. Unless corals are able to adapt to the higher temperatures, which appears unlikely, this frequency of bleaching is likely to be extremely damaging since it will not give sufficient time for corals to re-establish between bleaching events given the average of five years maturation of most coral species. According to the predictions, Mauritius itself may be similarly affected as early as in three decades.

5.3 Legislation

There are about 10 primary legislations pertaining to the coastal resources management and marine biodiversity whilst there are some 12 stakeholders that are directly involved with coastal zone management. The number of players and fragmentation in the legislation represents another key challenge in the area of fresh water and marine biodiversity.

5.4 Integrated Coastal Zone Management (ICZM)

An ICZM Working Group project funded by COI started in 1995, in view of creating a national and regional network for sustainable management of coral reefs, study marine eco-toxicology, prepare reports on erosion and sand mining, coastal pollution, restore native vegetation, and removal of alien species in the Indian Ocean region.

In 2000, an ICZM Division was set up at the Ministry of Environment and an ICZM committee was established in 2003 further to the promulgation of the EPA 2002. In 2005 a Coastal Zone Management Division has been created at the AFRC, MAIF. The Ministry of Environment is in the process of developing an Integrated Coastal Zone Management framework for the entire Republic of Mauritius. Appropriate policy and legislative frameworks will be devised together with the development of ICZM Area Plan and Action Plan.

In Rodrigues, an ICZM Committee established under the Environment Commission deals with all ICZM issues pertaining to Rodrigues.

Priority Setting

1. Please indicate, by marking an "**X**" in the appropriate column below, the level of priority your country accords to the implementation of various articles, provisions and relevant programmes of the work of the Convention.

Article/Provision/Programme of Work	Level of Priority		
	High	Medium	Low
a) Article 5 – Cooperation	X		
b) Article 6 - General measures for conservation and sustainable use	X		
c) Article 7 - Identification and monitoring	X		
d) Article 8 – *In-situ* conservation	X		
e) Article 8(h) - Alien species	X		
f) Article 8(j) - Traditional knowledge and related provisions		X	
g) Article 9 – *Ex-situ* conservation	X		
h) Article 10 – Sustainable use of components of biological diversity	X		
i) Article 11 - Incentive measures		X	
j) Article 12 - Research and training	X		
k) Article 13 - Public education and awareness	X		
l) Article 14 - Impact assessment and minimizing adverse impacts	X		
m) Article 15 - Access to genetic resources		X	
n) Article 16 - Access to and transfer of technology		X	
o) Article 17 - Exchange of information	X		
p) Article 18 – Scientific and technical cooperation	X		
q) Article 19 - Handling of biotechnology and distribution of its benefits		X	
r) Article 20 - Financial resources		X	
s) Article 21 - Financial mechanism		X	

t) Agricultural biodiversity	**X**		
u) Forest biodiversity	**X**		
v) Inland water biodiversity		**X**	
w) Marine and coastal biodiversity	**X**		
x) Dryland and subhumid land biodiversity			**X**
y) Mountain biodiversity **(Integrated in Forest Bd for Mauritius)**			

Challenges and Obstacles to Implementation

2. Please use the scale indicated below to reflect the level of challenges faced by your country in implementing the provisions of the Articles of the Convention (5, 6,7, 8, 8h, 8j, 9, 10, 11,12, 13, 14, 15,16, 17, 18, 19 and 20)

3 = High Challenge	1 = Low Challenge
2 = Medium Challenge	0 = Challenge has been successfully overcome
N/A = Not applicable	

Challenges	Articles																	
	5	6	7	8	8h	8j	9	10	11	12	13	14	15	16	17	18	19	20
a) Lack of political will and support	0	1	1	0	1	2	0	1	2	0	0	0	1	1	1	1	1	1
b) Limited public participation and stakeholder involvement	0	0	0	0	1	2	0	1	1	1	0	0	1	1	1	1	2	1
c) Lack of mainstreaming and integration of biodiversity issues into other sectors	1	0	0	0	2	2	0	2	2	1	0	0	1	1	1	1	2	na
d) Lack of precautionary and proactive measures	1	0	1	0	2	2	0	1	2	1	0	0	1	2	na	1	1	1
e) Inadequate capacity to act, caused by institutional weakness	1	1	2	1	3	2	1	2	2	1	1	1	2	2	1	1	2	1
f) Lack of transfer of technology and expertise	2	2	2	2	2	2	2	3	3	2	1	1	2	3	1	1	3	2
g) Loss of traditional knowledge	1	3	3	3	0	3	3	2	2	1	2	1	1	1	2	1	1	1
h) Lack of adequate scientific research capacities to support all the objectives	0	0	0	1	2	2	1	3	2	1	1	0	2	1	1	1	3	2
i) Lack of accessible knowledge and information	0	0	1	1	2	2	1	2	2	2	1	0	1	1	2	1	1	1
j) Lack of public	0	0	1	0	1	2	0	1	2	2	0	0	1	1	1	1	2	1

education and awareness at all levels																		
k) Existing scientific and traditional knowledge not fully utilized	1	1	1	1	1	2	1	2	2	2	2	1	2	2	1	1	1	2
l) Loss of biodiversity and the corresponding goods and services it provides not properly understood and documented	1	1	1	1	1	2	1	2	1	2	1	1	2	2	2	1	2	2
m) Lack of financial, human, technical resources	2	2	2	3	3	3	3	3	3	3	2	2	2	3	3	2	2	1
n) Lack of economic incentive measures	1	2	2	3	3	3	2	2	3	2	1	1	2	3	2	2	2	2
o) Lack of benefit-sharing	1	1	1	2	1	2	2	2	2	1	1	1	2	1	2	2	3	2
p) Lack of synergies at national and international levels	2	1	2	2	2	2	2	2	2	1	1	1	2	2	2	1	2	2
q) Lack of horizontal cooperation among stakeholders	1	1	1	1	1	1	1	2	1	2	1	1	1	1	2	1	1	1
r) Lack of effective partnerships	1	1	1	2	2	1	1	2	2	1	0	1	1	2	1	2	2	2
s) Lack of engagement of scientific community	0	0	0	0	1	2	0	1	1	1	1	0	1	1	1	2	2	1
t) Lack of appropriate policies and laws	0	1	0	1	2	3	0	2	2	1	1	0	1	2	2	2	1	1
u) Poverty	0	0	0	0	0	0	0	1	1	0	0	0	1	1	1	1	1	1
v) Population pressure	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	1	2	1
w) Unsustainable consumption and production patterns	3	3	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2

x) Lack of capacities for local communities	1	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	3	2
y) Lack of knowledge and practice of ecosystem-based approaches to management	1	1	1	2	2	3	3	2	3	2	2	2	2	2	2	2	2	2
z) Weak law enforcement capacity	1	2	2	2	3	2	1	1	2	1	1	1	1	2	1	1	1	2
aa) Natural disasters and environmental change	1	2	2	2	2	2	2	2	2	1	2	1	2	2	1	1	2	2

2010 Target

The Conference of the Parties, in decision VII/30, annex II, decided to establish a provisional framework for goals and targets in order to clarify the 2010 global target adopted by decision VI/26, help assess the progress towards the target, and promote coherence among the programmes of work of the Convention. Parties and Governments are invited to develop their own targets with this flexible framework. Please provide relevant information by responding to the questions and requests contained in the following tables.

Box III.

Goal 1	**Promote the conservation of the biological diversity of ecosystems, habitats and biomes.**
Target 1.1	**At least ten percent of each of the world's ecological regions effectively conserved**

I) National target: Has a national target been established corresponding to the global target above?	
a) No	**X**
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	

Please provide details below.

There is officially no national target established yet for the various thematic areas. Key national targets are being discussed as part of the review study of the BSAP and the recommendations shall be subsequently submitted to the Cabinet of Ministers for consideration and approval. However, conservation of biological diversity of ecosystems, habitats and biomes are being implemented by the various national organizations mandated with the responsibility for the various thematic areas. Works are also being carried in collaboration and partnerships with relevant partners from the private, statutory and public sector, academics, research institutions , NGOs and CBOs

II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box(es).

Programme of work	Yes	No	Details
a) Agricultural	**X**		*In situ* and *ex- situ* conservation programme ongoing

b) Inland water		X	
c) Marine and coastal	X		Mangrove propagation, buy-back policy for relinquishing of large nets , ban on sand mining activities, creation of marine protected areas, monitoring of water quality, monitoring of coral reef, Enforcement of Fisheries and Marine Resources Act 1998 for the protection of marine ecosystems. Development of ICZM Framework
d) Dry and subhumid land			NA
e) Forest	X		Management, *in situ* and ex- situ programme on biodiversity (which include terrestrial, forest, wetlands mountains amongst others) are ongoing. There is an operational objective in the draft NBSAP to 'manage native forest outside of the national parks', and to review and update current forest legislations to allow for more protection in privately owned forests.
f) Mountain			Refer to e) above

III) Has the global or national target been incorporated into relevant plans, programmes and strategies?

a) No	
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	X

Please provide details below.

The Second National Environment Action Plan and also the second Environmental Investment Programme under the National Environmental Strategies (approved by the Government in the year 2000) provides for programme with defined targets for the terrestrial and marine biodiversity. Other key framework such as the National Development Strategy (Government of Mauritius 2003) includes the designation of a network of Environmentally Sensitive Areas to reinforce a 'general presumption' against development in these areas using the precautionary approach. The network includes coastal features, wetlands, mountain areas and other areas of high biodiversity (both for privately owned and state lands). Other Plan such as the Tourism Development Plan provide for the setting up and management of biodiversity rich areas as Marine Protected Areas over a pre defined time horizon. Targets has also been set in the case of Rodrigues with regards to the establishment of marine protected areas and reserves.

IV) Please provide information on current status and trends in relation to this target.

Currently some 5 % of the total land area of Mauritius (forest and islets) is under legal protection both for entire Republic of Mauritius.

Active management covers 335 ha, some 3.5 % of the areas under legal protection (equivalent to 0.15 % of Mauritius) and 7.7% of areas are still under good quality forest (3730ha). This area has increased from 4% in 1997 due to proclamation of two new reserves have been proclaimed (Mare Sarcelles and Bras d'Eau). The islets national parks have also been proclaimed, covering 8 islets of conservation importance. It is noteworthy that the immediate lagoon and sea surrounding these islets (up to a distance of 1 km) is also legally protected. The 4 nature reserves in Rodrigues amount to some 47 ha in area.

There are two Marine Parks, proclaimed in October 1997; Blue-Bay (353 ha) and Balaclava (485 ha). There are six Fishing Reserves, namely Port Louis Fishing Reserve (331 ha), Grand Port Fishing Reserve (1828 ha), Black River Fishing Reserve (797 ha), Poudre d'Or Fishing Reserve (2542 ha), Poste La Fayette Fishing Reserve (280 ha) and Trou d'eau Douce Fishing Reserve (574 ha). The main

objective of the Fishing Reserves is to protect and conserve the habitats which are ideal nursery grounds for juvenile fish. These were redesignated as MPAs in June 2000. For Rodrigues, there are five fishing reserves and soon there will be the establishment of 1 marine park in Mourouk area (about 80 km^2 in area).

A mangrove propagation programme has been set up to increase the area under mangrove cover at selected sites. From the year 1992, sites namely, Grand Gaube, Poudre d'Or, Pointe des Lascars, Roches Noires, Grand Sable, Petit Sable, Pointe du Diable, Bambous Vireux, Anse Jonchée, Providence, Pte Brochus, Baie du Cap, Le Morne, La Gaulette, Case Noyale, Petite Rivière Noire, Grande Rivière Noire and Tamarin have been planted with mangroves seedlings. Approximately 12.83 hectares have been covered. Species propagated *Rhizophora Mucronata.* Mangrove plantation have been carried out in silted areas such as river mouth in Rodrigues.

V) Please provide information on indicators used in relation to this target.

Mangrove cover; Water quality parameters; Seagrass and coral cover ; recovery of ex-sand mining sites, Fish catch, abundance and diversity, Ratio of endangered/threatened species to total species of flora and fauna.

As part of monitoring programme, the % cover in terms of coral and substrate cover at 12 selected sites as well as the water quality at 14 selected sites are being undertaken. Recovery of ex-sand mining sites - recolonising of sites with seagrasses (four sites being monitored).

In Rodrigues, monitoring of the effects of coral bleaching, Coral Reef Monitoring, Water quality measurements are carried out each year by *Shoals Rodrigues*. Temperature loggers have also been placed at 10 sites to record changes in sea surface temperature.
The seine net fishery has been assessed every year since 2002, by measuring daily catches of 4 seine net fishing teams on 8 days per month during the open season (1st March – 20th September).

VI) Please provide information on challenges in implementation of this target.

a) Mauritius being a SIDS with an area about 2000 Km^2 and an EEZ about 1.9 million km^2, past degradation has been having such severe impacts that restoration is rather expensive and time consuming. In addition, land is also under pressure from development and also for the fulfillment of other socioeconomic goals. Despite such challenges, biodiversity conservation remains one of the national priorities.

b) The BSAP needs to be finalized and national targets be decided upon.

c) Coordination and institutional responsibility of the relevant primary legislation needs to be simplified, clarified and harmonized to allow for more efficient implementation of conservation activities.

d) Legislation covering privately owned land of conservation importance needs to be reviewed.

e) Active restoration needs to be made a priority on a partnership basis involving all stakeholders.

VII) Please provide any other relevant information.

In 2002, the geo-spatial information system for lagoon mapping project was initiated to prepare a map for south-eastern coast of Mauritius. This project covered the area extending from Blue Bay Marine Park to Grand River South East. The biotope of south-eastern coast of Mauritius was catalogued on the basis of the various reef morphologies and their associated ecosystems.

In the case of Rodrigues, a biotope map has been prepared by one of the NGOs, namely, Shoals Rodrigues.

The review of the NBSAP is due to be completed and approved by the end of 2006.

Box IV.

Target 1.2	**Areas of particular importance to biodiversity protected**
I) National target: Has a national target been established corresponding to the global target above?	
a) No	
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	**X**
Please provide details below.	
No specific national target has been established yet for the extent of areas that shall be protected. However, most of the areas (except those which are under private forest that are rich in biodiversity) benefit legal protection. Also significant efforts are being supported by the government towards extending protection to areas of biodiversity importance. The sheer number of protected areas which has been proclaimed as Reserves and Parks as well as preparation of management plan over the last 5 speaks for itself. Some 5% of the total land area is considered important and all of these are legally protected whilst for the marine protected areas, 2 marine parks, 11 fishing reserves and the area within the 1 km distance from the shoreline of the Islet National Parks both in Mauritius and Rodrigues are included in the list of biodiversity/ ecologically important areas. Details about areas of particular biodiversity importance protection, the detail of the sites are given in questions are provided under the target 1.1.	
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?	
a) No	
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	**X**
Please provide details below.	
The development plan and programmes in which the conservation, management and protection o particular areas of importance to biodiversity has been included are, the National Environmental Strategies, Tourism Development Plan, the National Development Strategies amongst others.	
IV) Please provide information on current status and trends in relation to this target.	
In addition to information provided under target 1.1, the network of actively managed plots covers most of the major forest types but is geographically restricted to the south west of Mauritius. Not all of the most important areas for plant biodiversity (partially identified by Page & d'Argent 1997) receive adequate protection. For example, the National Park (6, 574 ha) is located in the South West and most of the nature reserves are also within this area, or on the offshore islets, while there are very important areas in the North, the South East and the Centre which are not being actively managed. The uneven geographical representation reflects land ownership. The forest in the South East is privately owned, and although some of this (c6,553 ha) is classified as Mountain and River Reserve which receives legal protection, but enforcement is difficult. In addition, while legal protection is important, active management against invasive species is essential especially in a highly fragmented landscape where the areas of remaining good quality forest are relatively small. Also the legal protection of individual trees covers only a few species, and the penalties incurred are small. However this legal protection is being revised at present.	
V) Please provide information on indicators used in relation to this target.	

Refer to details under target 1.1 given above

VI) Please provide information on challenges in implementation of this target.

Legislation covering privately owned land of conservation importance needs to be reviewed and mechanism devised so that active restoration may be undertaken. Other challenges include, lack of trained personnel & resources, lack of staff and funding.

Box V.

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**

I) National target: Has a national target been established corresponding to the global target above?

a) No	**X**
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	

Please provide details below.

Refer to reasons given earlier. Species and ecosystems can be effectively conserved when diversity, abundance and distribution are known. An electronic database on marine organisms of all taxa in Mauritian waters is being built. The first stage of this project involves compilation of existing data and same is ongoing at the level of the Mauritius Oceanographic Institute in collaboration with the AFRC of the Ministry of Agro industry and Fisheries. Works are being carried out for certain species under the agro-biodiversity conservation programme undertaken whilst a series of activities and programme is ongoing for the restoration of certain Islets such as the Round Island (islet is the only location for 5 endemic reptile species).

Tool that has also been used to maintain or reduce the decline of species of selected taxonomic groups include legislative and enforcement measures. Examples are

- Conservation measures for the protection, conservation and management of fisheries and marine resources including the prohibition of fishing by certain fishing gears, areas or during certain periods, prohibition of a specific species, size or gender of fish.
- Prohibition to fish any crab or lobster in the berried state or a turtle or a marine mammal.
- Protection of mangrove plants and initiation of a mangrove propagating programme in 1995 with a view to protect and reforest denuded areas.
- Prohibition of any activity likely to disturb the marine ecosystems and habitats.
- Prohibition of dynamites fishing.
- Banning the import & export and prohibition of the removal and sale of corals and shells so as to protect, conserve and manage the coral reefs, shells and associated marine life for the future generations.
- Sand mining activities have been phased out as from 1st October 2001, in order to rehabilitate the state of the lagoon.
- Reduction of the number of large nets, seine nets and gill nets under a buyback programme and training of fishers to other fisheries viz. FADs (Fish Aggregating Devices) fishery and swordfish fishery.
- Prohibition of mining of corals, dead or alive, from the lagoon for the production of lime.

Similar legal provisions exist for the agro biodiversity and the forest biodiversity.

III) Has the global or national target been incorporated into relevant plans, programmes and strategies?

a) No	
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	**X**

IV) Please provide information on current status and trends in relation to this target.

- Conservation programmes for 4 bird species are ongoing. A further species, Mauritius Fody, has already been saved from extinction.
- Active restoration of Round Island is ongoing. There is a plan for the translocation of these reptiles to other northern islets.
- There is a network of conservation management areas in the South West that cover all of the major forest types. These areas are actively weeded.
- Management of a privately-forest in the South East of Mauritius is also underway.
- The NPCS and Forestry Services have successfully propagated c40 of the 103 species with less than 50 individuals in the wild
- A programme of propagation for all of the critically endangered plant species for Rodrigues undertaken by the Mauritian Wildlife Foundation and the Forestry Unit of the Chief Commissioner' s Office.
- Marine turtles – trade is prohibited under CITES and the Fisheries & Marine Resources Act 1998
- Mangroves – protected species under the Fisheries & Marine Resources Act 1998
- Coral & shells – removal are prohibited under the Fisheries & Marine Resources Act 1998

Also the legal protection of individual trees covers only a few species, and the penalties incurred are small. However this legal protection is being revised at present.

V) Please provide information on indicators used in relation to this target.

- Ratio of endangered/threatened species to total species of flora and fauna. (The baseline information for this is the IUCN red list – currently being updated and involving field surveys)
- Dominance of exotic species among native species.
- Economic loss due to ecological damage by cyclones.
- Mangrove percentage cover
- Coral percentage cover
- Fish catch and species

VI) Please provide information on challenges in implementation of this target.

a) Confusion over institutional responsibilities

b) The lack of sufficient actively managed areas for reestablishment of ex situ populations

c) The lack of a geographically sufficient network of actively managed areas

d) Limited Resources

e) Propagation of some plant species is difficult due to lack of material and protocols.

f) Accessibility to remote sites is difficult (in the case of offshore islets)

g) Lack of specialised personnel

Box VI.

Target 2.2	**Status of threatened species improved**

I) National target: Has a national target been established corresponding to the global target above?

a) No	
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	**x**

Please provide details below.

A national target has been set to propagate all of the plant species represented by less than 50 known individuals in the wild. Works are also carried out by the various stakeholders under their respective areas focuses on higher plants and animals (birds, reptiles and bats) and the ecosystem in general.

II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box(es).

Programme of work	Yes	No	Details
a) Agricultural			
b) Inland water			
c) Marine and coastal			
d) Dry and subhumid land			
e) Forest	**x**		Target has been set for all plant species of represented by less than 50 known individuals in the wild.
f) Mountain			

III) Has the global or national target been incorporated into relevant plans, programmes and strategies?

a) No	
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	**x**

Please provide details below.

Refer to details under section IV below

IV) Please provide information on current status and trends in relation to this target.

There is active conservation programmes for 4 bird species. These species are all more common than previously:

- The Kestrel has moved from Endangered (1994) to Vulnerable(2004)
- The Echo Parakeet although still Critically Endangered has a population of >200 birds (2005)
- The Pink Pigeon is now classified as Endangered (2002), although the population is not increasing at present.
- The Mauritius Fody is still classified as Critically Endangered, but a new population has been established on an offshore island, and it is believed this will help to reverse the trend.

Also active restoration of the Round Island is ongoing (islet which is the only location for 5 endemic reptile species of which one is thought to be extinct) whilst an MoU has been signed between the Rodrigues Regional Assembly and Mauritian Wildlife Foundation for the restoration of the Coco Islet in Rodrigues. This approach has been in place for the restoration of an upland forest site.

Over 80% of the flora of Mauritius is threatened, of which almost 100 species are known from less than 10 individuals in the wild.

There is a field genebank for upland species targeting 20 species with less than 50 individuals (and usually much less) in the wild, capturing all genetic diversity of these species by taking cuttings (or if not possible seed) from each known wild individual, and developing a collection (replicated in another site) that contains all of these plants.

There are four nurseries specifically to propagate native species, an arboretum where individuals of rare species are propagated and planted out (from a list of the most threatened plant species).

So far the National Parks and Conservation Service and the Forestry Services of the Ministry of Agro Industry and Fisheries have successfully propagated c40 of the 103 species with less than 50 individuals in the wild

Some critically endangered species have been included in restoration programmes, e.g. *Tectiphiala ferox*, *Trochetia parviflora, Psiadia arguta, Dictyosperma album* var *conjugatum ,Hibiscus genevii* and *Gagnebina pterocarpa*.

No ferns or orchids have been used in recovery or restoration programmes.

V) Please provide information on indicators used in relation to this target.

The IUCN Red list is being updated and is used to indicate the degree of success of these species recovery programmes.

VI) Please provide information on challenges in implementation of this target.

Major limitation for the conservation are:

- lack of restored and managed areas for replanting, and release of endangered bird species,
- lack of consensus of which species can be planted in which localities, and
- Resources constraint to undertake a thorough monitoring

A limitation to plant species recovery is technical expertise and lack of material.

Box VII.

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**

I) National target: Has a national target been established corresponding to the global target above?

a) No	**x**
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	

Please provide details below.

Agro biodiversity conservation programmes are underway at the level of the Agricultural Services of the Ministry of Agro Industry, the Agricultural Research and Extension Unit, the Mauritius Sugar Industry Research Institute (MSIRI), and the University of Mauritius.

The MSIRI maintains a collection of about 2000 genotype of sugar cane, which includes the basic *Saccharrum* spp. and allied genera, early generations of inter-specific hybrids, commercial type hybrids, developed locally (37%) and imported from other breeding stations (33%). A dynamic exchange policy of germplasm with other breeding stations worldwide is maintained. MSIRI has

exported about 190 varieties to 23 different countries. It also maintains a seed bank consisting of seeds from its hybridization programme and from the inbreeding of a number of wild clones. About 2000 to 2500 crosses from around 600 genetic combinations are made each year and about 100 000 new varieties are produced annually for evaluation.

Concerning other crops, a total number of 222 varieties of 24 different crops have been introduced by the AREU since 1998 and farmers are encouraged to grow the selected release varieties. This practice narrows the genetic base within species. In terms of improvement programmes, AREU is implementing crop improvement on numerous priority crops in line with the non sugar sector strategic plan. A crop breeding programme is on going on onion and anthurium aimed at producing better cultivars in these commodities. Mutation Breeding Programme is also being implemented on tobacco and *Colocasia*. New breeding programme on green beans and maintenance breeding programme on the local cultivars of some commonly grown vegetables are also underway.

A number of activities are also underway with regard to e*x-situ* and i*n- situ* conservation. The PGR unit of the Agricultural Services has two genetic banks. Actually, there are 452 accessions in the Gene Bank. A number of the endemic forest species are still being maintained by the PGR Unit of the Ministry of Agro-Industry and Fisheries at the Sir Seewoosagur Ramgoolam Botanical Garden. Some wild relatives of the cultivated species that are found in the genebank are:

a. tomato - *Lycopersicon esculentum*
b. pigeon pea - *Cajanus cajan*
c. wild cucumber – *Cucumis sativa*
d. Potato - *Solanum tuberosum*
e. Eggplants: *Solanum melogena*

Another wild species of pea called "lentille creole" (*Vigna glabra*) is considered to be among the rare species. The seeds are stored in the *Vigna* collection at the Gembloux, L'Université Agricole Belgium. It is extensively used in the breeding of bean against *Fusarium* wilt. Three wild coffee species are native to Mauritius. These are *Coffea macrocarpa*, *C. myrtifolia* and *C. mauritiana*. The last two species are endemic to Mauritius and the content of caffeine in *C. mauritiana* is quite low.

Fruits, root crops and tubers species are collected, multiplied and conserved in the field gene bank.

Traditional genetic resources and Traditional Knowledge

With the increase use of modern agriculture and adoption of novel improved varieties, traditional genetic resources are rapidly fading out. Many species that were plentiful are now few in numbers and some are even considered to be threatened.

There are about 69 species identified, many of them are native and about 10 % are endemics. Also traditional knowledge is slowly disappearing. So far no inventory on traditional knowledge has been documented.

With regard to Integrated Pest Management, the Agricultural Services of the MAIF has envisaged an integrated pest management practices on major pests. Experiment on rhinoceros beetle had been conclusive and applied thereon. Similar programme is being envisaged by the Agricultural Services of the MAIF

The MAIF through its Animal Production Division and AREU has a plan for the conservation of animal genetic resources. In this area both physical, financial, personnel resources are required.

The Livestock Research Department of AREU is also currently carrying out a number of programmes on the following: (i) characterisation of Creole cattle, (ii) conservation programme for the Creole cattle, (iii) breed census of cattle, goats, pigs and sheep in Mauritius and Rodrigues, (iv) compilation of literature review on FAnGR in Mauritius and (v) started characterization work of the local goats.

Researches on the medical properties of local plants are ongoing by the University of Mauritius. The recent one is on the anti oxidant from tea plant (*Camelia sinensis*) and other fruits.

The Mauritius Research Council (MRC) is financing projects on isolation of active ingredients of some medicinal endemic plants of Mauritius and the work is being carried by the University of Mauritius. An awareness raising workshop on Traditional Medicine was also organized by the MRC in April 2003.

III) Has the global or national target been incorporated into relevant plans, programmes and strategies?	
a) No	
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	**x**

Please provide details below.

Mentioned has been made for the conservation of genetic diversity of crops, livestock, wildlife, medicinal plants and other valuable species in the Non Sugar Sector Strategic Plan for Mauritius (2002).

IV) Please provide information on current status and trends in relation to this target.

Please refer to above sub section for details. In relation to food and crops, *ex situ* and *in-situ* conservation of economic crops are being carried out. Also The population diversity and gene flow of some corals in Mauritian waters are being studied. The species that are being studied are: *Galaxea* spp., *Pavona* spp., *Pocillopora* spp. and *Acropora* spp.

VII) Please provide any other relevant information.

So far there are few wild species of economic importance in Mauritius and Rodrigues

Box VIII.

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 conservation of biodiversity**

I) National target: Has a national target been established corresponding to the global target above?	
a) No	
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	**x**

Please provide details below.

One of the relevant areas for which there is some of form of control to promote sustainable use and consumption is in the fisheries sector. This is the quota system (Total Allowable Catch – TAC) as well as a limited number of vessels operating in the banks fishery.

Another related area is tourism and eco tourism. The tourism industry in Mauritius depends on the quality of the environment and in particular the coastal and marine environment. Tourism being also important from an economic perspective, a number of measures has set in place to ensure that development as well as consumption is sustainable.

Concerning raw materials that are in handicraft industry for example, Vacoas *(Pandanus heterocarpus* and *P. tenuifolius pandanus)* used in making of bags, hats, mats and other items are

being produced by the relevant department to ensure that is no threat of depletion. Also these species are also being propagated as part of the community forest programme.

II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box(es).

Programme of work	Yes	No	Details
a) Agricultural			
b) Inland water			
c) Marine and coastal	x		In the fisheries sector
d) Dry and subhumid land			
e) Forest			
f) Mountain			

III) Has the global or national target been incorporated into relevant plans, programmes and strategies?

a) No	
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	x

IV) Please provide information on current status and trends in relation to this target.

Artisanal fishery under the Fisheries and Marine Resources Act 1998

- Reduction of the number of large nets, seine nets and gill nets under a buyback programme and training of fishers to other fisheries viz. FADs (Fish Aggregating Devices) fishery and swordfish fishery
- Introduction of a closed season from the 1st October to the last day of February the following year which coincides with the peak-spawning season of most reef fishes.
- Regulation on the mesh size of net
- Exercising tight control on import, storage and utilization of dynamites and prohibition of dynamites fishing.
- Banning of the use of harpoons
- Promoting FAD fishery outside the lagoon
- Creation of marine protected areas - two marine parks (Blue bay and Balaclava), six fishing reserves in Mauritius and five fishing reserves in Rodrigues and 1 marine park (Mourouk) in Rodrigues in process.
- Sustainable exploitation of octopus fishery in Rodrigues by prescribing a minimum size of octopus for capture, banning the use of iron bars and iron spikes, decrease in fishing effort, introduction of a close season and identifying alternative employment and sources of income for octopus fishers.

V) Please provide information on indicators used in relation to this target.

- Steady fish catch after introduction of quota system for banks fishery.
- Annual production of fish catch in the lagoon is stable.
- Length at first capture has increased
- Length at first maturity has increased

It is believed that stock has recuperated for certain species.
VI) Please provide information on challenges in implementation of this target.
Latest state of art technology and capacity building

Box IX.

Target 4.2	**Unsustainable consumption, of biological resources, or that impacts upon biodiversity, reduced**
I) National target: Has a national target been established corresponding to the global target above?	
a) No	**x**
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	
Please provide details below.	
Although no target has been set, a number of policies and tools have been devised to control unsustainable consumption of biological resources. Development in sensitive areas are not allowed and for developments that have potential impacts on biodiversity are required to required to undergo the EIA process and ensure that mitigation measures are provided. Another example is the case of unsustainable fishing practices of octopus fishery in Rodrigues. A set of conditions have been prescribed in terms of minimum size of octopus for capture, banning the use of iron bars and iron spikes, decrease in fishing effort, introduction of a close season and identifying alternative employment and sources of income for octopus fishers. Other measures for the artisanal fishery includes - Introduction of a closed season from the 1st October to the last day of February the following year which coincides with the peak-spawning season of most reef fishes. - Reduction of the number of large nets, seine nets and gill nets under a buyback programme and training of fishers to other fisheries viz. FADs (Fish Aggregating Devices) fishery and swordfish fishery. - Quota system for banks fishery One bold decision taken by the Government has been the banning of coral sand extraction from lagoon of Mauritius as from October 2001.	
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?	
a) No	
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	**x**
Please provide details below.	
In addition to above listed measures, regulations have also been passed and same are in force.	
IV) Please provide information on current status and trends in relation to this target.	
V) Please provide information on indicators used in relation to this target.	
VI) Please provide information on challenges in implementation of this target.	

There are still couple of incentive mechanism which go against sustainable conservation practices and which need to be reassessed and readjusted accordingly.
VII) Please provide any other relevant information.
There is in general little consumption of native biodiversity.

Box X.

Target 4.3	**No species of wild flora or fauna endangered by international trade**
I) National target: Has a national target been established corresponding to the global target above?	
a) No	**x**
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	
Please provide details below.	
The Wildlife and National Parks Act 1993 and the Wildlife Regulations of 1998 both contain information relevant to trade in CITES listed species. There is no significant international trade in any species native to Mauritius and Rodrigues. Also the Fisheries and Marine Resources Act 1998 prohibits the landing, sale and supply of any turtle whether dead or alive, or part of a turtle, turtle eggs, stuffed turtles and any marine mammal or part of a marine mammal.	

Box XI.

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**
I) National target: Has a national target been established corresponding to the global target above?	
a) No	
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	**x**
Please provide details below.	
A number of policy and regulatory measures have been taken at the national level to mitigate and reduced the threat of habitat degradation. The National Development Strategy (Government of Mauritius, 2003) includes the designation of a network of Environmentally Sensitive Areas to reinforce a 'general presumption' against development in these areas using the precautionary approach. The network includes coastal features, wetlands, mountain areas and other areas of high biodiversity (both privately owned and state lands). Mauritius is a party to the Ramsar convention and the Rivulet Terre Rouge Estuary Bird Sanctuary has been designated as the first Ramsar site for Mauritius. Also lagoonal sand mining which was also considered as an activity having negative impacts on the lagoonal ecosystem has been banned in the lagoon of Mauritius as from October 2001. In terms policy measures, the Ministry of Environment has promulgated a number of standards for effluent discharge into the ocean, discharges in water bodies, drinking water standards, and coastal water quality standards amongst others. These standards and guidelines are in line with international norms and standards. Mangroves, corals and shells are protected species under the Fisheries and	

Marine Resources Act 1998. Ministry of Tourism is also coming up with guidelines and regulations to protect against degradation of marine environment (examples are the dolphin watch guideline, diving regulations and so on)

III) Has the global or national target been incorporated into relevant plans, programmes and strategies?	
a) No	
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	**X**

Please provide details below.
Policy measures exist for sound forest management, wetland management and others are under development, for example, the development of an Integrated Coastal Zone Management framework. Government has also set the target of providing sewerage network in coastal area and to have 50 % household connected to the sewerage network by the year 2010.

IV) Please provide information on current status and trends in relation to this target.
Monitoring of coral reefs ecosystem and coastal water quality are on-going by the Ministry of Agro Industry and Fisheries. The results from analyses on sample collected for water quality testing show that the parameters are within the coastal water quality guideline limits.

VI) Please provide information on challenges in implementation of this target.
a) inadequate legislation to protect the remaining native forests, especially for privately-owned land
b) the continual impact of invasive alien species on remaining forest means that legal protection does not prevent the loss of forest biodiversity. Complementary approach need to be explored.

Box XII.

Goal 6	**Control threats from invasive alien species.**
Target 6.1	**Pathways for major potential alien invasive species controlled**

I) National target: Has a national target been established corresponding to the global target above?	
a) No	
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	**X** (in term of measures)

Please provide details below.
There are measures that have been set in place concerning control in the country through the airport and seaport. Customs officers have been recently trained and made aware of the implications of IAS. Quarantine measures also exist and are being enforced by the authorities concerned. A national steering committee has been established to work into the issues pertaining to IAS in Mauritius. However concerning the ballast water, as per IMO regulations, ships carrying ballast water need to exchange ballast 200 Nm offshore from the port. However enforcement is still an issue. A survey of the port area is to be initiated to establish a baseline for the marine organisms currently occurring in the port area. The baseline will also be used to monitor any introduction in future.

III) Has the global or national target been incorporated into relevant plans, programmes and strategies?	
a) No	
b) Yes, into national biodiversity strategy and action plan	

c) Yes, into sectoral strategies, plans and programmes	**x**

Please provide details below.

IAS is considered as one of the most important threats to biodiversity in of Mauritius. On that basis the National Parks and Conservation Service (NPCS) of the Ministry of Agro –Industry the Ministry of Agro Industry and Fisheries is in the process of preparation of a national pest control strategy.

IV) Please provide information on current status and trends in relation to this target.

Various chemical control experimental works have carried in the case of plant and results have not been encouraging. Weeding are being carried out as the ultimate means. Endemic birds like the Pink Pigeons (*Columba mayeri*) are constantly at risk of predation by feral cats (*Felis catus*); and rats (*Rattus* spp.) have been documented to destroy up to 60% of the seed crop of Bois Colophane (*Canarium paniculatum*, Burseraceae) (Auchoybur, 2003) doubtless contributing to the poor regeneration of the tree despite in-situ conservation management. Monkeys (*Macaca fascicularis*), rats (*Rattus rattus* and *Rattus norvegicus*), pigs (*Sus scrofa*), and deer (*Cervus timorensis*) are directly detrimental to the native vegetation, and are either indirectly or, together with the Indian mongoose (*Herpestes auropunctatus*).

Box XIII.

Target 6.2	**Management plans in place for major alien species that threaten ecosystems, habitats or species**

I) National target: Has a national target been established corresponding to the global target above?

a) No	**x**
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	

Please provide details below.

A national steering committee has been established to work into the issues pertaining to IAS in Mauritius. Also a National IAS Control Strategy is presently under development at the Ministry of Agro-Industry and Fisheries.

VI) Please provide information on challenges in implementation of this target.

There are no management plans in place for any IA species. As part of ecosystem management, weed control is carried out generally. Such approach is very cost intensive and also labour intensive.

A black list of invasive species that are not to be permitted entry into the country has also been prepared by the National Invasive Alien Species Committee.

VII) Please provide any other relevant information.

As part of the indicators retained under the environmental Information system, there is a proposed Environmental Indicator to monitor the change in distribution of the most important invasive species.

Box XIV.

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**

I) National target: Has a national target been established corresponding to the global target above?

a) No	**x**
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	

Please provide details below.

The Vulnerability and Adaptation and the Science and Variability reports (2005) under the recent NCSA exercise have identified a number of areas where capacities will have to be enhanced pertaining to impact of climate change on biodiversity resources. The key areas concerned are agricultural sector, the fisheries sector, the coastal zone and marine ecosystems, water resources amongst others.

The study conducted in August 1999 to assess the vulnerability of the sugar cane crop to climate change concluded that the latter is in fact vulnerable (MSIRI & NCC, August 1999). On the other hand, short duration annuals of the C3 type are less likely to be negatively affected (Climate Change 2001, Synthesis Report, IPCC). However, an increase in the frequency of extreme weather events and the increased incidence of pest and disease is likely to cause a temporary decrease in yield.

GCM outputs for Mauritius indicate that the increase in temperature will affect most of our agriculture; the degree of change depending, amongst others, on the crop type and the geographical locations. This will require different adaptive measures. Government may have to react to the effects of climate change at the regional and international levels even if effects at national level were negligible. Quantitative studies using four GCM scenarios reveal approximately 30% to 56% decrease in the yield [INC, 1999]. The recoverable sucrose content will be lower with increase in temperature. Higher frequencies of climate extremes such as cyclone, droughts and prolonged rainfall will also have an uncertain, more risky, impact on sugar production

Sugar cane high fibre and high sucrose genotypes have recently been introduced for evaluation under local conditions with the objective of adopting these to enhance the use of sugarcane biomass both to produce higher amounts of sugar and co-products, for example, electricity and ethanol, in view of improving the economic viability of the sugar industry. (L.J.C Autrey, Talk to the Sugar Industry, Boname Hall, MSIRI, "Amélioration de la canne à sucre – Stratégie", 22 February 2005).

Global warming and Sea level rise is likely to impact on the ecosystem, including wetlands and mangrove, which are the nursery grounds for crab, shrimp and several fish species at juvenile stage. Temperature increases will alter the geographical range of some insect pests and diseases. Changes in insect population and/or the number of generations per year can result in severe losses. Agriculture and mangroves occupy a significant coastal frontage. Agricultural activities will be under risk as a consequence of saline drift from sea-spray that will contribute to land degradation through salinisation of neighbouring soil. Mangroves are expected to retreat inland. The various impacts of climate change on crop and animal production could have higher order effects on income, employment, food production and exports. Production costs will change and may rise in terms of altered management requirements such as irrigation adoption or extension and reduction of pest and disease damages; thereby affecting profitability, in turn affecting employment and the society.

Deforestation has a very strong influence on land as a resource. Climate changes will in turn compound the damage. Elevated CO2 level will alter the composition of plants and will result in organic matter with a high C:N and C:P ratio. Such organic matter has a low rate of decomposition thereby slowing nutrient recycling. The activity of decomposer microorganisms will be reduced by the poorer quality of the plant material while fungi may thrive as a result of the higher carbon content of

the litter. Changes in the flora and fauna of the soil may affect its physical and chemical properties in the long-term and may necessitate changes in land use. Different rainfall patterns could affect distribution, tolerance, evolution and survival of animal and plant species resulting in a change in ecosystems. Rainfall of very high intensity may become more frequent. The resulting soil erosion may be severe thereby altering the uses made of land in certain areas. Leaching may increase on sloping land. Lower productivities may demand changes in land use and in extreme cases land may be simply abandoned.

Fish habitat and behaviour are directly related to climate. Fisheries include coastal, banks and deep-sea fishing and aquaculture. Climate change impacts on fish stocks and distribution can be assessed through variations in water properties or indirectly through fishing activities dependent on weather. A rise in sea surface temperature causes decrease in the amount of oxygen, increase in growth of aquatic plants and increase in metabolic rates of organisms. The decrease in dissolved oxygen will affect fish population through increased mortality of adults and juveniles, reduction in growth and lower survival rates of eggs and larvae. Changes in wind regime and ocean circulation are expected to impact on the intensities and location of upwelling areas and hence on the distribution of important nutrients (such as nitrates, phosphates and silicates) leading to changes in fish population and migration behaviour. Nutrient concentrations are higher in deep water and replenishment of upper layers comes through vertical diffusion, overturning and upwelling. More frequent changes in the wind and thermal stratification regime affect larval survival with detrimental impact on the fish population. Higher frequencies of weather extremes are expected to affect fishing operations. Tuna is a migratory species and the choice of the route is strongly determined by sea surface temperature. The 28°C isotherm has been found to coincide with concentrations of tuna. The vertical distribution of biomass and fish depends on the depth of the thermocline. A deeper thermocline necessitates more investments for exploitation. It is predicted that El Nino occurrence will become more frequent, intense and of longer duration with climate change. It has been observed that whenever a major El Nino occurs, warming also takes place in the other major ocean basins. Studies have also shown that El Nino will induce changes in ocean currents, upwelling and upper ocean heat content thus affecting size and location of fish stocks.

III) Has the global or national target been incorporated into relevant plans, programmes and strategies?

a) No	
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	**x**

Please provide details below.

The concern for the potential impact of climate change on resources have been taken into consideration in development plan such as the National Development Strategies as well as in the recent conservation programmes.

IV) Please provide information on current status and trends in relation to this target.

Monitoring programmes are ongoing to also observe the impact of global warming on the ecosystems both in Mauritius and Rodrigues. Coral bleaching has been observed in 1998, 2003, 2004 and it is being monitored continuously to see the effects.

A number of researches pertaining to enhancement of resilience are also underway at the level of Mauritius Sugar Industry Research Institute, the Agricultural Research and Extension Unit, University of Mauritius. Certain research works are also benefiting from technical support and funding through the Mauritius Research Council and the Food and Agricultural Research Council.

VII) Please provide any other relevant information.

A multi-sectoral National Climate Committee was established in 1990 to evaluate the impacts of climate change in various sectors. In the context of the preparation of the second National Communication report under the UNFCCC, a sub-committee has been set to work review the measures pertaining to biodiversity.

Box XV.

Target 7.2	**Reduce pollution and its impacts on biodiversity**
I) National target: Has a national target been established corresponding to the global target above?	
a) No	**x**
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	
Please provide details below.	
In addition to details provided under target 5.1, government agencies are development guidelines that promoters would be required to abide so as to reduce pollution level in addition to the number of standards that have been promulgated. Additionally, open dumping sites found in coastal areas have been closed down. Propagation of mangroves to reduce sedimentation load is ongoing. Sewerage programme is also ongoing and waste water treatment facilities have been improved (treatment up to tertiary level) including a new outfall have been constructed further to appropriate EIA studies undertaken. Awareness raising is ongoing with regard to judicious use of chemical fertilizers and pesticides. Water quality monitoring programmes are being implemented by the various organizations. In terms of oil spill preparedness both Mauritius and Rodrigues have an oil contingency plan whilst the port in Mauritius has an oil spill response plan. Drills and simulation exercises are held at least once a year in Mauritius. The Policy of Government is to reduce pollution in general including its impacts on biodiversity.	
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?	
a) No	
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	**x**
Please provide details below.	
Action is being taken to implement the National Environment action Plan for redressing the declining lagoon water quality affecting certain coastal areas. Mauritius is also party to the Nairobi Convention on land based sources of Marine pollution in Eastern Africa. Under this regional convention – Mauritius is at present actively participating in the Western Indian Ocean Land Base sources of Marine Pollution project (WIO LaB). Four National Task forces have been established under this project namely the waste water task force, water, sediment and biota assessment task force, legal task force and physical alteration and destruction of habitat task force. Other plans to reduce pollution include the solid waste management plan and the Sewerage Master Plan (1994) which have been prepared and are being implemented. As indicated earlier, the Sewerage Master Plan provides a complete scheme for the development of wastewater sector in Mauritius. This plan seeks to connect 50% of the household to the public sewerage system by the year 2010/2 and 100% by the year 2030. A number of institutions have been set up and amongst the bold decisions that the government have taken relevant to biodiversity include the substitution of leaded petrol by unleaded petrol, banning of lagoonal sand extraction, control over the use of plastic bags, prohibition of collection of corals, banned on trade of threatened and protected species amongst others.	
IV) Please provide information on current status and trends in relation to this target.	

Concerning the implementation of solid waste management plan, there are six transfer stations which have been constructed together with a sanitary landfill site. A number of private facilities are recycling plastic waste, metal scraps amongst others. Other options such as composting are being envisaged.

For the sewerage master plan, upgrading and refurbishment have been undertaken on major networks. Sewerage has been extended to a number of sites in the urban areas of Plaines Wilhems and Port Louis and also in the north of Mauritius. Treatment Plants at the St Martin have been upgraded with the construction of a new outfall. New facilities have been constructed for the north region.

In terms of monitoring programmes, monitoring of water quality to meet coastal water quality guideline limits and monitoring of effluents from industries/hotels before discharging to appropriate landfill or the ocean are all ongoing. Also programme such as the propagation of mangrove is still on.

V) Please provide information on indicators used in relation to this target.
Lagoonal health characteristics in terms of water quality (CWQG), coral cover, abundance of fauna and flora
VI) Please provide information on challenges in implementation of this target.
Funding is the biggest limitation
VII) Please provide any other relevant information.
Environmental standards for major environmental resources have been established under the Environmental Protection Act (2002)

Box XVI.

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**

I) National target: Has a national target been established corresponding to the global target above?	
a) No	**x**
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	

Please provide details below.

Although no national targets is set maintenance of ecosystems capacity, and further to information provided under targets 5, 6 and 7 the following examples of measures are in place:

- Control of fishing methods, efforts
- Control of pollution
- Enforcement of Fisheries and Marine Resources Act
- Establishment of fishing seasons
- Creation of marine protected areas
- Rehabilitation programme – mangrove propagation and banning of sand mining
- Environment Impact Assessment with regard to coastal development project

III) Has the global or national target been incorporated into relevant plans, programmes and strategies?	
a) No	

b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	**x**

Please provide details below.

There is legislation to protect and maintain vegetation on mountains and along rivers. This legislation does not specify whether the vegetation should be native or exotic. Environmental standards for major environmental resources have been established under the Environmental Protection Act (2002). Other plans are the National Development Strategies, National Environmental Strategies, Tourism Development Plan, the Non Sugar Sector Strategy plan and also the forthcoming ICZM framework project.

IV) Please provide information on current status and trends in relation to this target.

Forestry Service is actively maintaining vegetation cover in major watersheds. Fish production has remained stable over the years. Water quality around the island is generally within the coastal water quality guideline limits.

For Rodrigues, the halting of deforestation and reversing the trend through reafforestation at rate of 50 to 100 ha of land over the past twenty years (since mid 80's) using native species has been a remarkable effort. Also the protected forest land area in the year 1983 was 2182 ha (21.8% - this figure also represents the land area under forest cover at that time) and in 2006 the figure is 3410 ha (34%). Over the 20 years period, the extent has increased by some 75%. The forest areas are also being maintained by the Forestry Service of the Rodrigues Regional Assembly.

V) Please provide information on indicators used in relation to this target.

Fish catch
Water quality parameters
Status of coral

VI) Please provide information on challenges in implementation of this target.

Capacity building
Funding
Transfer of technology

Box XVII.

Target 8.2	**Biological resources that support sustainable livelihoods, local food security and health care, especially of poor people maintained**

I) National target: Has a national target been established corresponding to the global target above?

a) No	**x**
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	

Please provide details below.

No target has been set. However, measures pertaining to the fisheries sector, agriculture and forestry supporting sustainable livelihoods and care for the poor people are in place. In the case of fisheries, Fish aggregating devices have been installed in Mauritius and Rodrigues to allow lagoon fishers to move towards the FAD fishing thereby relieving pressure on the lagoon. Redundant people in certain sector such as sand mining are being offered jobs in the hotel sectors or are given permit to start their own enterprise with loan and credit facilities together with technical guidance.

In the case of handcraft, the forestry unit in Rodrigues is propagating adequate number of *Pandanus heterocarpus* and *P. tenuifolius* , whose leaves are used in bags, hats and mats makings. In the agricultural sector, irrigation facilities are being provided and mechanization of farmers' field is subsidized. Seeds and seedlings are offered at discounted rate and farmers have priorities over other cultivators. In the livestock sector, numerous incentives are being provided to encourage growth and food processing. Other programmes include propagation of novel varieties, spraying of fields by the pest control unit, training on food processing activities.
II) National targets for specific programmes of work: If such national target(s) ha(s)(ve) been established, please indicate here, and give further details in the box(es).
III) Has the global or national target been incorporated into relevant plans, programmes and strategies?

a) No	**x**
b) Yes, into national biodiversity strategy and action plan	
c) Yes, into sectoral strategies, plans and programmes	

Please provide details below.
Refer to above information
IV) Please provide information on current status and trends in relation to this target.
FADs are being maintained. New trial for the positioning of FADs is being made in Rodrigues. Management of marine parks to maintain biological resources for sustainable use are ongoing. Propagation of endemic plants and the creation of community forests in Rodrigues are ongoing. Community forests have been developed on about 200 ha of lands in 5 villages. Beneficiaries were trained in forest nurseries and management.
V) Please provide information on indicators used in relation to this target.
Fish catch per fisherman around FADs, Planters registration cards, Fishers registration card.
VI) Please provide information on challenges in implementation of this target.
Funding constraints and Natural disaster are the most important ones.

Box XVIII.

Goal 9	**Maintain socio-cultural diversity of indigenous and local communities.**
Target 9.1	**Protect traditional knowledge, innovations and practices**

I) National target: Has a national target been established corresponding to the global target above?	
a) No	**x**
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	

Please provide details below.
No such programme is underway in the case of Mauritius.

Box XIX.

Target 9.2	**Protect the rights of indigenous and local communities over their traditional knowledge, innovations and practices, including their rights to benefit sharing**
l) National target: Has a national target been established corresponding to the global target above?	
a) No	**x**
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	
Please provide details below.	

So far Mauritius has signed the Cartagena Protocol on Biosafety in 2002. At local level, legislation is in place to safeguard biodiversity – The Genetically Modified Organisms Act. Also a Seed Act and Breeder's Right Bill have been drafted and these are at the level of the State Law Office (SLO).

The Seed Bill includes the following aspects; quality, import, export, marketing and seed production. This will help to control and regulate seeds coming in and leaving Mauritius.

In terms of right to local communities over their traditional knowledge, safeguard for traditional knowledge has been covered in the International Treaty on Plant Genetic Resources for Food and Agriculture and to some extent in WIPO, an international institution dealing with property rights.

Legislation pertaining to IPR has also been drafted.

Box XX.

Goal 10	**Ensure the fair and equitable sharing of benefits arising out of the use of genetic resources.**
Target 10.1	**All transfers of genetic resources are in line with the Convention on Biological Diversity, the International Treaty on Plant Genetic Resources for Food and Agriculture and other applicable agreements**
l) National target: Has a national target been established corresponding to the global target above?	
a) No	**x**
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	
Please provide details below.	

A Material Transfer Agreement (MAT) for any biological material (native and exotic) has been approved by the State Law Office and is in place. The MTA is in line CBD objectives and the International Treaty on Plant Genetic Resources for Food and Agriculture.

Box XXI.

Target 10.2	**Benefits arising from the commercial and other utilization of genetic resources shared with the countries providing such resources**
I) National target: Has a national target been established corresponding to the global target above?	
a) No	**x**
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	
Please provide details below.	
No such agreement exists so far.	

Box XXII.

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**
I) National target: Has a national target been established corresponding to the global target above?	
a) No	**x**
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	
Please provide details below.	
Mauritius received GEF funding for a number of biodiversity related projects through the Implementing Agencies, namely, World Bank, UNEP, UNDP and FAO over the last 2-3 years. The project's list comprises the NCSA, the development of Partnerships for Marine Protected Areas in Rodrigues, and Capacity building for Sustainable Land Management project. Other projects in the pipeline and for which project development fund has been secured comprise (i) Energy Efficiency and Energy Conservation in building (ii) Strengthening management effectiveness of the protected are network on the island of Mauritius.	

Box XXIII.

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**
I) National target: Has a national target been established corresponding to the global target above?	
a) No	**x**
b) Yes, the same as the global target	
c) Yes, one or more specific national targets have been established	
Please provide details below.	
There has been some transfer of knowledge and genetic material in the area of research, in particular, in agriculture. These are rather in the form of scientific and technical Cooperation with various other Contracting Parties through international centers and regional bodies.	

Also as part of various regional and multilateral agreements that Mauritius has signed and ratified, Mauritius is participating and actively contributing to numerous activities which are of direct relevance to biodiversity conservation and sustainable use. At the Western Indian Ocean region level, Mauritius is cooperating with other regional countries in the following regional initiatives:

1. Western Indian Ocean – Lab Project
2. Agulhas and Somali Large Marine Ecosystems Assessment
3. Maritime Highway Project
4. IOC project – Tuna Assessment and Tagging Project,
5. IOSEA Marine turtle MOU
6. IOC Coral Reef Network Project
7. IOC Setting up of a Marines Protected Areas network for the western Indian Ocean countries.

There is extensive collaboration and transfer of technology between stakeholders within the country, and experts abroad. Many of these collaborations are long-standing. For examples, intensive management of critically endangered bird species, conservation Management Areas development, and invasive species control from islets, Collaboration with International Agricultural Research Centers

Mauritius has established many bilateral relations in the field of plant genetic resources. A few of these are :

1. Indo-Mauritian Commission covering exchange of sugarcane germplasm between Mauritius and Coimbatore (India) as well as with various sugar cane growing countries;
2. Between the CIRAD (La Réunion, France) and the AVRDC;
3. Between Mauritius and China in the field of Medicinal plants;
4. Among countries that are party to the Indian Ocean Commission and which are implementing a number of biodiversity and environment related projects ;
5. SADC Plant Resources Genetic Center.

Global Strategy for Plant Conservation (GSPC)

The Conference of the Parties, in decision VI/9, annex, adopted the Global Strategy for Plant Conservation. Parties and Governments are invited to develop their own targets with this flexible framework. The Conference of the Parties considered the Strategy as a pilot approach for the use of outcome oriented targets under the Convention. In decision VII/10, the Conference of the Parties decided to integrate the targets into the reporting framework for the Third National Reports. Please provide relevant information by responding to the questions and requests contained in the following tables.

Box XXIV.

Target 1. A widely accessible working list of known plant species, as a step towards a complete world flora.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	**X**
Please specify	
n/a	

II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	**X**
Please specify	
n/a	
III) Current status (please indicate current status related to this target)	
n/a	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
n/a	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
n/a	
VI) Constraints to achieving progress towards the target	
n/a	
VII) Any other relevant information	
Mauritius and Rodrigues have already completed a botanical description of all of the known species. This is part of a long-term project over the last 30 years to publish a 'Flore des Mascareignes'. This project will be completed by the end of 2007. So far 23 fascicles have been published. There is a project to develop a database of all plant species, their distribution and IUCN status which is also nearing completion. A list of all marine plants from Mauritian waters is being compiled for a marine organism electronic database, which will be made accessible through Internet.	

Box XXV.

Target 2. A preliminary assessment of the conservation status of all known plant species, at national, regional and international levels.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	**X**
Please specify	
n/a	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	**X**
Please specify	
n/a	

III) Current status (please indicate current status related to this target)
n/a
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)
n/a
V) Progress made towards target (please specify indicators used to monitor progress towards the target)
n/a
VI) Constraints to achieving progress towards the target
n/a
VII) Any other relevant information
The National Threatened Plants Technical Committee (a committee set up in 1994 and consisting of all stakeholders involved in plant conservation) is coordinating the updating of IUCN status for all plants native to Mauritius and Rodrigues. The process is halfway to completion.

Box XXVI.

Target 3. Development of models with protocols for plant conservation and sustainable use, based on research and practical experience.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	**X**
Please specify	
n/a	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	**X**
Please specify	
n/a	
III) Current status (please indicate current status related to this target)	
n/a	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
n/a	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
n/a	
VI) Constraints to achieving progress towards the target	
n/a	
VII) Any other relevant information	

In situ conservation.

Within the protected areas, there is a network of actively managed areas for which protocols for restoration is in place. This is an adaptive process; being continually reviewed and improved (in terms of efficiency and cost)

A World Bank GEF project for restoration of Round Island was completed in December 2004. A flora management plan based on experiences has been produced.

Ex situ conservation

An *ex situ* facility for threatened plants of the uplands has been established, and the protocol is available for development of a similar facility for other regions.

Protocols to collect and propagate native plants are in place. Plant propagation activities use a common database to allow sharing of information amongst conservation stakeholders.

Box XXVII.

Target 4. At least ten percent of each of the world's ecological regions effectively conserved.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	**X**
Please specify	
n/a	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	**X**
Please specify	
n/a	
III) Current status (please indicate current status related to this target)	
n/a	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
n/a	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
n/a	
VI) Constraints to achieving progress towards the target	
n/a	
VII) Any other relevant information	

Some 5 % of the total land area in Mauritius is under legal protection.

Mauritius

Active upland conservation covers 73 hectares plus 20 hectares private forest; island conservation covers Ile aux Aigrettes (26ha), Round Island (168 ha).

This corresponds to 287ha, 0.15 % of Mauritius (186500 ha) and 7.7% of areas still under good quality forest (3730ha)

Rodrigues

Active conservation covers 22 ha of c60ha of forested area that remains on the island.

Box XXVIII.

Target 5. Protection of fifty percent of the most important areas for plant diversity assured.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	**X**
Please specify	
n/a	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	**X**
Please specify	
n/a	
III) Current status (please indicate current status related to this target)	
n/a	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
n/a	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
n/a	
VI) Constraints to achieving progress towards the target	
n/a	
VII) Any other relevant information	

Not all of the most important areas for plant biodiversity (partially identified by Page & d'Argent 1997) receive adequate protection. For example, the National Park (6, 574 ha) is located in the South West, Most of the nature reserves are also within this area, or on the offshore islets, while there are very important areas in the North, the South East and the Centre which are not actively managed. The uneven geographical representation reflects land ownership. The forest in the South East is privately owned, and although some of this (c6,553 ha) is classified as Mountain and River Reserve which receives legal protection, but enforcement is difficult.

In addition, while legal protection is important, active management against invasive species is essential especially in a highly fragmented landscape where the areas of good quality forest are small.

In Rodrigues there are only 2 protected areas on the mainland, but these represent virtually the only native forested areas left on the island.

Legal protection of individual trees covers only a few species, and the penalties incurred are small. However this legal protection is also being revised at present.

Box XXIX.

Target 6. At least thirty percent of production lands managed consistent with the conservation of plant diversity.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	**x**
Please specify	
n/a	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	**x**
Please specify	
n/a	
III) Current status (please indicate current status related to this target)	
n/a	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
n/a	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
n/a	
VI) Constraints to achieving progress towards the target	
n/a	
VII) Any other relevant information	
Production lands tend to be high-intensity monoculture (sugar, tea and tobacco, commercial plantations and market gardening). This landscape supports almost no native biodiversity (apart from the occasional native plant left in a hedge, or the side of a field). Thus, in terms of conservation of native biodiversity this is not a priority. However, pilot projects of mixed plantations (native and exotic species) are ongoing.	

Box XXX.

Target 7. Sixty percent of the world's threatened species conserved *In-situ*.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	**X**
Please specify	
n/a	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	**X**
Please specify	
n/a	
III) Current status (please indicate current status related to this target)	
n/a	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
n/a	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
n/a	
VI) Constraints to achieving progress towards the target	
n/a	
VII) Any other relevant information	
The network of Conservation Management Areas was set up to cover the major habitat types in the South West of the island. There are also some Nature Reserves that are actively managed (Ile aux Aigrettes, Round Island, Perrier, Gouly Peres, Les Mares) plus Mondrain (a private reserve). This network contains at least 57% (Strahm 1992) of all native species (although it omits some of the rarest species which have a highly localized distribution), but the small size of the protected areas may not allow the populations to be self-sustaining, or contain sufficient genetic diversity for their longevity. A higher percentage of native plant species are located within areas of the Black River National Park. Islet National Parks and Nature Reserves. It is a recognized National policy that the area of forest being actively managed must be increased. This is being realized through establishment of new areas, and extension of existing CMAs. Networks of actively managed areas also need to be established in other parts of the country. This is important if the aim is to conserve genetic and ecosystem diversity as well as species diversity in Mauritius.	

Box XXXI.

Target 8. Sixty percent of threatened plant species in accessible *Ex-situ* collections, preferably in the country of origin, and 10 percent of them included in recovery and restoration programmes.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	**X**
Please specify	
n/a	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	**X**
Please specify	
n/a	
III) Current status (please indicate current status related to this target)	
n/a	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
n/a	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
n/a	
VI) Constraints to achieving progress towards the target	
n/a	
VII) Any other relevant information	

Over 80% of the flora of Mauritius is threatened, of which almost 100 species are known from less than 10 individuals in the wild.

***Ex situ* work**

The is a field genebank for upland species targets 20 species with less than 50 individuals (and usually much less) in the wild, capturing all genetic diversity of these species by taking cuttings (or if not possible seed) from each known wild individual, and developing a collection (replicated in another site) that contains all of these plants.

Constraints involve difficulties in plant propagation. These are being addressed with help from specialists in e.g. tissue culture, grafting etc.

There are four nurseries specifically to propagate native species, an arboretum where individuals of rare species are propagated and planted out (from a list of the most threatened plant species).

NPCS and Forestry Services have successfully propagated c40 of the 103 species with less than 50 individuals in the wild. Ferns and orchids are also propagated for an ex situ reference collection.

Inclusion in recovery and restoration programmes.

A major limitation for plant conservation is lack of restored and managed areas for replanting, and also a lack of strategic locations for species recovery programmes.

However, some critically endangered species have been included in restoration programmes, e.g. *Tectiphiala ferox*, *Trochetia parviflora, Psiadia arguta, Dictyosperma album* var *conjugatum ,Hibiscus genevii* and *Gagnebina pterocarpa*. In Rodrigues, this approach has been in place for the restoration of upland and a lowland site. There has also been the use of lowland plants in the landscaping of several hotel developments.

Box XXXII.

Target 9. Seventy percent of the genetic diversity of crops and other major socio-economically valuable plant species conserved, and associated indigenous and local knowledge maintained.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	**X**
b) No	
Please specify	
The target is to collect all of the crop diversity in Mauritius and Rodrigues	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	**X**
b) No	
Please specify	
As indicated above, the target is to collect all of the crop diversity in Mauritius and Rodrigues	
III) Current status (please indicate current status related to this target)	
About 462 accessions have been collected so far, covering about 50% of genetic diversity in crops for food and agriculture. Collections are still continuing and it is estimated that it may take another 5 years to reach the target.	

IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)
A new crop gene bank has been established at Roches Brunes Experimental Station with a small seed laboratory to accommodate accessions from forestry spp. and medicinal plants. It is an extension of the existing Genebank.
V) Progress made towards target (please specify indicators used to monitor progress towards the target)
Indicators used to measure progress are: 1) the number of accessions (462 accessions collected) 2) Infra-structures required for the work (a new facility at Roches Brunes) 3) Recruiting of the staff required
VI) Constraints to achieving progress towards the target
The main constraint is to mobilize funds to achieve these targets. In addition, funding for an aggressive awareness campaign needs to be identified to educate the public in general.

Box XXXIII.

Target 10. Management plans in place for at least 100 major alien species that threaten plants, plant communities and associated habitats and ecosystems.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	**X**
Please specify	
n/a	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	**X**
Please specify	
n/a	
III) Current status (please indicate current status related to this target)	
n/a	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
n/a	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
n/a	
VI) Constraints to achieving progress towards the target	
n/a	
VII) Any other relevant information	

There are no management plans in place for any of the Invasive Alien species, although ecosystem management through weed control is carried out generally.

A black list of invasive species that are not to be permitted entry into the country has also been prepared by the National Invasive Alien Species Committee.

There is also an environmental indicator set up to monitor the change in distribution of the most important invasive species.

Box XXXIV.

Target 11. No species of wild flora endangered by international trade.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	
Please specify	
n/a	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	
Please specify	
n/a	
III) Current status (please indicate current status related to this target)	
n/a	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
n/a	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
n/a	
VI) Constraints to achieving progress towards the target	
n/a	
VII) Any other relevant information	
The Wildlife and National Parks Act (1993) and the Wildlife Regulations of 1998 both contain information relevant to trade in CITES listed species. Also, there is no international trade in any plant species native to Mauritius or Rodrigues.	

Box XXXV.

Target 12. Thirty percent of plant-based products derived from sources that are sustainably managed.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	**X**
Please specify	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	**X**
Please specify	
n/a	
III) Current status (please indicate current status related to this target)	
n/a	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
n/a	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
n/a	
VI) Constraints to achieving progress towards the target	
n/a	
VII) Any other relevant information	
Very few native plants or plant-based products are used. *Dictyosperma album* var *album* is used for palm hearts (planted in plantations). There are less than 10 individuals of this species left in the wild. There is some use of native plants for medicinal purposes in Mauritius, but the impact on wild plants is very low. In Rodrigues the endemic *Pandanus heterocarpus* and *P. tenuifolius* are used for making hats, mats, bags etc. This involves harvesting the young leaves and is carried out from wild plants. There is also some traditional use of native plants and a community garden has been established to provide material for local use (to avoid killing of the last remaining individuals of these species).	

Box XXXVI.

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.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	**X**
Please specify	
n/a	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	**X**
Please specify	
n/a	
III) Current status (please indicate current status related to this target)	
n/a	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
n/a	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
n/a	
VI) Constraints to achieving progress towards the target	
n/a	
VII) Any other relevant information	
The native biodiversity in Mauritius does not form a major part of people's livelihoods (although some of the invasive species do seasonally). There is also little knowledge on the use of native plants.	

Box XXXVII.

Target 14. The importance of plant diversity and the need for its conservation incorporated into communication, educational and public-awareness programmes.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	**X**
Please specify	
n/a	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	

a) Yes	
b) No	**X**

Please specify
n/a

III) Current status (please indicate current status related to this target)
n/a

IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)
n/a

V) Progress made towards target (please specify indicators used to monitor progress towards the target)
n/a

VI) Constraints to achieving progress towards the target
n/a

VII) Any other relevant information
Public education and awareness forms an integral part of the routine activities carried out by the government departments and NGOs. Poster exhibitions, brochures, films and newspaper articles are produced regularly. A campaign of awareness against invasive species has been started with the launching of quarantine posters at the airport, and production of posters about invasive alien species for schools. Upon request, talks on forest biodiversity and even guided tours of the forest by schools can are carried out. Endemic corners have also been created in most of the schools in Mauritius and also in Rodrigues. There is a new visitor's centre on upland forest biodiversity. As part of the EU/ IOC regional project, ARPEGE, teachers have been provided with training on general environmental awareness and sensitisation. Also a network has been created together with the promotion of compost making at the level of schools. Rodrigues has a dedicated education officer who visits schools regularly and there is weekly weeding days for volunteers in the forest (run by Mauritian Wildlife Foundation). Mauritius Research Council has funded a project to look at incorporating forest biodiversity into the school syllabus.

Box XXXVIII.

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.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	**X**
Please specify	
n/a	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	
a) Yes	
b) No	**X**
Please specify	
n/a	
III) Current status (please indicate current status related to this target)	
n/a	
IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)	
n/a	
V) Progress made towards target (please specify indicators used to monitor progress towards the target)	
n/a	
VI) Constraints to achieving progress towards the target	
n/a	
VII) Any other relevant information	
Apart from ad hoc training, there is no comprehensive policy to train additional staff in relation to this strategy.	

Box XXXIX.

Target 16. Networks for plant conservation activities established or strengthened at national, regional and international levels.	
I) Has your country established national target corresponding to the above global target?	
a) Yes	
b) No	**X**
Please specify	
n/a	
II) Has your country incorporated the above global or national target into relevant plans, programmes and strategies?	

a) Yes	
b) No	**X**

Please specify
n/a

III) Current status (please indicate current status related to this target)
n/a

IV) Measures taken to achieve target (please indicate activities, legislative measures and other steps taken with a view to achieve the target)
n/a

V) Progress made towards target (please specify indicators used to monitor progress towards the target)
n/a

VI) Constraints to achieving progress towards the target
n/a

VII) Any other relevant information
The National Native Threatened Plants Committee has been revitalized and members represent all stakeholders involved in plant conservation with the aim of coordinating, directing and strengthening plant conservation throughout the island. This Committee will act as the conduit for suggesting local targets associated with this strategy. The National Invasive Alien Species Committee also coordinates work and awareness raising on invasive alien species. The Indian Ocean Plant Specialist Group (IUCN SSC) has members in Mauritius.

Box XL.

Please elaborate below on the implementation of this strategy specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.
This strategy contains very clear targets and will be used as a basis for directing plant conservation in Mauritius. A major constraint at present in designing the targets is lack of human resources and achieving cooperation between the stakeholders in terms of information transfer so that any targets that are set can be put into action.

Ecosystem Approach

The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. Application of the ecosystem approach will help to reach a balance of the three objectives of the Convention. At its second meeting, the Conference of the Parties has affirmed that the ecosystem approach is the primary framework for action under the Convention (decision II/8) . The Conference of the Parties, at its fifth meeting, endorsed the description of the ecosystem approach and operational guidance and recommended the application of the principles and other guidance on the ecosystem approach. The seventh meeting of the Conference of the Parties agreed that the priority at this time should be facilitating implementation of the ecosystem approach. Please provide relevant information by responding to the following questions.

3. ? [1] Is your country applying the ecosystem approach, taking into account the principles and guidance contained in the annex to decision V/6? (decision V/6)	
a) No	
b) No, but application is under consideration	
c) Yes, some aspects are being applied	**X**
d) Yes, substantially implemented	

4. ? Is your country developing practical expressions of the ecosystem approach for national policies and legislation and for implementation activities, with adaptation to local, national, and regional conditions? (decision V/6)	
a) No	
b) No, but development is under consideration	
c) Yes, practical expressions have been developed for applying some principles of the ecosystem approach	**X**
d) Yes, practical expressions have been developed for applying most principles of the ecosystem approach	

5. Is your country strengthening capacities for the application of the ecosystem approach, and providing technical and financial support for capacity-building to apply the ecosystem approach? (decision V/6)	
a) No	
b) Yes, within the country	**X**
c) Yes, including providing support to other Parties	

6. ? Has your country promoted regional cooperation in applying the ecosystem approach across national borders? (decision V/6)	
a) No	
b) Yes, informal cooperation (please provide details below)	

[1] Please note that all the questions marked with ? have been previously covered in the second national reports and some thematic reports.

c) Yes, formal cooperation (please provide details below)	**X**

Further comments on regional cooperation in applying the ecosystem approach across national borders.

The formal regional cooperation is rather in the form of regional agreement (such as the IOSEA MoU on Turtle and donor funded projects under the aegis of the Indian Ocean Commission meant for the Western Indian Ocean countries as well as UNEP under the regional seas programme. These include the projects such as the Agulhas and Somali Large Marine Ecosystems Assessment, Western Indian Ocean Land Based Pollution Control project, and the Maritime Highway project amongst others. Other interventions at the level of the IOC that are relevant to biodiversity conservation and sustainable uses are also being implemented by the various member states. One such example is the monitoring of coral reef ecosystem in the WIO region (a regional COI project on status of coral reefs in the region including Comoros, Madagascar, Seychelles and Reunion), Tuna tagging project amongst others.

7. Is your country facilitating the exchange of experiences, capacity building, technology transfer and awareness raising to assist with the implementation of the ecosystem approach? (decisions VI/12 and VII/11)

a) No	
b) No, some programmes are under development	
c) Yes, some programmes are being implemented (please provide details below)	**X**
d) Yes, comprehensive programmes are being implemented (please provide details below)	

Further comments on facilitating the exchange of experiences, capacity building, technology transfer and awareness raising to assist with the implementation of the ecosystem approach.

Through numerous governmental committee meetings that include NGOs, academic and other stakeholders, various aspects of the ecosystem management are discussed regularly. One example is in the case of forest and terrestrial biodiversity conservation. An Integrated Coastal Zone Management Committee has also been established and is operational at the Ministry of Environment since the year 2003.

As part of a GOM/UNDP/GEF project on 'Partnerships for Marine Protected Areas', activities which also deal with the promotion of ecosystem approach is under implementation. The project also aims to showcase involvement of local communities and other partners in the conservation, management and protection of marine resources whilst fostering integrated coastal zone management.

Capacity building and training has also been undertaken in various biodiversity related field. This include for example, training with regard to coral reef monitoring techniques, use of software for data management,

As part of bilateral environment programme, some conservation measures are also being implemented in the field of terrestrial and marine biodiversity conservation.

8. Is your country creating an enabling environment for the implementation of the ecosystem approach, including through development of appropriate institutional frameworks? (decision VII/11)

a) No	
b) No, but relevant policies and programmes are under development	**X**

c) Yes, some policies and programmes are in place (please provide details below)	
d) Yes, comprehensive policies and programmes are in place (please provide details below)	

Further comments on the creation of an enabling environment for the implementation of the ecosystem approach.

A strategic plan for 16 islets has been developed and advocates the use of the ecosystem approach for the management of islets. Individual management plans have also been developed which call for an integrated coastal management which would include islet, coastal and marine conservation.

Other important initiative includes the development of an Integrated Coastal Zone Management Strategy and Area Plan by the Ministry of Environment in collaboration with relevant stakeholders.

Some general note which hinders ecosystem approach in Mauritius:

The population is predominately urban, and there is very little native forest left.

There are few jobs associated with the use of native forest areas.

Very few forest products are used (apart from invasive alien species)

The majority of forest land belong private landowners who own large estates whilst the remaining lands are mainly state leased.

There is an inadequate knowledge and awareness on the values of the ecosystem in genera. This renders ecosystem management also difficult.

C. ARTICLES OF THE CONVENTION

Article 5 – Cooperation

9. ? Is your country actively cooperating with other Parties in respect of areas beyond national jurisdiction for the conservation and sustainable use of biological diversity?

a) No	
b) Yes, bilateral cooperation (please give details below)	
c) Yes, multilateral cooperation (please give details below)	**X**
d) Yes, regional and/or subregional cooperation (please give details below)	
e) Yes, other forms of cooperation (please give details below)	

Further comments on cooperation with other Parties in respect of areas beyond national jurisdiction for the conservation and sustainable use of biodiversity.

Scientific and technical Cooperation with various other Contracting Parties and through international centres and regional bodies have always been accorded a high priority in the area of biological diversity. Various scientific and technical cooperation programmes have been implemented through grant/ aids from donors, and through bilateral and regional cooperation.

Also as part of various regional and multilateral agreements that Mauritius has signed and ratified, Mauritius is participating and actively contributing to numerous activities which are of direct relevance to biodiversity conservation and sustainable use. At the Western Indian Ocean region level, Mauritius is cooperating with other regional countries in the following regional initiatives:

1. Western Indian Ocean Land Based Pollution Control project,
2. Agulhas and Somali Large Marine Ecosystems Assessment
3. Maritime Highway Project
4. IOC project – Tuna Assessment and Tagging Project,
5. Implementation of the IOSEA turtle's MOU
6. IOC Coral Reef Network Project
7. IOC project on Marines Protected Areas network for the western Indian Ocean countries.

10. Is your country working with other Parties to develop regional, subregional or bioregional mechanisms and networks to support implementation of the Convention? (decision VI/27 A)	
a) No	
b) No, but consultations are under way	
c) Yes, some mechanisms and networks have been established (please provide details below)	**X**
d) Yes, existing mechanisms have been strengthened (please provide details below)	

Further comments on development of regional, subregional or bioregional mechanisms and networks to support implementation of the Convention.

Some of the regional projects listed at the section 9 also comprise of activities which deal with the ecosystem management.

11. Is your country taking steps to harmonize national policies and programmes, with a view to optimizing policy coherence, synergies and efficiency in the implementation of various multilateral environment agreements (MEAs) and relevant regional initiatives at the national level? (decision VI/20)	
a) No	
b) No, but steps are under consideration	
c) Yes, some steps are being taken (please specify below)	**X**
d) Yes, comprehensive steps are being taken (please specify below)	

Further comments on the harmonization of policies and programmes at the national level.

Mauritius has now an approved 'National Capacity Needs Self Assessment for Global Environment Management' strategy (December 2005). One of the chapters is dedicated to synergy and efficiency in the implementation of the various MEAs, in particular, the UNFCCC, UNCBD and UNCCD.

Also as part of the recommendations, an inter institutional committee would be set up to foster collaboration and participation by relevant stakeholders at the national level. This platform would also provide policy recommendations aimed at bringing greater coherence, synergies and efficiency in the implementation of activities in line with the biodiversity related MEAs that Mauritius has signed and ratified.

Box XLI.

Please elaborate below on the implementation of this strategy specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.
The promotion of cooperation in relation to the relevant instruments and processes towards enhancing policy coherence at the national level have so far been mainly achieved through the implementation of national projects which also take into consideration relevant MEAs COPs' decisions and recommendations that are mutually supportive. Such approached has enabled a holistic consideration of issues. The instruments referred to are the UNCBD, UNFCCC, UNCCD, Convention on Wetlands, Convention of Migratory Species, CITES amongst the key ones. Cooperations in the various thematic sectors have definitely help improve conservation, management and sustainable use of genetic resources and biodiversity in general. Albeit, no specific target has been devised yet with the exception to certain key resources, biodiversity is considered as one of the national priorities and as such a number of measures have been implemented towards its conservation and management. It is noteworthy that most of the measures that are being implemented and which are either from the National Environmental Strategies, NBSAP, Climate Change Action Plan, National Development Strategies, Sugar Sector Strategy Plan and also the Non Sugar Sector Strategy Plan have the ultimate objective of achieving environmental sustainability. Over the past years, a satisfactory level of progress has been generally achieved. Environmental, social and to some extent economic and financial sustainability have been ensured through appropriate policies, strategies and programmes implementation by a number of actors from the public, private, statutory, Research institutions , academics, NGOs and CBOs. However, funds for biodiversity conservation remain the limiting factor as well as requisite for a continued protection, conservation and to sustain progress in certain programmes.

Article 6 - General measures for conservation and sustainable use

12. Has your country put in place effective national strategies, plans and programmes to provide a national framework for implementing the three objectives of the Convention? (Goal 3.1 of the Strategic Plan)	
a) No	
b) No, but relevant strategies, plans and programmes are under development	
c) Yes, some strategies, plans and programmes are in place (please provide details below)	**X**
d) Yes, comprehensive strategies, plans and programmes are in place (please provide details below)	

Further comments on the strategies, plans and programmes for implementing the three objectives of the Convention.
The draft final NBSAP is in the process of being reviewed also in the light of the strategic plan for the CBD. In addition to the NBSAP, Mauritius also has an approved National Environmental Strategy (1999-2009) which includes conservation of biodiversity. The recent Non-Sugar Sector Strategic Plan

(2003-2007) also contains policies relevant to the three objectives of the CBD, whilst the National Development Strategy (2004) contains a framework for development control around sensitive areas. Other plan such as the Tourism Development Plan also provides for the establishment of marine protected areas.

As indicated earlier, it is to be noted measures pertaining to biodiversity conservation, management and protection have been initiated since late 80's. Since then, most of the development plans have a component of biodiversity. Examples of these plan and strategies include National Environmental Strategies, NBSAP, Climate Change Action Plan, National Development Strategies, Sugar Sector Strategy Plan and also the Non Sugar Sector Strategy Plan. Measures pertaining to biodiversity have been implemented by the respective agencies dealing with the different thematic areas. Over the past years, a satisfactory level of progress has been generally achieved.

13. Has your country set measurable targets within its national strategies and action plans? (decisions II/7 and III/9)	
a) No	
b) No, measurable targets are still in early stages of development	**X**
c) No, but measurable targets are in advanced stages of development	
d) Yes, relevant targets are in place (please provide details below)	
e) Yes, reports on implementation of relevant targets available (please provide details below)	
Further comments on targets set within national biodiversity strategies and action plans.	
The NBSAP is presently under review and the process would take into consideration the global targets proposed in the various thematic programmes of works.	

14. Has your country identified priority actions in its national biodiversity strategy and action plan? (decision VI/27 A)	
a) No	
b) No, but priority actions are being identified	
c) Yes, priority actions identified (please provide details below)	**X**
Further comments on priority actions identified in the national biodiversity strategy and action plan.	

Priority actions for Mauritius in the area of biodiversity have been identified under the following thematic areas:

- Forest (including terrestrial) Biodiversity
- Agricultural Biodiversity
- Biotechnology
- Freshwater, coastal and marine Aquatic Biodiversity and
- Sustainable Eco tourism Development.

The focus are as follows:

1). Establishment of a framework for Protected Areas Management: Terrestrial Protected Area Network, Inland Waters Programme, Marine Protected Area Network and Adaptive Management of Protected Area Network

2). Management of key Components of Biodiversity: Invasive Alien Species, Flowering Plants and Ferns, Birds, Bats, Reptiles, R&D Priorities and Agrobiodiversity

3). Enable Sustainable Use of Biodiversity : Ecotourism Development and Fisheries

4). Maintain Ecosystem Services: Forest Management, water quality and Integrated Coastal Zone Management

5). Manage Biotechnology and its Products, including the provisions of the Cartagena Protocol on Biosafety.

15. Has your country integrated the conservation and sustainable use of biodiversity as well as benefit sharing into relevant sectoral or cross-sectoral plans, programmes and policies? (decision VI/27 A)	
a) No	
b) Yes, in some sectors (please provide details below)	
c) Yes, in major sectors (please provide details below)	**X**
d) Yes, in all sectors (please provide details below)	

Further information on integration of the conservation and sustainable use of biodiversity and benefit-sharing into relevant sectoral or cross-sectoral plans, programmes and policies.

Biodiversity conservation and its sustainable use have been integrated through a number of policy recommendations and strategy documents. Some of the strategy documents include the NES and the NBSAP, Ten Years Fisheries Development Plan, Tourism Master Plan amongst others. However, benefit-sharing is still being considered indirectly mainly due to absence of appropriate regulatory framework.

16. Are migratory species and their habitats addressed by your country's national biodiversity strategy or action plan (NBSAP)? (decision VI/20)	
a) Yes	**X**

b) No	

I) If **YES**, please briefly describe the extent to which it addresses	
(a) Conservation, sustainable use and/or restoration of migratory species	A management plan for the Rivulet Terre Rouge Estuary Bird Sanctuary (RTREBS) is under preparation
(b) Conservation, sustainable use and/or restoration of migratory species' habitats, including protected areas	One of the habitats (the RTREBS), which is a wetland has been declared as the first RAMSAR site for migratory birds. Other marshy and wetlands are also being monitored
(c) Minimizing or eliminating barriers or obstacles to migration	The RTREBS is now a restricted area and are used by the migratory birds. The site has been fenced and accessed is controlled.
(d) Research and monitoring for migratory species	Research and monitoring of migratory species are undertaken by the National Parks and Conservation Service
(e) Transboundary movement	

Biodiversity and Climate Change

17. Has your country implemented projects aimed at mitigating and adapting to climate change that incorporate biodiversity conservation and sustainable use? (decision VII/15)	
a) No	
b) No, but some projects or programs are under development	
c) Yes, some projects have been implemented (please provide details below)	**X**

Further comments on the projects aimed at mitigating and adapting to climate change that incorporate biodiversity conservation and sustainable use.

Mauritius has produced a Climate Change Action Plan (CCAP) in 1998 and same is currently under review. In the CCAP as well as in the recent Technology Needs Assessment (2005) report, a number of recommendations pertaining to the agriculture, coastal zone and fisheries, and fresh water resources have been made.

So far, certain research projects have been undertaken in the agricultural sector and for lagoonal waters at certain specific location. For the agricultural sector, the focus has been on sugar cane and other important food crops whilst for the lagoonal waters, the focus has been in terms of lagoonal water monitoring with regard to coral bleaching and other physico-chemical parameters.

18. Has your country facilitated coordination to ensure that climate change mitigation and adaptation projects are in line with commitments made under the United Nations Framework Convention on Climate Change and the United Nations Convention to Combat Desertification? (decision VII/15)	
a) No	
b) No, but relevant mechanisms are under development	
c) Yes, relevant mechanisms are in place (please provide details below)	**X**

Further comments on the coordination to ensure that climate change mitigation and adaptation

projects are in line with commitments made under the UNFCCC and the UNCCD.

Coordination mechanism is in place and stakeholders from the various sectors are involved. Such mechanism includes the Environment Coordination Committee, Rodrigues Environment Coordination Committee, and the National Climate Committee, amongst others. In addition, the NCSA has recommended the setting up of an inter institutional Coordination Committee under the approved NCSA strategy for Mauritius. This committee has been recommended to also ensure coordination amongst the three Rio Conventions focal points and key actors in terms of measures meant at national level.

Box XLII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

In line with the CBD Article 6: *General Measures for Conservation and Sustainable Use*, a number of strategic initiatives, policy measures and actions under the various thematic areas are being implemented. It is to be noted that besides the Ministry of Environment as the lead coordinating ministry, there are number of public, statutory, private, academics, NGOs and research organizations that are involved with the day to day as well as long term management of the biodiversity resources of Mauritius.

At the policy level, biodiversity conservation and sustainable use have been integrated into a number of policy documents and policy decisions. The physical development plans, the EIA process, tourism development plan, natural resources management and even in the siting of any development, biodiversity conservation is also given priority consideration.

Again all the policy measures, biodiversity conservation and sustainable use are incorporated and these aim at long term environmental sustainability.

The key limiting factor in biodiversity conservation remains funding and also inadequate capacity in some of the specialized field.

A number of gaps and issues identified for the following thematic areas are as follows:

Forest biodiversity

a. The highest priority is to address the inadequate management of remnant native forest. Large scale *in-situ* biodiversity conservation is a must if we are to minimize costly hence unsustainable species-targeted conservation. Adaptive management plans for existing protected areas needs constant development and fast implementation. CMAs need also to encompass a larger array of vegetation types and different regions than the south west in order to better conserve all existing community types as well as intra-specific (genetic level) diversity.

b. Invasive alien species (IAS) currently constitute the single most important threat to Mauritian native terrestrial biodiversity. There is an urgent need to exert tighter control over entry of further potential pests in the country and to control pests already established. Amendment of current legislation pertaining to IAS is necessary.

c. There is a serious need of specialised training. Very few local actors in ecology and conservation have received specific postgraduate training in these fields. This results in an unfortunate heavy dependence on external expertise. More competence is particularly required in the following fields: taxonomy (particularly marine and invertebrate, lower plants), conservation biology, restoration ecology.

d. Inadequate forest legislation for protecting biodiversity on privately owned forest land. There is a suspected important loss of biodiversity in unprotected privately owned forests. Proportionally substantial areas have and are still being cleared to make way for pastoral development, hunting scheme, and agriculture. Improved legislation is required to harmonise management of National Parks and Nature Reserves which ideally should be performed by one body to avoid duplication.

e. There is insufficient data collection and research on the forest ecosystem to inform on adaptive management. There is a major need for more data to facilitate decision making and these are seriously lacking. A national inventory will have to be undertaken especially on privately own lands which are traditionally difficult of access and consequently poorly surveyed.

f. Inadequate research within the service. Research in the fields of taxonomy, ecology, ecological restoration and conservation biology will have to be carried out.

g. Conservation in Mauritius is too heavily influenced by organisations working within their particular field of expertise and not within an overall national framework which will have to be devised and each and everyone's roles then clearly defined.

h. There is a need for a central administration whereby all activities of biodiversity could be coordinated, data collected and central planning done. This multiple use management will minimise duplication and conflict with a view to increase output. The planning will be targeted and result orientated.

i. There currently exists a generally low public awareness of the importance of biodiversity and the need to conserve it. This in turn can undermine political will while being directly detrimental to biodiversity itself.

Agobiodiversity:

a. Development of a comprehensive policy together with appropriate institutional co-ordination mechanism
b. IPR
c. Funding for conservation activities and training
d. Research work and collaboration with international Centres
e. Development of a comprehensive database

Biotechnology

a. Refining and implementation of comprehensive policy in biotechnology
b. Need for specialized training
c. Enactment of legal framework and enforcement
d. Funding
e. Public awareness and sensitization

Coastal and Marine Resources / Biodiversity

a. Need for further technical expertise

The fresh water biodiversity resources assessment, particularly for the vertebrate, started recently and a lack of local capacity in this area is obvious. Regarding the marine sector, Mauritius has benefited a number of technical programmes from JICA as well as other organisations. However consultations revealed limited expertise in a number of specialised fields.

The subject is vast and need various knowledgeable executing agencies. At the same time there is a lack of staff to execute the various projects. Areas where expertise as well as knowledge is limited include:

- Taxonomy (coral, fish and algae)
- Coral ecology
- Habitat Restoration
- Coral Reef Management
- Integrated Marine and Coastal Areas Management
- Framework for Establishment of MPAs
- Management of Protected Areas
- Wetlands Management
- Development of Indicators and benchmarking

b. Limited funding to complete living and non living Resources Inventories

The lagoon has algae and crustacean of high quality which are not exploited. A survey needs to be done to know the species diversity and their potential for development.

c. Invasive Alien Species

The risk of introduction of IAS is very high, with many species deliberately introduced for example for the aquarium trade without prior assessment of their potential invasiveness. Monitoring for IAS appears inadequate. On the marine side, the risk of introduction is mainly through ballast water discharge. A committee on this subject has been set up in 2003 under the aegis of the Ministry of Shipping.

d. Targeted Research

Absence of a long term targeted research plan. Some of the areas could be

- Impact of Climate Change on the aquatic ecosystems
- Establishment of bioregions of national / global importance and also corridors for whale and dolphins
- Ecosystem restoration (including coral transplant)
- Population dynamics
- Impacts of mariculture (With need for research on associated impacts concerning antibiotics, hormones, and eutrophication).
- Invasive Alien Species

e. Linkages and inter institutional collaboration

f. Responsibility for living resources in Fresh water ecosystems still unclear

g. Limited human resources together with 'ageing' of workforce at key institution such as Albion Fisheries Research Centre, Ministry of Fisheries. (Institution level)

h. Absence of Marine Parks Management Plans coupled with limited logistics and equipment for their management. There is also an absence of a dedicated enforcement team.

i. Hybridisation of knowledge and best practices through training through international programmes (example with Japan).

Article 7 - Identification and monitoring

19.? On Article 7(a), does your country have an ongoing programme to identify components of biological diversity at the genetic, species, ecosystem level?

a) No	
b) Yes, selected/partial programmes at the genetic, species and/or ecosystem level only (please specify and provide details below)	
c) Yes, complete programmes at ecosystem level and selected/partial inventories at the genetic and/or species level (please specify and provide details below)	**X**

Further comments on ongoing programmes to identify components of biodiversity at the genetic, species and ecosystem level.

At species level, some groups have been or are being studied (angiosperms, ferns, terrestrial vertebrates, freshwater fish, butterflies and land snails). Others are partially known (corals, marine fish, some genera of insects, algue, mosses and hepatics), some a very little known (fungi, bacteria, virus, marine groups). Genetic studies of some native plant genera have been done (*Coffea, Helychrisum, Psiadia*, *Gaertnera*, etc), also birds and reptiles.

At ecosystem level, geology and soils are well known. Association of native plant communities was first fully described in 1937. Species distribution and composition of different associations are known by historical collections, and by flora and fauna surveys undertaken in the last 30 years. Function and processes within ecosystems are starting to be studied.

Forest types have been established by Vaughan & Wiehe (1937). Page & d'Argent (1997) classified forest quality and many studies have looked at the distribution of individuals plant species (Strahm, 1994).

There is a programme to produce a Flore des Mascarenes (see section on Global Taxonomy Initiative for more details).

There have been long-term studies at the genetic level of the reptilian and avian species.

There is regular prospection to locate individuals of threatened plant species, and improve understanding of the distribution of more common species.

For the marine sector, the coral reef ecosystem is being monitored regularly at selected sites and the substrate cover is studied which includes data on corals, fish (species level) and invertebrates (species level).

The Albion Fisheries Research Centre of the Ministry of Agro Industry and Fisheries has recently prepared thematic maps of the coastal area around Mauritius and Rodrigues. These maps depict the different coastal habitat up to the reef and will be used for monitoring changes in the coastline and habitats.

Other studies carried out include:

1. Sponges collected from Mauritian waters for screening for bioactive compounds are being identified.

2. Molecular studies of corals to determine population diversity and gene flow in Mauritian waters are

being undertaken.

3. The lagoon biotope survey undertaken in 2002 mapped all the ecosystems in the lagoon of the south-east of Mauritius.

20. ? On Article 7(b), which components of biological diversity identified in accordance with Annex I of the Convention, have ongoing, systematic monitoring programmes?	
a) at ecosystem level (please provide percentage based on area covered)	
b) at species level (please provide number of species per taxonomic group and percentage of total known number of species in each group)	**X**
c) at genetic level (please indicate number and focus of monitoring programmes)	

Further comments on ongoing monitoring programmes at the genetic, species and ecosystem level.

There is systematic monitoring for the following:

- Angiosperms: individuals of rare species are being monitored (around 100 species)
- Four mainland bird species (out of 9 extant native species), and 4 seabird species
- Five reptile species all on islets (out of 13 extant species)
- Sugar cane pest insects, fungi, bacteria, virus are monitored regularly

All the threatened plants to some extent (c300 species) whilst practically no monitoring for freshwater biodiversity.

For the insects, under the Darwin Initiative – a new project being funded by the Darwin Initiative to carry out a National survey of insect biodiversity, concentrating on beetles.

For the coastal and lagoonal ecosystem, Coral reefs (159 species till date) and Mangroves (two species) are also monitored as part of ongoing national programmes.

21. ? On Article 7(c), does your country have ongoing, systematic monitoring programmes on any of the following key threats to biodiversity?	
a) No	
b) Yes, invasive alien species (please provide details below)	**X**
c) Yes, climate change (please provide details below)	**X**
d) Yes, pollution/eutrophication (please provide details below)	**X**
e) Yes, land use change/land degradation (please provide details below)	
f) Yes, overexploitation or unsustainable use (please provide details below)	

Further comments on monitoring programmes on key threats to biodiversity.

With regard to potential threat to IAS free islets, regular monitoring for presence/ absence of rodents on islets of conservation importance are carried out. A National Task Force has been set up to start a programme on monitoring of ballast water in Mauritius.

Programmes of monitoring for restoration of degraded forest also exist to aid adaptive management.

With regard to Climate Change, monitoring of coral (coral bleaching) is carried out at a number of locations including the two marine parks.

Monitoring of other parameters of the lagoon water including water quality is carried out by the respective enforcing agencies.

The Environment protected Act, 2002, also provides for statutory Committee such as the Environment Coordination Committee which regroups all relevant stakeholders concerned and which also consider pollution matters as part of the agenda.

At the regional level, under the Nairobi Convention , the WIO LaB project and its component dealing with the Monitoring and Assessment task force would be coming up with a hot spot analysis and pollution status report of the coastal zone by end of 2006 .

22. On Article 7 (d), does your country have a mechanism to maintain and organize data derived from inventories and monitoring programmes and coordinate information collection and management at the national level?	
a) No	
b) No, but some mechanisms or systems are being considered	
c) Yes, some mechanisms or systems are being established	**X**
d) Yes, some mechanisms or systems are in place (please provide details below)	
e) Yes, a relatively complete system is in place (please provide details below)	

Further information on the coordination of data and information collection and management.

Environmental Information System is being set up at the Ministry of Environment. A number of indicators (4) have been retained following national consultation with regard to biodiversity thematic areas. The EIS is expected to become operational before the end of 2006.

A database for threatened plants according to IUCN categories is in progress.

Darwin Initiative project has developed a common database for threatened bird species and nursery management. Also all collections of the Mauritius Herbarium are being databased.

23. Does your country use indicators for national-level monitoring of biodiversity? (decision III/10)	
a) No	
b) No, but identification of potential indicators is under way (please describe)	
c) Yes, some indicators identified and in use (please describe and, if available, provide website address, where data are summarized and presented)	**X**
d) Yes, a relatively complete set of indicators identified and in use (please describe and, if available, provide website address, where data are summarized and presented	

Further comments on the indicators identified and in use.

Criteria and indicators have been identified for sustainable forest management, and environmental health as part of a national Environmental Information System (EIS). These indicators are meant to be used routinely for national priority setting, policy decision makings, formulation of future policies

as well as SoE reporting. The SoE report is still at drafting stage.

Box XLIII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.
The EIS would constitute an important step towards data collection and harmonisation, data management, and free dissemination. These indicators are meant to be used routinely for national priority setting, policy decisions making, and formulation of future policies as well as SoE reporting. Information management is construed as an important step towards environmental sustainability. Constraint encountered is mainly in terms of absence of data sharing policy and also limited experience with the setting up of such a system.

Decisions on Taxonomy

24.? Has your country developed a plan to implement the suggested actions as annexed to decision IV/1? (decision IV/1)	
a) No	
b) No, but a plan is under development	
c) Yes, a plan is in place (please provide details below)	**X**
d) Yes, reports on implementation available (please provide details below)	
Further information on a plan to implement the suggested actions as annexed to decision IV/1.	
A field guide to the common corals and coral reef fishes of Mauritius has been published by the Fisheries Division of the Ministry of Agro Industry and Fisheries. The Mauritius Oceanography Institute is also developing an electronic database of marine organisms in Mauritian waters. Initially the data input in the database will be based on data available in literature. After completion of this initial stage gaps where data are scarce will be identified and inventory of taxonomic groups will be completed. This database will be made available through internet.	

25.? Is your country investing on a long-term basis in the development of appropriate infrastructure for your national taxonomic collections? (decision IV/1)	
a) No	
b) Yes (please provide details below)	**X**
Further information on investment on a long-term basis in the development of appropriate	

infrastructure for your national taxonomic collections.
A Herbarium exists at the Mauritius Sugar Industry Research Institute. However, collection on marine flora is minimal. The Herbarium is partially maintained by the Government and a parastatal research institute (MSIRI), which curates the collections. It comprises also algae, fungi, bryophyte *lato sensu* and some coral species. The National History Museum (own by the Government) has the main collections apart from the ones of the Herbarium. However, there are problems to keep them well curated. The MSIRI and the Agriculture Services also have insect collection. A separate herbarium to lodge algae collections is planned.

26.? Does your country provide training programmes in taxonomy and work to increase its capacity of taxonomic research? (decision IV/1)	
a) No	**X**
b) Yes (please provide details below)	
Further information on training programmes in taxonomy and efforts to increase the capacity of taxonomic research.	
Training on fish and coral identification has been done with collaboration of the Government of Japan. The "Flore de Mascareignes" project, which aims to describe all higher plants of Mauritius, Rodrigues and Reunion) provides a baseline for plant research as a taxonomic tool. However, capacity on taxonomic research is severely constrained by funding.	

27.? Has your country taken steps to ensure that institutions responsible for biological diversity inventories and taxonomic activities are financially and administratively stable? (decision IV/1)	
a) No	
b) No, but steps are being considered	
c) Yes, for some institutions	**X**
d) Yes, for all major institutions	

28.* [2] Is your country collaborating with the existing regional, subregional and global initiatives, partnerships and institutions in carrying out the programme of work, including assessing regional taxonomic needs and identifying regional-level priorities? (decision VI/8)	
a) No	
b) No, but collaborative programmes are under development	

[2] The questions marked with * in this section on Taxonomy are similar to some questions contained in the format for a report on the implementation of the programme of work on the Global Taxonomy Initiative. Those countries that have submitted such a report do not need to answer these questions unless they have updated information to provide.

c) Yes, some collaborative programmes are being implemented (please provide details about collaborative programmes, including results of regional needs assessments)	**X**
d) Yes, comprehensive collaborative programmes are being implemented (please provide details about collaborative programmes, including results of regional needs assessment and priority identification)	

Further information on the collaboration your country is carrying out to implement the programme of work for the GTI, including regional needs assessment and priority identification.

"Flore de Mascareignes" is a 30-years old project that involves also Reunion.

Monitoring of IAS and development of strategies and legislation is being planned at regional level.

Monitoring of tuna in Mauritian waters is also a regional project.

29. * Has your country made an assessment of taxonomic needs and capacities at the national level for the implementation of the Convention? (annex to decision VI/8)

a) No	
b) Yes, basic assessment made (please provide below a list of needs and capacities identified)	**X**
c) Yes, thorough assessment made (please provide below a list of needs and capacities identified)	

Further comments on national assessment of taxonomic needs and capacities.

Capacity building (training on taxonomy for flora and fauna – terrestrial and marine), need for the establishment of a marine herbarium.

30. * Is your country working on regional or global capacity building to support access to, and generation of, taxonomic information in collaboration with other Parties? (annex to decision VI/8)

a) No	
b) Yes, relevant programmes are under development	
c) Yes, some activities are being undertaken for this purpose (please provide details below)	**X**
d) Yes, many activities are being undertaken for this purpose (please provide details below)	

Further comments on regional or global capacity-building to support access to, and generation of, taxonomic information in collaboration with other Parties.

Regional project at the level of the Indian Ocean Commission on medicinal plants and in the development of a regional networks as part of the Project named "*Flore des Mascareignes*" covering the flora of Reunion Island and Mauritius including Rodrigues. In the late 90's, the Mauritius Sugar Industry Research Institute received some funds from the European Union under the "*Programme Régionale de l'Environnement (PRE)- Commission de l'Ocean Indien*" for the editing of the remaining fascicles under the ongoing project (long term project). By the end of year 2005, only some 23 fascicles were published and works on 3 others are underway. The "*Flore des Mascareignes" project is expected to be completed by the end of 2007.*

31. * Has your country developed taxonomic support for the implementation of the programmes of work under the Convention as called upon in decision VI/8? (annex to decision VI/8)	
a) No	**X**
b) Yes, for forest biodiversity (please provide details below)	
c) Yes, for marine and coastal biodiversity (please provide details below)	
d) Yes, for dry and sub-humid lands (please provide details below)	
e) Yes, for inland waters biodiversity (please provide details below)	
f) Yes, for mountain biodiversity (please provide details below)	
g) Yes, for protected areas (please provide details below)	
h) Yes, for agricultural biodiversity (please provide details below)	
i) Yes, for island biodiversity (please provide details below)	
Further comments on the development of taxonomic support for the implementation of the programmes of work under the Convention.	
The 'Flore de Mascareignes' project, which aims to describe all higher plants of Mauritius, Rodrigues and Reunion provides a baseline for plant research as a taxonomic tool.	

32. * Has your country developed taxonomic support for the implementation of the cross-cutting issues under the Convention as called upon in decision VI/8?	
a) No	**X**
b) Yes, for access and benefit-sharing (please provide details below)	
c) Yes, for Article 8(j) (please provide details below)	
d) Yes, for the ecosystem approach (please provide details below)	
e) Yes, for impact assessment, monitoring and indicators (please provide details below)	
f) Yes, for invasive alien species (please provide details below)	
g) Yes, for others (please provide details below)	
Further comments on the development of taxonomic support for the implementation of the cross-cutting issues under the Convention.	

Article 8 - *In-situ* conservation
[excluding paragraphs (a) to (e), (h) and (j)]

33. ? On Article 8(i), has your country endeavored to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and sustainable use of its components?	
a) No	
b) No, but potential measures are being identified	
c) Yes, some measures undertaken (please provide details below)	**X**
d) Yes, comprehensive measures undertaken (please provide details	

below)	

Further comments on the measures taken to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and sustainable use of its components.

With regard to the agro biodiversity sector, landraces of crops of importance are being regenerated, multiplied and some are being produced on large scale to satisfy public demand. It's interesting to note that the Ministry of Agro Industry has a dedicated unit for seed production for the farmer community. This section has a reasonable share for the seed market.

The development of eco tourism is being associated with improved management of biodiversity rich areas are being envisaged by the Government in partnerships with the private sector.

34. ? On Article 8(k), has your country developed or maintained the necessary legislation and/or other regulatory provisions for the protection of threatened species and populations?

a) No	
b) No, but legislation is being developed	
c) Yes, legislation or other measures are in place (please provide details below)	**X**

Further information on the legislation and/or regulations for the protection of threatened species and populations.

The Wildlife and National Parks Act 1993 and associated regulations, and the Forest and Reserves Act 1983 provide protection to local Flora and Fauna. Through the EPA 2002, any development which is going to involve deforestation requires an Environment Impact assessment (EIA). Also, although the trade in local biodiversity is insignificant, trade is regulated by the Wildlife National Park Act and appropriate regulations which has incorporated the CITES requirement.

Under the Fisheries and Marine Resources Act 1998, in addition to providing for general enforcement and compliance measures, Part II provides for 'Management of Fisheries and Marine Resources' with Sections 6, 7, 8 and 9 dealing with protection of the aquatic ecosystem against pollution, exploitation of mangroves, construction of any structures etc., The Act includes proclamation of MPA's in Mauritian waters.

The Fisheries and Marine Resources Act 1998 also provides for the Protection of marine mammals, turtles, mangroves, shells, turtles and corals.

35. ? On Article 8(l), does your country regulate or manage processes and categories of activities identified under Article 7 as having significant adverse effects on biological diversity?

a) No	
b) No, but relevant processes and categories of activities being identified	**X**
c) Yes, to a limited extent (please provide details below)	
d) Yes, to a significant extent (please provide details below)	

Further comments on the regulation or management of the processes and categories of activities identified by Article 7 as having significant adverse effects on biodiversity.

Invasive alien species

A risk assessment is carried out for any plant material being introduced into the country. Small scale, localized control of invasive species is carried out. To date there is no national strategy for prevention of entry of new pests or control of those already established.

Climate change

Monitoring programme for coral bleaching in the marine parks and other sites

Pollution Monitoring

*W*ater quality limits have set for industries discharging effluents into waterways. Lagoonal monitoring programme are also being carried out at a number of locations around Mauritius.

Land use change/land degradation

The Environment Protection Act (2002) specifies that the following activities require an EIA before they are carried out

- Conversion of forest land to other land use
- Land clearing and development in environmentally sensitive areas such as water catchment areas, waterlogged areas , mountain slopes and islets
- Development on Wetlands and Sensitive areas

Box XLIV.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation

With regard to Article 8 (i), 8(k) and 8(l), there are a number of primary legislations which have been proclaimed and presently being enforced. The key ones include the Environmental Protection Act, 2002 and Regulations; the GMO Act, 2004; the Planning and Development Act 2004; the Fisheries and Marines Resources Act, 1998; Wildlife and National Parks Act, 1993 and Regulations; and the Forests Act, 1983 amongst others. For Rodrigues, an Environment and Planning legislation is under preparation.

These framework legislations provide a number of enforceable measures and tools that are considered as important conditions needed for the compatibility between present uses and the conservation of biological diversity and its sustainable use. With these legislations, 1 terrestrial national park, 8 marine protected areas, 8 Islets National Parks, 9 mainland Nature reserves, and 8 Offshore islets Nature reserves has been established. Also 11 conservation management areas have been established ranging from 0.34 to 18 ha and totalling 45 ha. Also a number of endangered endemic flora and fauna both terrestrial and marine are legally protected. For Rodrigues, there are 4 Nature reserves and 5 Fishing reserves.

Proclamation of inland water ecosystems protected areas are also being considered in the near future by a Technical Advisory Committee. The Rivulet Terre Rouge Estuary Bird Sanctuary has also been proclaimed as a Nature Reserve and it constitutes the first Ramsar Site for Mauritius. Other sites are

under consideration, such Blue Bay Marine Park and the Mare Sarcelles.

Programme of Work on Protected Areas (Article 8 (a) to (e))

36. Has your country established suitable time bound and measurable national-level protected areas targets and indicators? (decision VII/28)	
a) No (please specify reasons)	
b) No, but relevant work is under way	**X**
c) Yes, some targets and indicators established (please provide details below)	
d) Yes, comprehensive targets and indicators established (please provide details below)	
Further comments on targets and indicators for protected areas.	
Works are underway under the review of the NBSAP.	

37. Has your country taken action to establish or expand protected areas in any large or relatively unfragmented natural area or areas under high threat, including securing threatened species? (decision VII/28)	
a) No	
b) No, but relevant programmes are under development	
c) Yes, limited actions taken (please provide details below)	**X**
d) Yes, significant actions taken (please provide details below)	
Further comments on actions taken to establish or expand protected areas.	
There are still few unfragmented forest areas that are not degraded yet (invaded) by introduced species. However, these are mainly under private land ownership. Also, the network of conservation management areas is being increased in size. The aim is to increase the area of good quality forest under active management such that more endangered plant species are managed and more habitats is restored for the local native fauna. The islets of conservation importance are now protected either as Nature Reserves, or as part of the islet National Park. There are still many areas of biodiversity importance that are privately owned, and active protection depends on the goodwill of the land owner.	

38. Has your country taken any action to address the under representation of marine and inland water ecosystems in the existing national or regional systems of protected areas? (decision VII/28)	
a) No	
b) Not applicable	
c) No, but relevant actions are being considered	
d) Yes, limited actions taken (please provide details below)	**X**
e) Yes, significant actions taken (please provide details below)	

Further comments on actions taken to address the under representation of marine and inland water ecosystems in the existing national or regional systems of protected areas.
A Technical Advisory Committee has been set at the Ministry of Environment on Rivers (streams). In view of the limited works undertaken in terms of inland water biodiversity conservation and management, the proclamation of inland water ecosystems protected areas is also being considered in the short term.

39. Has your country identified and implemented practical steps for improving the integration of protected areas into broader land and seascapes, including policy, planning and other measures? (decision VII/28)	
a) No	
b) No, but some programmes are under development	
c) Yes, some steps identified and implemented (please provide details below)	**X**
d) Yes, many steps identified and implemented (please provide details below)	

Further comments on practical steps for improving integration of protected areas into broader land and seascapes, including policy, planning and other measures.
Integration of protected areas into broader land and seascapes has been identified amongst the key priorities within a framework of integrated coastal zone management. Recommendations along this line have been made in strategic documents such as the National Environmental Strategies, National Development Strategy as well as actions are being translated in projects the Environmentally Sensitive Areas network (proposed in the National Development Strategy), the adoption of ICZM, for coastal areas and islets and an integrated approach to islets management (as specified in the islets national park strategic plan).

40. Is your country applying environmental impact assessment guidelines to projects or plans for evaluating effects on protected areas? (decision VII/28)	
a) No	
b) No, but relevant EIA guidelines are under development	
c) Yes, EIA guidelines are applied to some projects or plans (please provide details below)	
d) Yes, EIA guidelines are applied to all relevant projects or plans (please provide details below)	**X**

Further comments on application of environmental impact assessment guidelines to projects or plans for evaluating effects on protected areas.
As a small island state, impacts on lands have repercussions eventually on the lagoon and the sea. Since early 90's, all major developments (as per the first schedule of the Environment Protection Act) require an Environmental Impact Assessment (EIA). EIA is considered as a vital tool and it is strictly adhered to. Under EPA (2002) the following scheduled activities require EIA: Development in wetlands, forest land, environmentally sensitive areas, mountain slopes and islets. A post EIA monitoring team has also been set up to follow up on development projects prior, during and after the construction phases. Therefore, constant environmental monitoring of development

projects is carried out by an interministerial group and in case of any negative environmental impact observed, immediate measures are initiated for the protection of the environment.

Developers are also required to submit an Environmental Monitoring Plan for approval by the Ministry of Environment. Once approved, the developers have to submit regular monitoring report to the Ministry of Environment and other agencies as directed.

41. Has your country identified legislative and institutional gaps and barriers that impede effective establishment and management of protected areas? (decision VII/28)	
a) No	
b) No, but relevant work is under way	
c) Yes, some gaps and barriers identified (please provide details below))	
d) Yes, many gaps and barriers identified (please provide details below)	**X**

Further comments on identification of legislative and institutional gaps and barriers that impede effective establishment and management of protected areas.

In addition to details provided in BOX XL, the NCSA process has identified root causes a number of toot causes for the effective establishment and management of Protected Areas. The terrestrial/ forest biodiversity sector is felt to be relatively ahead as compared to the marine sector biodiversity. The key concern being the complexity of the marine sector.

Some of the gaps and barriers identified for the Marine and coastal sector are as follows:

- MPAs are not adequately managed for conservation
- Inventories still deficient
- Pressure and Competing alternative area uses
- Limited funding
- Limited logistic support
- Need for regulations for various MPAs users + more stringent enforcement.

In the case of forest biodiversity, the new Forest Policy will also address the gaps and barriers identified.

42. Has your country undertaken national protected-area capacity needs assessments and established capacity building programmes? (decision VII/28)	
a) No	
b) No, but assessments are under way	
c) Yes, a basic assessment undertaken and some programmes established (please provide details below)	**X**
d) Yes, a thorough assessment undertaken and comprehensive programmes established (please provide details below)	

Further comments on protected-area capacity needs assessment and establishment of capacity building programmes.

This is being addressed through the NCSA and NBSAP.

The recommendations pertaining to the Protected area management under the NCSA are as follows:

- Development of a framework for the establishment of additional areas to be designated as

MPA including wetland sites, river and lake (freshwater ecosystem)

- Improve management of MPAs through appropriate training and logistic supports to undertake field works
- Development of MPAs' management plan for the 2 marine parks + implementation
- Development of partnership management approach with all concerned stakeholders
- For newly declared Islets National Park which also include management of 1 km aquatic area from the shore, development of conservation and management programme
- Harmonise management of islets (marine part)

In the case of the review of NBSAP, The focus are as follows:

1). Establishment of a framework for Protected Areas Management: Terrestrial Protected Area Network, Inland Waters Programme, Marine Protected Area Network and Adaptive Management of Protected Area Network

2). Management of key Components of Biodiversity: Invasive Alien Species, Flowering Plants and Ferns, Birds, Bats, Reptiles, R&D Priorities and Agrobiodiversity

3). Enable Sustainable Use of Biodiversity : Ecotourism Development and Fisheries

4). Maintain Ecosystem Services: Forest Management, water quality and Integrated Coastal Zone Management

5). Manage Biotechnology and its Products, including the provisions of the Cartagena Protocol on Biosafety.

43. Is your country implementing country-level sustainable financing plans that support national systems of protected areas? (decision VII/28)	
a) No	
b) No, but relevant plan is under development	**X**
c) Yes, relevant plan is in place (please provide details below)	
d) Yes, relevant plan is being implemented (please provide details below)	

Further comments on implementation of country-level sustainable financing plans that support national systems of protected areas.

Under the Wildlife and National Park Act, a Conservation Fund has been established and the funds are used for biodiversity conservation locally. Several extension of management areas have been financed by this fund.

The Fisheries and Marine Resources Act, 1998 also provides for the creation for a Marine Protected Area Fund primarily meant for conservation works within the two marine parks. However, this fund is not operational yet.

The Environment Fund under the EPA 2002 has also supported a number of initiatives related to biodiversity in general.

44. Is your country implementing appropriate methods, standards, criteria and indicators for evaluating the effectiveness of protected areas management and governance? (decision VII/28)	
a) No	
b) No, but relevant methods, standards, criteria and indicators are under development	**X**
c) Yes, some national methods, standards, criteria and indicators developed and in use (please provide details below)	
d) Yes, some national methods, standards, criteria and indicators developed and in use and some international methods, standards, criteria and indicators in use (please provide details below)	

Further comments on methods, standards, criteria and indicators for evaluating the effectiveness of protected areas management and governance.

Many of the declared protected areas have their own management plans which include indicators for evaluating the effectiveness of management.

Methods for restoration are continually being reviewed for adaptive management of the conservation and also the protected areas.

However, on the overall there has been no evaluation of management and governance. However, as part of the 'Partnership for Marine Protected Areas' project, the management structure would be looked into with appropriate monitoring mechanism established.

Box XLV.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

In situ conservation has remained one of the priority areas for the biodiversity conservation and management in the Republic of Mauritius. As indicated earlier, as at 1st July 2006, 1 terrestrial national park, 8 marine protected areas, 8 Islets National Parks, 9 mainland Nature reserves, and 8 Offshore islets Nature reserves have been established (proclaimed) in the case of mainland Mauritius whilst for Rodrigues 4 Nature Reserves and five fishing reserves have been proclaimed. Also a number of endangered endemic flora and fauna both terrestrial and marine are legally protected. In general 5% of the total land area of Mauritius benefits from legal protection.

In addition, there are 11 Conservation Management Areas (CMAs) have established ranging from 0.34 to 18 ha and totalling 45 ha. CMAs are areas of native forest chosen as samples of distinctive ecosystem types which are furthermore still relatively well preserved. These areas receive active conservation management in an attempt to reverse the alien-driven degradation process. This management comprises initial and maintenance weeding of invasive alien plants and fencing against Java Deer (*Cervus timorensis*) and feral pigs (*Sus scrofa*) which are two large alien mammals perceived as very damaging to native vegetation. The fence also helps keep humans outside these ecologically sensitive areas. Some CMAs like that of Brise Fer receive some other form of alien species control such as trapping of feral cats and mongooses and at times have had rat control done through poisoning. The main management is done by the National Parks and Conservation Service (NPCS) with trapping and poisoning done by the Mauritian Wildlife Foundation.

In addition to the CMA's, there are 10.5 ha of forest which have been weeded only and 27 ha which have been fenced only bringing the total area receiving some form of conservation management to 82.5 ha. CMAs while being an excellent means to halt and reverse forest degradation however include a total of about 2% of remnant native forests. It is recognized that this extent is inadequate to conserve biodiversity in the long term.

Management of the Nature Reserves and National Parks

Mainland Nature Reserves are managed by the Forestry Services while the National Parks and most offshore islet Nature Reserves benefit from management by the NPCS. The Ile aux Aigrettes Nature Reserve is leased for management to the Mauritian Wildlife Foundation, an NGO. Management Plans for most of these areas exist or are being currently developed. While the investment in this management has paid off in many ways, sometimes even responsible for drastically reversing population declines, there is room for improvement. Scientific research based on sound and rigorous techniques and adequate interpretation of the data generated is essential in improving output.

The main current management activities are:

I. Active in-situ conservation management in CMAs and some Nature Reserves
II. Propagation of endangered plant species ex-situ for reintroduction in-situ

Outer islets

There are 49 islets around Mauritius of broadly three main origin; sandy, calcarenitic and volcanic. Virtually all of the islets have been much altered by human activities with substantial degradation and loss of biodiversity as a result. These islets typically harbor a low diversity per area of native plants and animals once common to the coastal and lowland regions of the mainland. However some of these species are of utmost conservation value as they are endemic species which have vanished from mainland Mauritius and maintain today extremely localized, hence vulnerable populations on one or more of the islets. Out of the 17 recognised native reptile species that once inhabited main land Mauritius, five are now extinct and another five out of the remaining 12 are restricted to populations on islets. Round Island holds the greatest diversity of reptiles with eight species, one of which, the burrowing boa (*Bolyeria multicarinata*) may however be extinct as it has not been located for about three decades despite good searching efforts.

Round Island also serves as a refuge for shore and marine birds including the Red Tailed (*Phaethon rubricauda*) and White Tailed (*Phaethon lepturus*) Tropic Birds and the Wedged Tailed Shearwater (*Puffinus pacificus*). Round Island is also known to harbour the only population of petrel (*Pterodroma arminjoniana*) breeding in the entire Indian Ocean.

In 2001, a Task Force on islets was set up to assess the causes and extent of degradation on islets and to propose short and long term remedial measures for their restoration and protection. Recommendations included adoption of immediate measures to stop further degradation, creation of islets National Park comprising and setting up a comprehensive long term planning and management of the islets for their optimal utilisation.

The development of a Strategy and Management Plan for the Islets National Park was entrusted onto the AGRER (a Belgium Firm). The main points of the strategic plan are:

a. The development of a management strategy for the protection and enhancement of the existing natural resources.
b. Encouraging support for conservation through a public awareness campaign, education and the use of some islets to raise awareness of biodiversity and conservation issues
c. The need for the enforcement of laws to reduce habitat degradation and destruction, littering, poaching, and theft of plants and animal species.

Following recommendations of this report, eight islets have been proclaimed as Islet National Parks in 2004.

A second phase of the development of Strategy and Management Plan for a second group of 16 islets is underway.

Article 8(h) - Alien species

45. Has your country identified alien species introduced into its territory and established a system for tracking the introduction of alien species?	
a) No	
b) Yes, some alien species identified but a tracking system not yet established	**X**
c) Yes, some alien species identified and tracking system in place	
d) Yes, alien species of major concern identified and tracking system in place	

46. ? Has your country assessed the risks posed to ecosystems, habitats or species by the introduction of these alien species?	
a) No	**X**
b) Yes, but only for some alien species of concern (please provide details below)	
c) Yes, for most alien species (for terrestrial and forest biodiversity sector)	

Further information on the assessment of the risks posed to ecosystems, habitats or species by the introduction of these alien species.

In areas such as terrestrial and forest biodiversity, IAS is rated amongst the most important threats facing these sectors.

A risk assessment is carried out for any plant material being introduced into the country focusing on the risk of disease. However, presently there is no protocol in place for evaluating risks to biodiversity.

A task force for management of ballast water has also been set up, but no work in the field has started yet to identify alien species and or track IAS species in Mauritius and Rodrigues.

47. ? Has your country undertaken measures to prevent the introduction of, control or eradicate, those alien species which threaten ecosystems, habitats or species?	
a) No	
b) No, but potential measures are under consideration	
c) Yes, some measures are in place (please provide details below)	**X**
d) Yes, comprehensive measures are in place (please provide details below)	

Further information on the measures to prevent the introduction of, control or eradicate those alien species that threaten ecosystems, habitats or species.
Some of the measures are: • Fencing of CMA's • Weeding, uprooting and clearing of forest areas invaded by exotic/alien invasive species in particular in areas rich in native biodiversity • Pest control/eradication campaigns on offshore islets and on the mainland(crow, pigeon eradication) • Research and pilot project on new pest control techniques/technologies at the level of University of Mauritius and NGOs • Sensitization and awareness campaign by various partners • National IAS Committee set up to coordinate action on IAS • Review of national legislation on IAS • Production of a black list highly invasive plants to be kept out of Mauritius and Rodrigues • Quarantine protocols in place to keep offshore islets free of rodents and other exotic pests • Trial of a predator exclusion fence(based on New Zealand technology) • Development of a national IAS Control strategy • Quarantine measures in place • PRA carried out by Plant Pathology Division before any plant material introduced However, with regard to the Marine side, basic activities have been undertaken. Much care is taken with regard to introduction of new fish species in Mauritian waters both in freshwater and marine. Also as per IMO regulations, ships entering the harbor are required to exchange their ballast 200 NM from the shore.

48. ? In dealing with the issue of invasive species, has your country developed, or involved itself in, mechanisms for international cooperation, including the exchange of best practices? (decision V/8)	
a) No	
b) Yes, bilateral cooperation	**X**
c) Yes, regional and/or sub regional cooperation	**X**
d) Yes, multilateral cooperation	

49. ? Is your country using the ecosystem approach and precautionary and bio-geographical approaches as appropriate in its work on alien invasive species? (decision V/8)	
a) No	
b) Yes (please provide details below)	**X**

Further comments on the use of the ecosystem approach and precautionary and bio-geographical approaches in work on alien invasive species.
There is a protocol in place between La Réunion and Mauritius to prevent the entry of the white grub to Mauritius (a damaging pest to the sugar cane industry). A visit from weed control expert from Lord Howe (Australia) to discuss control of strawberry guava (*Psidium cattleianum*). There is a regional programme for the Indian ocean islands to harmonise legislation on plant protection. A regional workshop on invasive alien species was held in Seychelles, coordinated by GISP. FAO carried out a regional survey and review of the woody invasive alien species in the Indian ocean

islands.

SADC and GISP have produced a multi-author document on invasive alien species in southern Africa, which contains a section on Mauritius.

50. Has your country identified national needs and priorities for the implementation of the Guiding Principles? (decision VI/23)	
a) No	
b) No, but needs and priorities are being identified	
c) Yes, national needs and priorities have been identified (please provide below a list of needs and priorities identified)	**X**

Further comments on the identification of national needs and priorities for the implementation of the Guiding Principles.

The issue of biosecurity/alien species was discussed as part of the NBSAP for Mauritius. The present legislation in Mauritius deals mainly with the phytosanitary and pathological aspects while the biosecurity measures are inadequate. A national pest control strategy has been recommended in the NES and this has been supported in the draft NBSAP. This activity requires the setting up of a national biosecurity committee to look into the management of IAS and eventually develop the national IAS control strategy for Mauritius.

51. Has your country created mechanisms to coordinate national programmes for applying the Guiding Principles? (decision VI/23)	
a) No	
b) No, but mechanisms are under development	
c) Yes, mechanisms are in place (please provide details below)	**X**

Further comments on the mechanisms created to coordinate national programmes for implementing the Guiding Principles.

A national IAS Steering committee is in place and consists of government institutions, NGO's and the private sector. The committee has developed its own work plan.

52. Has your country reviewed relevant policies, legislation and institutions in the light of the Guiding Principles, and adjusted or developed policies, legislation and institutions? (decision VI/23)	
a) No	
b) No, but review under way	**X**
c) Yes, review completed and adjustment proposed (please provide details below)	
d) Yes, adjustment and development ongoing	
e) Yes, some adjustments and development completed (please provide details below)	

Further information on the review, adjustment or development of policies, legislation and institutions in light of the Guiding Principles.

The different legislations pertaining to IAS are being reviewed. A black list of invasive plants has been produced.

53. Is your country enhancing cooperation between various sectors in order to improve prevention, early detection, eradication and/or control of invasive alien species? (decision VI/23)	
a) No	
b) No, but potential coordination mechanisms are under consideration	
c) Yes, mechanisms are in place (please provide details below)	**X**

Further comments on cooperation between various sectors.

The creation of the National IAS Committee and the awareness campaign on IAS. Also the task force for ballast water management has been established chaired by the Ministry of Transport and Shipping. Relevant organizations are represented on these national committees.

54. Is your country collaborating with trading partners and neighboring countries to address threats of invasive alien species to biodiversity in ecosystems that cross international boundaries? (decision VI/23)	
a) No	
b) Yes, relevant collaborative programmes are under development	**X**
c) Yes, relevant programmes are in place (please specify below the measures taken for this purpose)	

Further comments on collaboration with trading partners and neighboring countries.

There is a protocol in place between La Réunion and Mauritius to prevent the entry of the white grub to Mauritius (a damaging pest to the sugar cane industry).

There is a regional programme for the Indian ocean islands to harmonise legislation on plant protection under the aegis of the Indian Ocean Commission.

55. Is your country developing capacity to use risk assessment to address threats of invasive alien species to biodiversity and incorporate such methodologies in environmental impact assessment (EIA) and strategic environmental assessment (SEA)? (decision VI/23)	
a) No	
b) No, but programmes for this purpose are under development	**X**
c) Yes, some activities for developing capacity in this field are being undertaken (please provide details below)	
d) Yes, comprehensive activities are being undertaken (please provide details below)	

Further information on capacity development to address threats of invasive alien species.

56. Has your country developed financial measures and other policies and tools to promote activities to reduce the threats of invasive species? (decision VI/23)	
a) No	
b) No, but relevant measures and policies are under development	**X**
c) Yes, some measures, policies and tools are in place (please provide	

details below)	
d) Yes, comprehensive measures and tools are in place (please provide details below)	

Further comments on the development of financial measures and other policies and tools for the promotion of activities to reduce the threats of invasive species.
As indicated earlier, any introduction of plant material is the subject of PRA's by the Plant Pathology Division of the MAIF. A black list highly invasive plant to be kept out of Mauritius and Rodrigues has been produced. So far, no such financial mechanism has been developed to specifically address to issue of IAS.

Box XLVI.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:
a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.
Invasive alien species is considered amongst the most important and serious threat to the Mauritian biodiversity. Species are somehow being introduced in new habitats by humans either deliberately or accidentally. When a species is introduced outside its natural range, it finds itself largely freed of its natural enemies which have co-evolved with it. With the 'inadequate' control, many alien species tend to undergo population explosions, and reach pest proportions. This is true for example for Chinese guava (*Psidium cattleianum*, Myrtaceae), a native of Brazil, which in Mauritius can reach densities of up to about seven million stems at or above 1.3m high per km2 (Ramlugun, 2003). The effect of the resulting competition for light, water and minerals with native plants is massive, leading to major reduction in reproductive output, documented for example in the Tambalacoque (*Sideroxylon grandiflorum*, Sapotaceae) to 40 times that of trees growing free of alien weeds (Baider and Florens, in press). Invasive alien plants also increase native plants mortality and reduces growth rate (Baider and Florens unpublished data), contributing further to the gradual replacement of native communities by alien plants which in turn constitute poor habitats for most native animals. There are dozens of aggressive invasive alien weeds threatening Mauritian biodiversity from coastal habitats to the highest mountains. Many invasive alien animals also present a major threat to both native fauna and flora. For example, endemic birds like the Pink Pigeons (*Columba mayeri*) are constantly at risk of predation by feral cats (*Felis catus*); and rats (*Rattus spp.*) have been documented to destroy up to 60% of the seed crop of Bois Colophane (*Canarium paniculatum*, Burseraceae) (Auchoybur, 2003) doubtless contributing to the poor regeneration of the tree despite in-situ conservation management. Monkeys (*Macaca fascicularis*), rats (*Rattus rattus* and *Rattus norvegicus*), pigs (*Sus scrofa*), and deer (*Cervus timorensis*) are directly detrimental to the native vegetation, and are either indirectly or, together with the Indian mongoose (*Herpestes auropunctatus*). Invasive alien species is nowadays considered the most serious threat to Mauritian native terrestrial biodiversity. Action that would be required to counter the threat posed by IAS include legal blacklisting to prevent entry in the country of further species likely to pose serious threats to native biodiversity, more effective border control to reduce risks of introduction of new IAS, good monitoring system to detect new pest outbreak and development of improve control methods for already established IAS. Constraints such as capacity to undertake risk assessment and also funding to continue manual and other methods to control IAS are amongst the most important ones.

Article 8(j) - Traditional knowledge and related provisions

GURTS

57. Has your country created and developed capacity-building programmes to involve and enable smallholder farmers, indigenous and local communities, and other relevant stakeholders to effectively participate in decision-making processes related to genetic use restriction technologies?	
a) No	
b) No, but some programmes are under development	**X**
c) Yes, some programmes are in place (please provide details below)	
d) Yes, comprehensive programmes are in place (please provide details below)	

Further comments on capacity-building programmes to involve and enable smallholder farmers, indigenous and local communities and other relevant stakeholders to effectively participate in decision-making processes related to GURTs.
Sensitisation programmes as well as training are carried out by the Agricultural Research and Extension Unit

Status and Trends

58. Has your country supported indigenous and local communities in undertaking field studies to determine the status, trends and threats related to the knowledge, innovations and practices of indigenous and local communities? (decision VII/16)	
a) No	**X**
b) No, but support to relevant studies is being considered	
c) Yes (please provide information on the studies undertaken)	

Further information on the studies undertaken to determine the status, trends and threats related to the knowledge, innovations and practices of indigenous and local communities, and priority actions identified.

Akwé:Kon Guidelines

59. Has your country initiated a legal and institutional review of matters related to cultural, environmental and social impact assessment, with a view to incorporating the Akwé:Kon Guidelines into national legislation, policies, and procedures?	
a) No	**X**
b) No, but review is under way	
c) Yes, a review undertaken (please provide details on the review)	

Further information on the review.
The actual Environmental Impact Assessment mechanism as per the Environment Protection Act 2002 already take into consideration the cultural, social, environmental, and economic amongst the key dimensions while the assessment is undertaken.

60. Has your country used the Akwé:Kon Guidelines in any project proposed to take place on sacred sites and/or land and waters traditionally occupied by indigenous and local communities? (decision VII/16)	
a) No	**X**
b) No, but a review of the Akwé: Kon guidelines is under way	
c) Yes, to some extent (please provide details below)	
d) Yes, to a significant extent (please provide details below)	

Capacity Building and Participation of Indigenous and Local Communities

61. Has your country undertaken any measures to enhance and strengthen the capacity of indigenous and local communities to be effectively involved in decision-making related to the use of their traditional knowledge, innovations and practices relevant to the conservation and sustainable use of biodiversity? (decision V/16)	
a) No	
b) No, but some programmes being developed	**X**
c) Yes, some measures taken (please provide details below)	
d) Yes, comprehensive measures taken (please provide details below)	
Further information on the measures to enhance and strengthen the capacity of indigenous and local communities.	
In addition to the sensitization and capacity building programme imparted by the Agricultural Research and Extension Unit, For local farmers and breeders communities, extension programmes have been developed and these are imparted by the relevant organization within the Ministry of Agro –Industry and Fisheries.	

62. Has your country developed appropriate mechanisms, guidelines, legislation or other initiatives to foster and promote the effective participation of indigenous and local communities in decision making, policy planning and development and implementation of the conservation and sustainable use of biodiversity at international, regional, subregional, national and local levels? (decision V/16)	
a) No	
b) No, but relevant mechanisms, guidelines and legislation are under development	
c) Yes, some mechanisms, guidelines and legislation are in place (please provide details below)	**X**
Further information on the mechanisms, guidelines and legislation developed.	
Such mechanism exists for NGOs to participate in committees and other decision making process. Generally in most of the meetings dealing with biodiversity in the various thematic areas, relevant NGOs from the thematic area are invited to participate. In certain cases, whereby even NGOs representatives are called upon to chair subcommittees (example is, environment advisory committees, and others). One relevant example is the Integrated Coastal Zone Management Committee. As per the EPA 2002, a number relevant NGOs are included in the list of members of the ICZM committee.	

63. Has your country developed mechanisms for promoting the full and effective participation of indigenous and local communities with specific provisions for the full, active and effective participation of women in all elements of the programme of work? (decision V/16, annex)	
a) No	
b) No, but relevant mechanisms are being developed	**X**
c) Yes, mechanisms are in place (please provide details below)	
Further comments on the mechanisms for promoting the full and effective participation of women of indigenous and local communities in all elements of the programme of work.	
In the case of women groups, there are such groups in Rodrigues who actively play important roles in community forestry as well as in the fisheries sector. These groups are invited to participate in workshops, in the Rodrigues Environment Coordination Committee and other subcommittee of direct relevance to their thematic areas.	

Support to implementation

64. Has your country established national, subregional and/or regional indigenous and local community biodiversity advisory committees?	
a) No	**X**
b) No, but relevant work is under way	
c) Yes	

65. Has your country assisted indigenous and local community organizations to hold regional meetings to discuss the outcomes of the decisions of the Conference of the Parties and to prepare for meetings under the Convention?	
a) No	**X**
b) Yes (please provide details about the outcome of meetings)	
Further information on the outcome of regional meetings.	

66. Has your country supported, financially and otherwise, indigenous and local communities in formulating their own community development and biodiversity conservation plans that will enable such communities to adopt a culturally appropriate strategic, integrated and phased approach to their development needs in line with community goals and objectives?	
a) No	
b) Yes, to some extent (please provide details below)	**X**
c) Yes, to a significant extent (please provide details below)	
Further information on the support provided.	
In terms of financial support to local communities, in particular, to the local communities in Rodrigues whereby the Rodrigues Regional Assembly has co financed jointly with EU and also with UNDP GEF SGP programmes aimed at promoting sustainable use of endemic plants in the artisanal and handicraft sector. Community Programme has also been implemented in the agricultural sector with facilities provided to farmers both in Mauritius and Rodrigues.	

Box XLVII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:
a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.
Mauritius has a multi-cultural society. The inhabitants of Mauritius are descendants of immigrants from the major continents namely, Africa, Asia and Europe and all the major religions such as Buddhism, Christianism, Hinduism and Islam are practiced. There is no tribal indigenous people practicing traditional lifestyle in Mauritius. However, there are local communities that still use traditional ways of cultivating and preserving genetic materials (on the basis of traditional knowledge used by their ancestors). The TK are considered rich in areas of medicinal plants for both cultivated and wild species, pest control measures and farming practices. With the coming of modern agriculture, the traditional knowledge seems to be fast disappearing and there are relatively fewer local communities that are still practicing traditional farming practices. So far no specific studies or programmes have been carried out to document traditional knowledge. This composition constitutes major gaps and it still requires an urgent attention on the part of the responsible agencies.

Article 9 - *Ex-situ* conservation

67. ? On Article 9(a) and (b), has your country adopted measures for the *ex-situ* conservation of components of biological diversity native to your country and originating outside your country?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	**X**

Further information on the measures adopted for the *ex-situ* conservation of components of biodiversity native to your country and originating outside your country.
In addition to details provided earlier: The Forestry Service is running a Green House for the propagation of native/endemic plants for eventual re-introduction in the protected forests. The GH has a potential of raising some 100,000 seedlings yearly. The NPCS has a well developed *ex-situ* plant conservation programme. Some 200 species of native plants of which 120 species are flowering plants and 90 species of ferns are being propagated from spores, seeds and cuttings in the Native Plant Propagation Centre at Robinson road, Curepipe. The Mauritian Wildlife Foundation has a native plant propagation nursery on Ile aux Aigrettes for the propagation of mainly plants found on islets. In Rodrigues, the Forestry Service runs two nurseries. There is a field genebank for 20 critically upland plant species, arboreta at Robinson (to act as a reference collection for all species) and Mont Vert (concentrating on rare upland species and medicinal plants). 40 species of critically endangered plants are propagated at present by these two facilities (see GSPC). Four species of bird have been saved from extinction using ex-situ conservation, in collaboration with

Durrell Wildlife Conservation Trust (Jersey). A population of the Rodrigues fruit bat is also kept in this zoo as well as at Chester Zoo.

There are five botanical gardens and among them are the Sir Seewoosagur Ramgoolam Botanical gardens at Pamplemousses and Curepipe. The SSRBG at Pamplemousses have an area of about 60 acres with some 500 plant species. It harbours a collection of native plants that are known to naturalists throughout the world, thus making it among the most visited sites in the Indian Ocean.

Ex situ collections of Mauritian flora and fauna are held at Conservatoire de Brest (France), Royal Botanic Gardens, Kew (UK), Edinburgh Botanic Gardens (UK).

Past collaborations with these organizations include propagation of *Ramosmania rodriguesi* at Kew Gardens. Eleven cuttings have been returned to Mauritius from Kew Gardens, and 8 of these given back to Rodrigues

For the agrobiodiversity area, the Agricultural Services of the Ministry of Agro-Industry and Fisheries has a full fledge genetic bank whereby genetic materials (wild and cultivated) are conserved for future use. In addition, there are two field gene banks which cater for materials which are propagated vegetatively.

68. On Article 9(c), has your country adopted measures for the reintroduction of threatened species into their natural habitats under appropriate conditions?

a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	**X**
d) Yes, comprehensive measures are in place (please provide details below)	

Further comments on the measures for the reintroduction of threatened species into their natural habitats under appropriate conditions.

Intensively managed vegetation plots have been established in representative vegetation communities to conserve plant genetic resources. There is a network of extensively managed plots called Conservation Management Areas, 8 within the National Parks, mainland Nature Reserves (2), one private reserve and islets Nature Reserves (3). Some of these plots have been fenced to keep out ground mammals and manual weeding is undertaken by private contractors. Some of the threatened species which have been raised in *ex-situ* facilities are re-introduced into their natural habitats.

Four species of bird have been successfully reintroduced to the forest and also in one of the offshore islets. There is a programme in place for planning of reptile translocations from Round Island to other offshore islets in order to establish other populations of species at present limited to Round Island.

69.? On Article 9(d), has your country taken measures to regulate and manage the collection of biological resources from natural habitats for *ex-situ* conservation purposes so as not to threaten ecosystems and *in-situ* populations of species?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	**X**
d) Yes, comprehensive measures are in place (please provide details below)	

Further information on the measures to regulate and manage the collection of biological resources from natural habitats for *ex-situ* conservation purposes so as not to threaten ecosystems and *in-situ* populations of species.

All conservation stakeholders are represented on the National Threatened Plant Technical Committee. Meetings are held regularly to monitor the status and the management required for the threatened plant species.

The *ex-situ* conservation of fauna is carried out without threatening the wild populations.

A number of collection missions have already been undertaken to collect seeds from threatened species from various ecosystem. In normal circumstances, the seeds collected are sent to lab for conservation after performing preliminary test and relevant processing of information procedures for conservation.

Box XLVIII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

In addition to information provided earlier, it is recalled that *Ex-situ* conservation activities have been complementing *in-situ* conservation in Mauritius. *Ex-situ* activities have remained a high priority. With regards to availability of resources, in most of the sectors, there are well established facilities which are operational.

Species recovery program

Propagation of many species in imminent risk of extinction has been successful in a large number of cases through efforts of dedicated staff in various ex-situ facilities, including the propagation facilities of the NPCS in Curepipe. However, some species are still under very high risk of extinction, one example, being the endemic palm *Hyophorbe amaricaulis* of which only one individual remains. Necessary efforts need to be sustained in propagating this and a few other species in comparable high threat of imminent extinction. Further recommendations to that effect have recently been formulated by the NTNPC.

Propagation attempts are being carried out on a small number of endangered endemic species by the PGR Unit of the Ministry of Agriculture (MOA, FT & NR). They are *Elaeocarpus bojeri*, *Chassalia boryana, Croton revaughanii* and *Badula crassa*. The first two species have been successfully propagated. However attempts at multiplying C. *revaughanii* and *B. crassa* have not succeeded and attempts are on-going.

Birds

Only 13 of the approximately 30 species of land birds known to be present in Mauritius now remain. Of these, nine are threatened according to IUCN 2002. No bird species have become extinct recently as a result of the very successful species recovery programmes.

The Mauritian Kestrel, with a population of four known birds in 1974 have now recovered to 800 animals due to captive breeding, augmentation and reintroduction in the wild carried out by the Mauritius Wildlife Foundation (MWF) and NPCS. Now the programme has been extended to Echo parakeets. Out of the 12 known individuals in 1987, the population has risen to 270.

The Pink Pigeon is another example. Out of 25 known birds in 1970, the population has now reached about 500 due to another successful species recovery program. There are now four semi-wild mainland populations, all in Black River Gorges National Park and a fifth one on Ile aux Aigrettes. There are concerns that the high incidence of diseases among these birds may be exacerbated by their crowding conditions itself a result of substantial supplementary feeding.

Of the other land bird species, the Cuckoo Shrike (*Coracina typica*), the Bulbul (*Hypsipetes olivaceus*), the Olive White Eye, the Fody and the Flycatcher are all threatened by alien predators, poor and degrading habitat quality and habitat fragmentation among other problems.

In the case of Rodrigues, with the successful implementation of the restoration programmes, the population of the native species has increased as follows:

a. Rodriguan Fody from 25 to about 350 pairs
b. Warbler increased to about 150 pairs
c. Golden Bat (*Pteropus rodricensis)* now about 4000-5000 individuals

Mauritius Herbarium

Since 1959, the Mauritius Herbarium is housed at the Mauritius Sugar Industry Research Institute and it comprises some 25,000 sheets mounted specimens. It also houses a unique assemblage of publication, manuscripts, original sketches, paintings relating to the original fora and maps. The collection includes plant materials collected from the three Mascarene islands and from islets including Agalega, St Brandon, and the Chagos Archipelago.

Article 10 - Sustainable use of components of biological diversity

70.? On Article 10(a), has your country integrated consideration of the conservation and sustainable use of biological resources into national decision-making?	
a) No	
b) No, but steps are being taken	
c) Yes, in some relevant sectors (please provide details below)	
d) Yes, in most relevant sectors (please provide details below)	**X**

Further information on integrating consideration of conservation and sustainable use of biological resources into national decision-making.

Various measures relating to the integration of conservation and sustainable use of biological resources exist at national level. These include :-

- In terms of legislations: Environment Protection Act 2002; Fisheries and Marine Resources Act 1998; Wildlife and National Park Act 1993; Forests and Reserve Acts 1983, and amendment of 2003, the Plant Protection Act 2006 amongst others.
- In terms of application of national policies: National Environmental Strategies, National Development Strategy, Tourism, Development plan, Non Sugar Sector Strategy Plan,

requirements for Preliminary Environmental Report and EIA for development in sensitive areas, policy guidance on develop being formulated at the Ministry of Environment and NDU.

- Establishment of National Boards and Committees e.g. Nature Reserves Board , National Invasive Alien Species Committee , Wildlife and National Parks Advisory Council, National Nature Threatened Plants Committee, Task Force on Islets, Technical Advisory Committee on Rivers, Task Force on Ballast Water, amongst the key ones.
- Establishment of a National Parks and Conservation Service, ICZM at the Ministry of Environment, Marine Parks and Coastal Management Divisions at the Ministry of Agro Industry and Fisheries (Fisheries Division), Beach Authority and so on which also serve as watchdog to integrate conservation and sustainable use of biological resources into national decision making
- Ratification of International Conventions and compliance to them e.g. Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1993), Convention to Combat Drought and Desertification in Africa (1995), Convention on Migratory Species, Ramsar Convention.

71. On Article 10(b), has your country adopted measures relating to the use of biological resources that avoid or minimize adverse impacts on biological diversity?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	**X**

Further information on the measures adopted relating to the use of biological resources that avoid or minimize adverse impacts on biological diversity.

In addition to information given at the section 70, other measures adopted include:

- Declaration of Nature Reserves to preserve the native ecosystem
- Development of National parks and Conservation Management Areas (CMAs)
- Monitoring of forests by the Forestry Service
- Controlled development through Environmental guidelines, standards and policies through the requirement for Environmental Impact Assessment , Preliminary Environmental Report and environmental clearances for listed development projects, whereby one of the major environmental concerns is the protection of the flora and fauna
- Application and enforcement of laws together with international conventions of which Mauritius is signatory
- Penalties for offences and contraventions
- Review of legislation to prevent the entry of alien species posing threat to native biodiversity
- Management of outer islets

72. On Article 10(c), has your country put in place measures that protect and encourage customary use of biological resources that is compatible with conservation or sustainable use requirements?	
a) No	**Not applicable**
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	

Further information on the measures that protect and encourage customary use of biological

resources that is compatible with conservation or sustainable use requirements.

73. On Article 10(d), has your country put in place measures that help local populations develop and implement remedial action in degraded areas where biological diversity has been reduced?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	**X**
d) Yes, comprehensive measures are in place (please provide details below)	

Further information on the measures that help local populations develop and implement remedial action in degraded areas where biodiversity has been reduced.
Native tree seedlings and technical guidance are provided free of charge to private forest land owners for use on mountain and river reserves as well as to local authorities and socio- cultural organisations. There is also a number of NGOs working with local communities in both the terrestrial and marine sides. NGOs such as Mauritian Wildlife Foundation (Mauritius and also in Rodrigues), Rodrigues Council of Social Service, Shoals Rodrigues amongst others are committed to restoration works and conservation of biodiversity on some islets and also on the mainland. Many volunteers, secondary school students and researchers are involved in these restoration works. Various donor and government supported projects involving local communities are also being implemented both in Mauritius and Rodrigues. Example is the UNDP SGP project funded to restore some areas of endemic plants used for medicinal and artisanal purposes in order to provide material for local villagers. Also the Whitley award and EU funded project in Rodrigues to set up village nurseries that produce plants for planting around villagers to reduce erosion, wind exposure and water usage.

74. Has your country identified indicators and incentive measures for sectors relevant to the conservation and sustainable use of biodiversity? (decision V/24)	
a) No	
b) No, but assessment of potential indicators and incentive measures is under way	
c) Yes, indicators and incentive measures identified (please describe below)	**X**

Further comments on the identification of indicators and incentive measures for sectors relevant to the conservation and sustainable use of biodiversity.
An Environmental Information System is being set up and indicators in relation to sustainable use of biodiversity have been identified, namely:- ▪ Loss of wetlands ▪ Land use changes (Mauritius and Rodrigues) ▪ Ratio of endangered / threatened species to total species of flora and fauna Incentive mechanisms would also be developed and tested as part of the Government/ UNDP/ GEF 'Partnerships for Marine Protected Areas and the 'Capacity building for Sustainable Land Management' projects.

75. Has your country implemented sustainable use practices, programmes and policies for the sustainable use of biological diversity, especially in pursuit of poverty alleviation? (decision V/24)	
a) No	
b) No, but potential practices, programmes and policies are under review	
c) Yes, some policies and programmes are in place (please provide details below)	**X**
d) Yes, comprehensive policies and programmes are in place (please provide details below)	

Further information on sustainable use programmes and policies.

Sustainable ecotourism development is being accorded high priority by the Government. Various integrated resort scheme developments are being developed in partnerships with the private sector. Indirectly these developments would play a key role towards poverty alleviation.

The Government is also boosting the non formal sector which is directly related to the tourism industry. Therefore, sustainable eco-tourism development, highlighting the concept of sustainable use of biological diversity, has emerged as a national objective with the strong support of the authorities, the public and the community at large. The community has embarked on various small eco- projects.

One example is the Chamarel Integrated Development Project which has been initiated with a view to involving local people in small tourism projects that would economically be beneficial to them. The project includes eco-tourism funded by the UNDP /GEF SGP. Other similar community projects are underway.

76. Has your country developed or explored mechanisms to involve the private sector in initiatives on the sustainable use of biodiversity? (decision V/24)	
a) No	
b) No, but mechanisms are under development	
c) Yes, mechanisms are in place (please describe below)	**X**

Further comments on the development of mechanisms to involve the private sector in initiatives on the sustainable use of biodiversity.

The Integrated Resort Scheme initiative is one of the examples of a Public Private Partnership's initiative. There are other private promoters who are also actively involved in the development of mechanism aimed at sustainable agro and fisheries sectors.

In both Mauritius and Rodrigues, there are environmental committees and clubs that have been set up comprising of representatives from public and private sectors, NGOs, research institutions amongst others. These committees / technical advisory committees have a technical advisory role on sound management including the sustainable use of biological diversity and indirectly in the pursuit of poverty alleviation.

77. Has your country initiated a process to apply the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity? (decision VII/12)	
a) No	**X**
b) No, but the principles and guidelines are under review	
c) Yes, a process is being planned	

d) Yes, a process has been initiated (please provide detailed information)	

Further information on the process to apply the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity.

Most of the principles of the Addis Ababa referred to in the decision VII/12 are already under implementation by the relevant stakeholders both in Mauritius and Rodrigues.

78. Has your country taken any initiative or action to develop and transfer technologies and provide financial resources to assist in the application of the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity? (decision VII/12)

a) No	**X**
b) No, but relevant programmes are under development	
c) Yes, some technologies developed and transferred and limited financial resources provided (please provide details below)	
d) Yes, many technologies developed and transferred and significant financial resources provided (please provide details below)	

Further comments on the development and transfer of technologies and provision of financial resources to assist in the application of the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity.

The Government is coming with an IPR Bill recognizing the property rights. As a mechanism of development, the Government has adhered to the 'Global Crop Diversity Trust" of FAO for technological transfer and implementation of project in conservation.

Biodiversity and Tourism

79. Has your country established mechanisms to assess, monitor and measure the impact of tourism on biodiversity?

a) No	
b) No, but mechanisms are under development	
c) Yes, mechanisms are in place (please specify below)	**X**
d) Yes, existing mechanisms are under review	

Further comments on the establishment of mechanisms to assess, monitor and measure the impact of tourism on biodiversity.

There is no dedicated mechanism to assess and measure the impact of tourism on biodiversity. However, as per Environment Protection Act 2002, many scheduled activities require an Environment Impact Assessment or Preliminary Environmental Report with post monitoring programme recommended to monitor the impacts of the development on the environment including the biodiversity.

Undertakings associated with tourism and which require a Preliminary Environmental Report are as follows:-

- Hotels (inland)
- Nautical centre

Undertakings associated with tourism and which require an Environment Impact Assessment are as follows:-

- Construction of breakwaters , groins , jetties , gabions and seawalls
- Construction of marinas
- Golf course
- Conversion of forests

- Hotel (coastal) , including extension
- Lagoon dredging and reprofiling of sea beds including creation of bathing areas
- Modification of existing coastline such as beach reprofiling , coastal protection works and removal of basaltic and beach rock
- Undersea walk
- Developments on 'Barrachois' and wetlands

The Tourism Development plans for Mauritius and Rodrigues require a Strategic EIA. All permits for tourism activities (undersea walk, diving sites and so on) are given on the basis of yearly environment reports of sites used.

80. ? Has your country provided educational and training programmes to the tourism operators so as to increase their awareness of the impacts of tourism on biodiversity and upgrade the technical capacity at the local level to minimize the impacts? (decision V/25)	
a) No	
b) No, but programmes are under development	**X**
c) Yes, programmes are in place (please describe below)	

Further comments on educational and training programmes provided to tourism operators.

The Hotel School in Mauritius does impart some basic educational training to their student with respect to environment protection in general. Capacity building in these areas has also been initiated for the tourism operators indirectly through their participation in workshops on national issues. A tourism environment charter have been developed and signed following a partnership initiative between the UNDP/GEF SGP, Ministry of Tourism, Ministry of Environment and the 'Association des Hoteliers et Restaurants de L'Ile Maurice'

Also, the strategic plan including components on capacity building and training of tourism operators has been developed for islets of conservation importance.

Training for pleasure craft operators, skippers, tourism operators with regard to safety at sea, underwater, equipment, biodiversity and so on are also being carried by the Ministry of Tourism and Leisure.

81. Does your country provide indigenous and local communities with capacity-building and financial resources to support their participation in tourism policy-making, development planning, product development and management? (decision VII/14)	
a) No	
b) No, but relevant programmes are being considered	**X**
c) Yes, some programmes are in place (please provide details below)	
d) Yes, comprehensive programmes are in place (please provide details below)	

Further comments in the capacity-building and financial resources provided to indigenous and local communities to support their participation in tourism policy-making, development planning, product development and management.

Generally, the local communities are involved in the policy formulation consultation phase. One such example, is the policy guideline on 'Whale and Dolphin watch' whereby operators and fishers have been consulted by the Ministry of Tourism and they have been provided additional time to formulate and submit their feedback on the draft policy guideline for consideration.

82. Has your country integrated the Guidelines on Biodiversity and Tourism Development in the development or review of national strategies and plans for tourism development, national biodiversity strategies and actions plans, and other related sectoral strategies? (decision VII/14)	
a) No, but the guidelines are under review	
b) No, but a plan is under consideration to integrate some principles of the guidelines into relevant strategies	
c) Yes, a few principles of the guidelines are integrated into some sectoral plans and NBSAPs (please specify which principle and sector)	
d) Yes, many principles of the guidelines are integrated into some sectoral plans and NBSAPs (please specify which principle and sector)	**X**

Further information on the sectors where the principles of the Guidelines on Biodiversity and Tourism Development are integrated.

The following principles, such as, legislation and control measures, impact assessment, impact management and mitigation, monitoring and reporting, public notification and even adaptive management are all enshrined in the EIA and PER mechanisms. The basic principles behind the guideline have also been the guiding principles in the National Development Strategy, National Environmental Strategies, the Tourism Development Plan and also in the NBSAP.

Box XLIX.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

In the light of the declining sugar and textiles sectors, tourism is the considered to play a more crucial role in the development of Mauritius in the years to come. The Government has announced that a target of 2 million tourists is being aimed at by the year 2015. Tourism is one of the most flourishing industries of the Mauritian economy. The natural attractions of the island, its lagoon and marine resources remain the requisite and also the driving forces of tourism. These are basically the pristine beauty of the landscape, the pleasant year-round tropical climate, the turquoise lagoon, the coral reefs and white sandy beaches together with a hospitable population constitute the necessary ingredients for a successful tourism development.

The policy for high class tourism followed by a development strategy which is essentially focussed on quality at all operational levels have carved out an admired position for Mauritius in the choice of holiday resorts.

The number of arrivals has increased from 291, 350 in 1990 to 656,450 in the year 2000 and 718,861 in the year 2004 (MFED, CSO, 2005). Tourism statistics converge to a common indicator that this sector is set to attain an accelerated rate of expansion in the years ahead. The Vision 2020 report anticipates a continued growth in tourism and net tourist receipts, but with a restriction on the extent of tourism development.

A number of policy, strategy and legislations have been devised with regard to tourism and environment. The EIA and PER remain amongst the most important management tools towards a sustainable tourism development.

In terms of policy and strategy, in the Tourism Development Plan for Mauritius (2002), due consideration has been given to biodiversity and tourism development, namely the protection of conservation areas, mountain areas, nature reserves and nature parks. The National Development Strategy (2003) also incorporates strategies to protect the natural environment. Tourism Action Area Plans, Tourism Zones and campement sites have been earmarked so that tourism development be confined only to the earmarked zones.

Nature conservation and passive leisure activities are ensured by allowing only those tourist activities that create minimum disturbance to the vegetation and landscape in general.

As indicated earlier, a Tourism Environment Charter has been developed for the tourism industry.

A number of guidelines is also under preparation at the Ministry of Environment, e.g. guidelines on golf courses, inland hotel development amongst others.

Article 11 - Incentive measures

83. ? Has your country established programmes to identify and adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity?

a) No	
b) No, but relevant programmes are under development	
c) Yes, some programmes are in place (please provide details below)	**X**
d) Yes, comprehensive programmes are in place (please provide details below)	

Further comments on the programmes to identify and adopt incentives for the conservation and sustainable use of biodiversity.

Some incentive measures already exist in the form of social incentives, provision of free materials and native tree seedlings, free technical guidance.

The National Environment Fund under the Ministry of Environment provides financial support to NGOs for environmental projects, including biodiversity awareness raising and ecotourism project.

The NCSA process has also identified a number of areas, including biodiversity management for land under private ownership where incentive measures and capacity building would be necessary.

As part of the GoM/UNDP/GEF Partnerships for Marine Protected Areas, incentives mechanism would also be developed, and tested for eventual replication at the national level.

Existing measures include the following:

a. Artisanal fishery - Since 1996 management measures have been taken to discourage large nets and gill net fishing, and a buy-back policy has been put in place.
b. Cast net fishing has also been banned since 2000.
c. Twenty one Fish Aggregating Devices (FADs) have been placed outside the lagoon to encourage fishermen to move out from the heavily exploited lagoon area. In the case of Rodrigues, six FADs have been installed and these are being regularly monitored.
d. A quota system has been established for the bank fishery since 1994 for the management of its fishery. The following management measures are in place:
   (i) A closed season of five months (beginning of October to end of the following February) when fishing with large nets and gill nets is prohibited. This coincides with the peak spawning period;
   (ii) The number of nets in the fishery is controlled and licensed;

(iii) The length of each net is limited and its mesh size regulated. It is set at a size just beyond first maturity so as to enable the species to spawn at least once;
(iv) A minimum size for harvest of oysters is set, and crustaceans in the berried state are prohibited for capture.
(v) Spear and dynamite fishing are banned.

84. ? Has your country developed the mechanisms or approaches to ensure adequate incorporation of both market and non-market values of biological diversity into relevant plans, policies and programmes and other relevant areas? (decisions III/18 and IV/10)	
a) No	
b) No, but relevant mechanisms are under development	**X**
c) Yes, mechanisms are in place (please provide details below)	
d) Yes, review of impact of mechanisms available (please provide details below)	

Further comments on the mechanism or approaches to incorporate market and non-market values of biodiversity into relevant plans, policies and programmes.
Such mechanism would also be developed and tested under the Government/ UNDP/GEF "Partnerships for Marine Protected Areas" project.

85. ? Has your country developed training and capacity-building programmes to implement incentive measures and promote private-sector initiatives? (decision III/18)	
a) No	
b) No, but relevant programmes are under development	
c) Yes, some programmes are in place	**X**
d) Yes, many programmes are in place	

For the marine side, since 2004, training and capacity building programme have been developed. Training programmes for fishers operating in the fishing banks are carried out by the Fisheries Training and Extension Centre (FITEC) under the aegis of the Ministry of Agro-Industry and Fisheries (Fisheries Division). Trainings are also imparted to fishers for FAD fishing. The training programmes are generally modular and also cover the marine environment, fisheries laws, hygiene, enforcement, meteorology, safety , amongst others In the other areas, such as agricultural biodiversity, capacity building and training are undertaken by the Agricultural Research and Extension Unit.

86. Does your country take into consideration the proposals for the design and implementation of incentive measures as contained in Annex I to decision VI/15 when designing and implementing incentive measures for the conservation and sustainable use of biodiversity? (decision VI/15)	
a) No	**X**
b) Yes (please provide details below)	

Further information on the proposals considered when designing and implementing the incentive measures for the conservation and sustainable use of biodiversity.
Process not yet undertaken.

87. Has your country made any progress in removing or mitigating policies or practices that generate perverse incentives for the conservation and sustainable use of biological diversity? (decision VII/18)	
a) No	
b) No, but identification of such policies and practices is under way	
c) Yes, relevant policies and practices identified but not entirely removed or mitigated (please provide details below)	**X**
d) Yes, relevant policies and practices identified and removed or mitigated (please provide details below)	

Further information on perverse incentives identified and/or removed or mitigated.

One very good example in terms of policy has been the banning of lagoonal sand extraction which has been also causing tremendous impact in the lagoon and lagoonal water quality.

In terms of 'perverse' incentives, this issue has been quite debatable. However, couple of such measures exist which are felt to be non environment friendly. However, after appropriate study, such measures would be reviewed, re-adjusted while promoting new ones are also being considered, for example, promoting biodiversity conservation on private forest.

Box L.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

In Mauritius, incentives such as social, economic, fiscal measures and technical support already exist at various levels. Most of the incentive measures as well as policy measures are geared towards conservation, protection and sustainable use of biodiversity resources and protection of environment.

A major part concerns the use of resources in agriculture and fisheries sectors as well as in restoration activities. The overall goals are to improve the quality of life whilst promoting conservation and sustainable use of resources.

Other form of incentives such as fiscal incentives also exists in the marine and fisheries sectors, in particular, for investment in new facilities as well as food processing technology. One relevant example is the sea food hub.

Article 12 - Research and training

88.? On Article 12(a), has your country established programmes for scientific and technical education and training in measures for the identification, conservation and sustainable use of biological diversity and its components?

a) No	
b) No, but programmes are under development	
c) Yes, programmes are in place (please provide details below)	**X**

Further information on the programmes for scientific and technical education and training in the measures for identification, conservation and sustainable use of biodiversity.

Scientific and technical education and training in measures pertaining to conservation and sustainable use of biodiversity have been undertaken both as part of formal training programmes at the level of tertiary education/ training as well as hand on trainings at the level of research organizations (in the agro industry and fisheries sectors) such as AREU, FITEC and by certain NGOs, such as Mauritian Wildlife Foundation. Currently, there are modules that have been devised on ecology and have been incorporated in courses imparted at the under graduate and post graduate levels whilst the primary and secondary curriculum also provides for preliminary concepts and measures pertaining to conservation of biodiversity.

Some of the recent and common training programmes include:

Undergraduate degree programme in Biology at the University of Mauritius which incorporates 4 modules related to Ecology

- Training of 2 Assistant Conservator of Forests in forest management.
- Training of 28 forest officers under SADC forestry sector
- Training of 119 forest officers for a certificate in Forestry at the University of Mauritius (partly funded by SADC).
- Training of 15 forest officers in basic GIS techniques (at MSIRI)
- Training of fishers both from Mauritius and Rodrigues
- Training to farmers both from Mauritius and Rodrigues
- Training of private sector people in forest restoration, ecotourism
- Training of 1 member of staff of NGO MWF to receive training in horticulture in UK
- Biodiversity workshop (funded by UNDP) for training of staff in government, university students and NGOs.
- Overseas training under bilateral cooperation programme and regional programmes (for government officers as well as academics/ researchers under the IOC coral reef monitoring project, training on fisheries under JICA programme, training of Government laboratory personnel under the WIO LaB project amongst others)
- Teachers' Training carried out by the Mauritius Institute of Education

89.? On Article 12(b), does your country promote and encourage research which contributes to the conservation and sustainable use of biological diversity?

a) No	
b) Yes (please provide details below)	**X**

Further information on the research which contributes to the conservation and sustainable use of biodiversity.

Research programmes are well established and undertaken in the agro biodiversity, biotechnology and marine sectors. Also research by local and foreign students resulting in higher degrees are encouraged and supported. Incentive programmes in the field of Research and Development include grants from the Tertiary Education Commission and the Mauritius Research Council.

The R&D programme with regard to the agro biodiversity sub-thematic area involve institutions such as the Ministry of Agro Industry and Fisheries, the Mauritius Sugar Industry Research Institute (MSIRI), Food and Agricultural Research Council (FARC), Agricultural Research Extension Unit, University of Mauritius, amongst the key ones.

In the case of Terrestrial and Forest Biodiversity, the NPCS and the Forestry Service of the Ministry of Agro Industry and Fisheries, Mauritian Wildlife Foundation, the University of Mauritius, MSIRI and the FARC are the main actors.

For Inland, Marine and coastal biodiversity, the Abion Fisheries Research Centre of the Ministry of Agro Industry and Fisheries, the Mauritius Oceanographic Institute, UoM, Shoals Rodrigues are the main stakeholders.

The focus of the research on conservation on terrestrial native flora and fauna include:

- the effect of weeding and invasive alien species on native plant regeneration; the effect of introduced animals on native birds; detailed population and ecological studies of pink pigeons; Mauritius fody and Echo parakeet; distribution of native invertebrates; detailed vegetation mapping of Round Island; biology, genetics and ecology of endangered reptiles, amongst others.

Research carried out with regard to the fisheries sector include:

- Long-term monitoring of ecology and water quality of permanent sites including the marine parks; studies on coral bleaching (CORDIO project); study on pesticides and GIS maps for Mauritius and Rodrigues;
- Aquaculture - Research is being undertaken for the development of aquaculture. Seed production of the sea bream, *Rhabdosargus sarba* (gueule pavée) and the marine shrimp *Penaeus monodon* for propagation did not attain expected levels mainly due to lack of spawners from the wild. In the case of the fresh water Cray fish (*Cherax quadricarinatus)* both seed production and grow-out culture trials at La Ferme Experimental Station have given encouraging results. Demands for berri rouge fingerlings for culture in fresh and seawaters were successfully met.
- Stock assessment of tuna, mangrove propagation around the coasts

Other research works carried out by the Mauritius Oceanographic Institute and their status are given below:

1. Mapping of marine ecosystems of the South East coast of Mauritius

The geo-spatial information and mapping project initiated by Mauritius Oceanography Institute (MOI) through the funding by the "Commision de L'Océan Indien" aimed at the construction of a series of maps to classify major coastal habitats and eventually assess their vulnerability to environmental hazards. The study involved both actual field surveys together with the application of satellite/aerial remote sensing. The final output was an atlas for a particular area along the east coast of Mauritius that was launched in August 2005.

2. Validation of the hypoglycaemic effect of the aqueous root extract of *Rhizophora mucronata* in streptozotocin induced diabetic rats.

The Rhizophora mucronata is a plant growing in estuaries. In Mauritius, especially in the fisherman villages, the root extract of this plant is commonly used to lower the blood glucose level of diabetic

patients. Up to now, no scientific work has been undertaken to verify the hypoglycemic potential of the plant. This study was undertaken to validate the hypoglycemic effect of a decoction of the root of *Rhizophora mucronata* (Rhizophoradeae). Results obtained confirmed that the root extracts possess the ability to significantly lower blood glucose level of streptozotocin-induced diabetic rats. Further studies would be undertaken to understand the mechanism of action of the extract.

3. Coral Reef Research Project

The main aim of the project was to make an analysis of the status, bio-diversity and ecology of the reefs of Mauritius and to compare with that of Kenya. While undertaking surveys for that study in April 2004, a bleaching event was affecting the reefs around the island. Data were collected to examine the pattern and intensity of this bleaching episode and the findings have been published. This project was a joint initiative with the Coral Reef Conservation Project (CRCP), Kenya.

4. Database of marine organisms of the Mauritian maritime zone

The correct identification and naming of living organisms is the basis of research in the field of diversity of living organisms and their management. This project aims at producing a database of marine species in Mauritian waters, which will be linked the existing databases on marine organisms such as Marine Species Database for Eastern Africa (MASDEA) and Ocean Biogeographic Information System (OBIS). The Mauritian marine species database will use the World Wide Web for access and networking. The product will also be published in the form of a CD-ROM and will be made available to a wide range of end-users. This database of marine organisms will be a standard reference for research management and training in the field of marine species diversity in Mauritian waters.

5. Bio-prospecting Mauritius waters

The Mauritius Oceanography Institute Act and Vision 2020 document of the then Ministry of Economic Development and Regional Co-operation emphasise the need to sustainably exploit natural products derived from our unique flora and fauna. In that respect and considering the fact that the use of marine organisms towards the unveiling of new drugs is gathering much importance today, the MOI is undertaking a project which entitled: "Biological activities of Marine Substances from Mauritian Waters". This is a joint collaborative project involving local as well as international institutions. The objective of the project is assessing the biological activities of the extract of certain classes of marine organisms which have already given new drugs in use today on some chosen bioassays.

6. Ecology and population genetics of scleractinian corals

This project looks at the molecular relationship across a wide range of scleractinian corals and investigates larval connectivity among reefs locally and regionally using DNA based techniques. As a first phase of the project, the species boundaries between the sympatric *Pavona spp* of Mauritius and Japan are examined. In addition, the population structure of *Pavona spp* between the Indian Ocean (Mauritius, Thailand) and Western Pacific (Japan, Taiwan) are compared. This project is being undertaken in collaboration with Kitasato University, Japan and Academia Sinica, Taiwan.

90. ? On Article 12(c), does your country promote and cooperate in the use of scientific advances in biological diversity research in developing methods for conservation and sustainable use of biological resources?	
a) No	
b) Yes (please provide details below)	**X**

Further information on the use of scientific advances in biodiversity research in developing methods for conservation and sustainable use of biodiversity.

Cooperation in the use of scientific advances in biodiversity research has been promoted for decades.

This includes the introduction of improved genetic material from international research centres (such as maize germplasm, bean, cowpea, ground nuts, pigeon pea, potato, and other vegetables).

Germplasm exchange programme between several sugar cane producing countries and the Mauritius Sugar Industry Research Institute have also taken place. Similarly, one Mauritian variety of potato is planted in the Reunion Island.

Findings of the research carried out are integrated into our management system being constantly amended. The results generated help in developing a more efficient system in our effort for biodiversity conservation.

Visiting experts are encouraged to give talks and share their knowledge when they visit the island

Box LI.

Please elaborate below on the implementation of this article specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

Mauritius has actively promoted and encouraged research for the conservation and sustainable use of biodiversity resources. Research on various components of biodiversity has been undertaken mainly by the competent public organisations in collaboration with UOM and research laboratories as well as some active NGO's. Many of the research have benefited from international supports especially in terms of grants and technical assistance. Officers from public and parastatal organisations have also benefited training under various regional and international training programmes.

In some of the sectors, significant progress have been achieved while in others such as micro-organism, insect biodiversity, sensitive areas such as wetlands and caves ecosystems, etc., much efforts need to be concentrated and funding remain one of the limitations whilst building synergies as the challenge.

Training needs in certain specific areas have been proposed as part of biodiversity programmes under the National Capacity Needs Self Assessment for Global Environmental Management strategy document.

These include fields, amongst others:

1. Taxonomy (Plant, Coral and others aquatic species);
2. Ecosystem Restoration;
3. Alien invasive species management;
4. Herpetology.

Article 13 - Public education and awareness

91. Is your country implementing a communication, education and public awareness strategy and promoting public participation in support of the Convention? (Goal 4.1 of the Strategic Plan)	
a) No	
b) No, but a CEPA strategy is under development	
c) Yes, a CEPA strategy developed and public participation promoted to a limited extent (please provide details below)	
d) Yes, a CEPA strategy developed and public participation promoted to a significant extent (please provide details below)	**X**

Further comments on the implementation of a CEPA strategy and the promotion of public participation in support of the Convention.

Communication, public education and awareness form an integral part of the services offered by the concerned organizations dealing with the various thematic areas under the CBD (both in Mauritius and Rodrigues). Such partnerships also involved statutory bodies, CSOs and NGOs. Public participation has been harnessed through the participation of CSOs and NGOs in workshops and biodiversity related events. The forthcoming Environmental Information Systems which is nearing completion at the Ministry of Environment will bring a new dimension to the aspect of communication with information available on a more frequent basis through a dedicated website and the publication of SOE reporting.

92. Is your country undertaking any activities to facilitate the implementation of the programme of work on Communication, Education and Public Awareness as contained in the annex to decision VI/19? (decision VI/19)	
a) No	
b) No, but some programmes are under development	
c) Yes, some activities are being undertaken (please provide details below)	**X**
d) Yes, many activities are being undertaken (please provide details below)	

Further comments on the activities to facilitate the implementation of the programme of work on CEPA.

At the level of NPCS talks on terrestrial and forest biodiversity and guided tours of the forest are effected upon request by schools. Plants are also given for an endemic corner in the school grounds. Poster exhibitions, brochures, films and newspaper articles are produced regularly. To facilitate public outreach, there is a new visitor's centre on upland forest biodiversity. In Rodrigues, there is a dedicated Education Officer who visits schools regularly and there are weekly weeding days for volunteers in the forest (run by an NGO).

A visitor's centre at Albion Fisheries Research Centre welcomes many visitors on request from all walks of life to the centre and systematic sensitisation is carried out by officers. Officers also go to schools and colleges to give talks on the marine environment and act as resource persons in many scientific forums and symposiums. Talks are also given to fishermen, tourist operators and all users of the marine zone. Posters and pamphlets are produced and distributed to the general public. Open days are organised to give more information on the activities and facilities offered by the Ministry.

Lagoon and Reef Watch Movement: since February 2002, the Mauritius Oceanography Institute has taken the lead of the Lagoon and Reef Watch Movement, which works towards the sensitisation of the Mauritian public on the marine and coastal environment. The Lagoon and Reef Watch Movement

is an initiative of the National Environment Fund, and is unique as it groups governmental and private bodies as well as a number of NGOs. The programme ended in 2004.

At the Regional level, the IOC with the support from the EU has a programme, namely, ARPEGE meant for general environmental awareness raising in the Indian Ocean countries and include a component for training trainers as well as compost making at the primary and secondary schools level.

93. Is your country strongly and effectively promoting biodiversity-related issues through the press, the various media and public relations and communications networks at national level? (decision VI/19)	
a) No	
b) No, but some programmes are under development	**X**
c) Yes, to a limited extent (please provide details below)	
d) Yes, to a significant extent (please provide details below)	

Further comments on the promotion of biodiversity-related issues through the press, the various media and public relations and communications networks at national level.

The Environment Protection Act 2002 provides for the creation of a National Network for Sustainable Development (NWSD). In this context, the Ministry of the Environment has initiated a number of consultation phases with the press people, the NGOs and CBOs, the private sectors amongst others. The issues being discussed also include the biodiversity related matters.

Members of the NWSD include NGOs registered with the ministry of Environment, local authorities, media trust amongst others.

As part of the UNDP/GoM/GEF 'Partnerships for Marine Protected Areas' project, media people would also be trained.

The Mauritius College of the Air prepares programmes on the environment in general including biodiversity in general. Special programmes on the marine environment, marine parks, and importance of coral reefs have been prepared and broadcasted through the national television channel regularly. Similar programme relating to WED themes, pollution matters and other important issues are often debated live on TV and radio channels.

94. Does your country promote the communication, education and public awareness of biodiversity at the local level? (decision VI/19)	
a) No	
b) Yes (please provide details below)	**X**

Further information on the efforts to promote the communication, education and public awareness of biodiversity at the local level.

Details provided above.

95. Is your country supporting national, regional and international activities prioritized by the Global Initiative on Education and Public Awareness? (decision VI/19)	
a) No	
b) No, but some programmes are under development	
c) Yes, some activities supported (please provide details below)	**X**
d) Yes, many activities supported (please provide details below)	

Further comments on the support of national, regional and international activities prioritized by the Global Initiative on Education and Public Awareness.

96. Has your country developed adequate capacity to deliver initiatives on communication, education and public awareness?	
a) No	
b) No, but some programmes are under development	**X**
c) Yes, some programmes are being implemented (please provide details below)	
d) Yes, comprehensive programmes are being implemented (please provide details below)	
Further comments on the development of adequate capacity to deliver initiatives on communication, education and public awareness.	
With regard to education, there is the Mauritius Institute of Education and the University of Mauritius running ongoing capacity building programmes. In general, with regard to communication and public awareness on biodiversity issues, there is insufficient capacity for an effective programme. Attempts to increase capacity on sensitization and public outreach are being made through some programmes in place such as, the ARPEGE project, the WIO LaB project and also the IOC projects.	

97. Does your country promote cooperation and exchange programmes for biodiversity education and awareness at the national, regional and international levels? (decisions IV /10 and VI/19)	
a) No	
b) Yes (please provide details below)	**X**
Further comments on the promotion of cooperation and exchange programmes for biodiversity education and awareness, at the national, regional and international levels.	
In addition to the ARPEGE regional project, other initiatives are also being carried out as part of bilateral (Seychelles and Mauritius; Mauritius and India, Mauritius and Japan etc) and regional cooperation programme. At the regional level, the SADC – Environmental Policy Project that includes water resources and biodiversity management, meant to be used at in five of the SADC member States. Also works jointly with international Organisations like IUCN and UNESCO are ongoing.	

98. Is your country undertaking some CEPA activities for implementation of cross-cutting issues and thematic programmes of work adopted under the Convention?	
a) No (please specify reasons below)	
b) Yes, some activities undertaken for some issues and thematic areas (please provide details below)	**X**
c) Yes, many activities undertaken for most issues and thematic areas (please provide details below)	
d) Yes, comprehensive activities undertaken for all issues and thematic areas (please provide details below)	
Further comments on the CEPA activities for implementation of cross-cutting issues and thematic programmes of work adopted under the Convention.	
Capacity building for education and public awareness through the Mauritius Institute of Education	

99. ? Does your country support initiatives by major groups, key actors and stakeholders that integrate biological diversity conservation matters in their practice and education programmes as well as into their relevant sectoral and cross-sectoral plans, programmes and policies? (decision IV/10 and Goal 4.4 of the Strategic Plan)	
a) No	
b) Yes (please provide details below)	**X**

Further comments on the initiatives by major groups, key actors and stakeholders that integrate biodiversity conservation in their practice and education programmes as well as their relevant sectoral and cross-sectoral plans, programmes and policies.
Close collaboration between the government and NGOs, social groups and private sector interested in conservation exists. Government through the National Environmental Fund also supports a number of activities implemented by NGOs and CBOs. A number of the top ranked firm also reports on initiative that they have supported and also on funds provided to NGOs and CBOs.

100. Is your country communicating the various elements of the 2010 biodiversity target and establishing appropriate linkages to the Decade on Education for Sustainable Development in the implementation of your national CEPA programmes and activities? (decision VII/24)	
a) No	**X**
b) No, but some programmes are under development	
c) Yes, some programmes developed and activities undertaken for this purpose (please provide details below)	
d) Yes, comprehensive programmes developed and many activities undertaken for this purpose (please provide details below)	

Further comments on the communication of the various elements of the 2010 biodiversity target and the establishment of linkages to the Decade on Education for Sustainable Development.

Box LII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.
Raising awareness of the various thematic areas under the CBD at the national level is an ongoing process. These are being carried out through media, fact sheets, public relations materials, video, radio programming, and other means. Such initiatives are being carried out jointly by a team comprising representatives from the key stakeholders and the local media. A number of environmental events such as the World Environment Day, World Biodiversity Day, World Wetland Day, World Water Day, World Meteorological Day, Drought and Desertification Day and so on. are celebrated every year by key stakeholders. Such events are also being used to promote the objectives of the CBD. Education on global environment issues are also being promoted by the national TV station through

documentaries and other programme so as to increase awareness and understanding of the impact of local deforestation, desertification and drought, land and ecosystem degradation, and climate change on sustainable development.

The most important limitations remain funding.

Article 14 - Impact assessment and minimizing adverse impacts

101. On Article 14.1(a), has your country developed legislation requiring an environmental impact assessment of proposed projects likely to have adverse effects on biological diversity?

a) No	
b) No, legislation is still in early stages of development	
c) No, but legislation is in advanced stages of development	
d) Yes, legislation is in place (please provide details below)	X
e) Yes, review of implementation available (please provide details below)	

Further information on the legislation requiring EIA of proposed projects likely to have adverse effects on biodiversity.

The Environment Protection Act 2002 provide for the preparation of a preliminary environmental report in respect of activities specified under Part A of the First Schedule and also the need for an Environmental Impact Assessment licence in respect of undertaking specified in Part B and Part C of the First Schedule.

The First Schedule of the Environment Protection Act 2002 includes a list of undertakings that warrants an environmental impact assessment licence prior to execution of the project / undertaking. This applies to projects implemented by both public and private sectors.

EIA has proved to be one of the most powerful tools having the ultimate objective of providing decision makers with an indication of the likely environmental consequences of a proposed activity.

Biodiversity and the adverse impacts on the flora and fauna are addressed during the EIA mechanism for all scheduled activities.

Furthermore , some of the relevant undertakings requiring an Environment Impact Assessment include :-

- Conversion of forest land to other land use
- Land clearing and development in environmentally sensitive areas such as water catchment areas, waterlogged areas , mountain slopes and islets; construction of marinas, golf course;
- Development on Wetlands; Hotel (coastal) development
- Lagoon dredging and reprofiling of sea beds including creation of bathing areas
- Sea outfall; Undersea walk; desalination; sewage outfall;

102. On Article 14.1(b), has your country developed mechanisms to ensure that due consideration is given to the environmental consequences of national programmes and policies that are likely to have significant adverse impacts on biological diversity?

a) No	
b) No, mechanisms are still in early stages of development	
c) No, but mechanisms are in advanced stages of development	

d) Yes, mechanisms are in place (please provide details below)	X

Further comments on the mechanisms developed to ensure that due consideration is given to the environmental consequences of national programmes and policies that are likely to have significant adverse impacts on biodiversity.

The Part C of the First Schedule of the Environment Protection Act 2002 includes a list of undertakings that warrants a Strategic EIA prior to execution of the listed national programme/ undertaking. National programmes and policies including housing development programme, integrated coastal zone management plan, industrial estates, land and transport management plan, national development plan, outline schemes, and so on require a strategic EIA. This applies to projects implemented by both public and private sectors.

National programmes and policies are usually set up, monitored and evaluated through national consultations and inter-ministerial committees where the relevant authorities and interested stakeholders take care of the biodiversity issues.

In general, most national programmes and policies undergo wide consultation such that NGOs and the public at large have the opportunity to consult the documents and provide their comments. These comments are then analysed at the level of the Ministry of Environment and the EIA Committee.

103. ? On Article 14.1(c), is your country implementing bilateral, regional and/or multilateral agreements on activities likely to significantly affect biological diversity outside your country's jurisdiction?

a) No	
b) No, but assessment of options is in progress	
c) Yes, some completed, others in progress (please provide details below)	X
d) Yes (please provide details below)	

Further information on the bilateral, regional and/or multilateral agreements on activities likely to significantly affect biodiversity outside your country's jurisdiction.

Mauritius has signed a number of regional and multilateral agreements. With regard to liability and compensation for damages to biodiversity resources , Mauritius is a Party to the Conventions on

1. Civil Liability for Oil Pollution Damage (CLC) 69 Protocol 1976;
2. the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND) 1971 and Protocol of 1976
3. Convention on Migratory Species
4. African Eurasian Waterbird Agreement
5. UNFCCC

There are also provisions in the national legislation for severe penalties as well as compensations against illegal activities regarding the both endemic/endangered flora and fauna.

On a bilateral basis, there exists a tuna agreement with country such as Seychelles and at the regional level, Mauritius has signed the IOSEA MOU on Turtle. Mauritius has also been actively contributing in the development of an IOSEA MOU on Dugong conservation.

104. ? On Article 14.1(d), has your country put mechanisms in place to prevent or minimize danger or damage originating in your territory to biological diversity in the territory of other Parties or in areas beyond the limits of national jurisdiction?

a) No	
b) No, mechanisms are still in early stages of development	

c) No, but mechanisms are in advanced stages of development	
d) Yes, mechanisms are in place based on current scientific knowledge	**x**

As part of the Regional IOC Oil Spill project funded by the World Bank, a regional oil spill contingency plan has been developed for the Western Indian Ocean countries. This project has been completed. And the regional plan is available. A regional centre has also been established in Madagascar whilst countries in the region in question has also received equipment and training with regard to oil spill combat and planning.

105. ? On Article 14.1(e), has your country established national mechanisms for emergency response to activities or events which present a grave and imminent danger to biological diversity?

a) No	
b) No, mechanisms are still in early stages of development	
c) No, but mechanisms are in advanced stages of development	
d) Yes, mechanisms are in place (please provide details below)	**X**

Further information on national mechanisms for emergency response to the activities or events which present a grave and imminent danger to biodiversity.

Nationally, the EPA 2002 provides for the National Oil Spill Contingency planning. A National Oil Spill Contingency Plan and the Port Louis Harbour Oil Spill Response Plan have been developed and tested a number of times (at least once annually). In the case of Rodrigues, a similar plan exists. Private oil companies in Mauritius also have their response plans and sets of equipment as well.

Contingency plans against the (re)introduction of invasive species and fire on islets, these form part of the management plans in place for several of the offshore islets.

106. Is your country applying the Guidelines for Incorporating Biodiversity-related Issues into Environment-Impact-Assessment Legislation or Processes and in Strategic Impact Assessment as contained in the annex to decision VI/7 in the context of the implementation of paragraph 1 of Article 14? (decision VI/7)

a) No	
b) No, but application of the guidelines under consideration	
c) Yes, some aspects being applied (please specify below)	
d) Yes, major aspects being applied (please specify below)	**x**

Further comments on application of the guidelines.

Biodiversity related issues are already enshrined in the PER and EIA process. The EIA mechanism involves the following steps, namely screening, scoping, impact assessment, identification of mitigation measures, analysis of alternatives of the project and development of a monitoring programme and environmental management plan. The Strategic Impact Assessment also involves the above stages.

107. On Article 14 (2), has your country put in place national legislative, administrative or policy measures regarding liability and redress for damage to biological diversity? (decision VI/11)

a) No	
b) Yes (please specify the measures)	x

Further comments on national legislative, administrative or policy measures regarding liability and redress for damage to biological diversity.

A legal framework exists for the protection of key habitats, nature reserves and restoration of some of the unique ecosystems of Mauritius. Polluter Pays Principles are incorporated/ internalised in those legislations. Some of the most important ones are :

- Environment Protection Act 2002 provide for oil spill combat and the National Oil Spill contingency Plan provide for the cost recovery.
- Fisheries and Marine Resources Act 1998 and Regulations
- Wildlife and National Parks Act ,1993
- Forests and Reserve Acts 1983 including the National Parks and Reserve Regulations (1996) and the Wildlife Regulations (1998)
- Plants Act 1976
- Pas Geometriques Act 1895
- Planning and Development Act 2004
- Botanical Gardens Regulations 1922
- Plants (Pest and Disease Control) Regulations 1984
- Plant protection Act 2006

108. Has your country put in place any measures to prevent damage to biological diversity?	
a) No	
b) No, but some measures are being developed	
c) Yes, some measures are in place (please provide details below)	**x**
d) Yes, comprehensive measures are in place (please provide details below)	

Further information on the measures in place to prevent damage to biological diversity.

There are certain clauses within the national legislation which detail penalties associated with damage to biological diversity. Additionally specific measures are in place for the various thematic areas. Examples of measures for the marine biodiversity include protection of mangroves, shells and corals, FPS, closed seasons, buy back policy for large nets amongst others.

Monitoring programmes are in place. Water quality is monitored regularly to detect pollution.

109. Is your country cooperating with other Parties to strengthen capacities at the national level for the prevention of damage to biodiversity, establishment and implementation of national legislative regimes, policy and administrative measures on liability and redress? (decision VI/11)	
a) No	
b) No, but cooperation is under consideration	
c) No, but cooperative programmes are under development	
d) Yes, some cooperative activities being undertaken (please provide details below)	**x**
e) Yes, comprehensive cooperative activities being undertaken (please provide details below)	

Further comments on cooperation with other Parties to strengthen capacities for the prevention of damage to biodiversity.

As part of the Western Indian Ocean Regional Oil Contingency Planning project, Mauritius along with

other countries of the western Indian ocean benefited training in the development of ESAs mappings, and other relevant training programme

Box LIII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.
Mauritius has a well developed mechanism for EIA. The EPA and other legislations also provide framework for protection biodiversity resources as well as provision for administrative or policy measures regarding liability and redress for damage to biological diversity. The EIA is considered as one of the most important tools to ensure environmental sustainability and it has gained wide acceptance at all levels.

Article 15 - Access to genetic resources

110. ? Has your country endeavored to facilitate access to genetic resources for environmentally sound uses by other Parties, on the basis of prior informed consent and mutually agreed terms, in accordance with paragraphs 2, 4 and 5 of Article 15?	
a) No	
b) Yes (please provide details below)	**X**

Further information on the efforts taken by your country to facilitate access to genetic resources for environmentally sound uses by other Parties, on the basis of prior informed consent and mutually agreed terms.
A Material Transfer Agreement (MTA) for any biological material (native and exotic) has been developed and approved by the State Law Office. A plant Breeder's Right Bill has already been drafted to take on board the issue of IPR. This bill includes a section on accession of PGR sharing of benefits and sustainability. There is an established quarantine system. All agricultural materials for imports should have a prior informed consent on mutually agreed terms before importation. In case of genetic material, a bill is under preparation and it is in line with provisions of WTO and PGRFA of CBD.

111. ? Has your country taken measures to ensure that any scientific research based on genetic resources provided by other Parties is developed and carried out with the full participation of such Parties, in accordance with Article 15(6)?	
a) No	
b) No, but potential measures are under review	**X**
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	

Further information on the measures to ensure that any scientific research based on genetic resources provided by other Contracting Parties is developed and carried out with the full participation of such Contracting Parties.

112. ? Has your country taken measures to ensure the fair and equitable sharing of the results of research and development and of the benefits arising from the commercial and other use of genetic resources with any Contracting Party providing such resources, in accordance with Article 15(7)?	
a) No	
b) No, but potential measures are under review	**X**
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive legislation is in place (please provide details below)	
e) Yes, comprehensive statutory policy or subsidiary legislation are in place (please provide details below)	
f) Yes, comprehensive policy and administrative measures are in place (please provide details below)	
Further information on the type of measures taken.	
Refer to the MTA mentioned above which takes on board the issue of benefit sharing arising out of commercial use. The forthcoming Plant Breeder's Right Bill will also cater for IPR and transfer of germplasm.	

113. ? In developing national measures to address access to genetic resources and benefit-sharing, has your country taken into account the multilateral system of access and benefit-sharing set out in the International Treaty on Plant Genetic Resources for Food and Agriculture?	
a) No	
b) Yes (please provide details below)	**X**
Further information on national measures taken which consider the multilateral system of access and benefit-sharing as set out in the International Treaty on Plant Genetic Resources for Food and Agriculture.	
The forthcoming Plant Breeder's Right Bill has taken care of the TPGRFA. In addition, Mauritius has adhered to the "Global Crop Diversity Trust' of the FAO.	

114. Is your country using the Bonn Guidelines when developing and drafting legislative, administrative or policy measures on access and benefit-sharing and/or when negotiating contracts and other arrangements under mutually agreed terms for access and benefit-sharing? (decision VII/19A)	
a) No	
b) No, but steps being taken to do so (please provide details below)	
c) Yes (please provide details below)	**X**
Please provide details and specify successes and constraints in the implementation of the Bonn Guidelines.	
Some principles of the Bonn guidelines have been used in preparing the MTA	

115. Has your country adopted national policies or measures, including legislation, which address the role of intellectual property rights in access and benefit-sharing arrangements (i.e. the issue of disclosure of origin/source/legal provenance of genetic resources in applications for intellectual property rights where the subject matter of the application concerns, or makes use of, genetic resources in its development)?	
a) No	
b) No, but potential policies or measures have been identified (please specify below)	
c) No, but relevant policies or measures are under development (please specify below)	**X**
d) Yes, some policies or measures are in place (please specify below)	
e) Yes, comprehensive policies or measures adopted (please specify below)	
Further information on policies or measures that address the role of IPR in access and benefit-sharing arrangements.	
The Plant Breeder's Right Bill takes into consideration IPR in access and benefit- sharing arrangements.	

116. Has your country been involved in capacity-building activities related to access and benefit-sharing?	
a) Yes (please provide details below)	**X**
b) No	
Please provide further information on capacity-building activities (your involvement as donor or recipient, key actors involved, target audience, time period, goals and objectives of the capacity-building activities, main capacity-building areas covered, nature of activities). Please also specify whether these activities took into account the Action Plan on capacity-building for access and benefit-sharing adopted at COP VII and available in annex to decision VII/19F.	
Representative from the Ministry of Environment, the National Parks and Conservation Service and the MSIRI participated in a capacity building workshop (I week) on ABS in Seychelles and funded by IEPF. Mauritius is also a recipient of courses/ seminar/ or activities on access and benefit sharing from the SADC and European countries.	

Box LIV.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;

b) contribution to the achievement of the goals of the Strategic Plan of the Convention;

c) contribution to progress towards the 2010 target;

d) progress in implementing national biodiversity strategies and action plans;

e) contribution to the achievement of the Millennium Development Goals;

f) constraints encountered in implementation.

Access to genetic resources as well as access and benefit sharing is considered as important issue. The absence of appropriate legislations is hampering the development in the agricultural sector.

The Ministry of Agro Industry and Fisheries and other parastatal organizations have benefited from capacity building in terms of equipment, training programmes, management practices and maintenance of *ex-situ* facilities as part of various training programme at the regional and international levels through international centers such as IPGRI and SPGRC.

Article 16 - Access to and transfer of technology

117. ? On Article 16(1), has your country taken measures to provide or facilitate access for and transfer to other Parties of technologies that are relevant to the conservation and sustainable use of biological diversity or make use of genetic resources and do not cause significant damage to the environment?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	**X**
d) Yes, comprehensive measures are in place (please provide details below)	

Further information on the measures to provide or facilitate access for and transfer to other Parties of technologies that are relevant to the conservation and sustainable use of biodiversity or make use of genetic resources and do not cause significant damage to the environment.

There are extensive collaboration and transfer of technology between stakeholders within the country, and experts abroad. Many of these collaborations are long-standing.

e.g. Intensive management of critically endangered bird species, Conservation Management Areas development, and invasive species control from islets.

Exchange of personnel has also been carried out.

There is an MTA in place to facilitate material transfer (See Article 15)

118. ? On Article 16(3), has your country taken measures so that Parties which provide genetic resources are provided access to and transfer of technology which make use of those resources, on mutually agreed terms?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place	**X**
d) Yes, comprehensive legislation is in place	
e) Yes, comprehensive statutory policy or subsidiary legislation are in place	
f) Yes, comprehensive policy and administrative arrangements are in place	
g) Not applicable	

119. ? On Article 16(4), has your country taken measures so that the private sector facilitates access to joint development and transfer of relevant technology for the benefit of Government institutions and the private sector of developing countries?	
a) No	

b) No, but potential measures are under review	
c) Yes, some policies and measures are in place (please provide details below)	**X**
d) Yes, comprehensive policies and measures are in place (please provide details below)	
e) Not applicable	

Further information on the measures taken.

Through Memorandum of Agreements, there exists administrative arrangement that enable access and exchange/ transfer of technology and information in some of the biodiversity sectors. The exchange of genetic material/ transfer of technology are rather between scientific and technical institutions/ centers.

Box LV.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

Programme of Work on transfer of technology and technology cooperation

120. Has your country provided financial and technical support and training to assist in the implementation of the programme of work on transfer of technology and technology cooperation? (decision VII/29)

a) No	
b) No, but relevant programmes are under development	**X**
c) Yes, some programmes being implemented (please provide details below)	
d) Yes, comprehensive programmes being implemented (please provide details below)	

Further comments on the provision of financial and technical support and training to assist in the implementation of the programme of work on transfer of technology and technology cooperation.

Research programme related to biodiversity are being supported by the Tertiary Education Commission and the Mauritius Research Council.

121. Is your country taking any measures to remove unnecessary impediments to funding of multi-country initiatives for technology transfer and for scientific and technical cooperation? (decision VII/29)

a) No	
b) No, but some measures being considered	**X**
c) Yes, some measures are in place	
d) Yes, comprehensive measures are in place (please provide details below)	

Further comments on the measures to remove unnecessary impediments to funding of multi-country initiatives for technology transfer and for scientific and technical cooperation.

122. Has your country made any technology assessments addressing technology needs, opportunities and barriers in relevant sectors as well as related needs in capacity building? (annex to decision VII/29)

a) No	
b) No, but assessments are under way	
c) Yes, basic assessments undertaken	**X**
d) Yes, thorough assessments undertaken (please provide details below)	

Further comments on technology assessments addressing technology needs, opportunities and barriers in relevant sectors as well as related needs in capacity building.

As part of the National Capacity Self Assessment project. Also the Food and Agricultural Research Council has elaborated a 'Master' Plan for development in Agriculture and Biotechnology. The report stresses on technological needs and an elaborate programme with a clear objective to meet the national target.

123. Has your country made any assessments and risk analysis of the potential benefits, risks and associated costs with the introduction of new technologies? (annex to decision VII/29)

a) No	**X**
b) No, but assessments are under way	
c) Yes, some assessments undertaken (please provide details below)	
d) Yes, comprehensive assessments undertaken (please provide details below)	

Further comments on the assessments and risk analysis of the potential benefits, risks and associated costs with the introduction of new technologies.

124. Has your country identified and implemented any measures to develop or strengthen appropriate information systems for technology transfer and cooperation, including assessing capacity building needs? (annex to decision VII/29)

a) No	
b) No, but some programmes are under development	**X**
c) Yes, some programmes are in place and being implemented (please	

provide details below)	
d) Yes, comprehensive programmes are being implemented (please provide details below)	

Further comments on measures to develop or strengthen appropriate information systems for technology transfer and cooperation.

Some needs have been identified as part of the NCSA project.

125. Has your country taken any of the measures specified under Target 3.2 of the programme of work as a preparatory phase to the development and implementation of national institutional, administrative, legislative and policy frameworks to facilitate cooperation as well as access to and adaptation of technologies of relevance to the Convention? (annex to decision VII/29)

a) No	**X**
b) No, but a few measures being considered	
c) Yes, some measures taken (please specify below)	
d) Yes, many measures taken (please specify below)	

Further comments on the measures taken as a preparatory phase to the development and implementation of national institutional, administrative, legislative and policy frameworks to facilitate cooperation as well as access to and adaptation of technologies of relevance to the Convention.

Box LVI.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

Article 17 - Exchange of information

126. ? On Article 17(1), has your country taken measures to facilitate the exchange of information from publicly available sources with a view to assist with the implementation of the Convention and promote technical and scientific cooperation?

a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place	**X**
d) Yes, comprehensive measures are in place	

The following question (127) is for DEVELOPED COUNTRIES

127. ? On Article 17(1), do these measures take into account the special needs of developing countries and include the categories of information listed in Article 17(2), such as technical, scientific and socio-economic research, training and surveying programmes, specialized knowledge, repatriation of information and so on?	
a) No	
b) Yes, but they do not include the categories of information listed in Article 17(2), such as technical, scientific and socio-economic research, training and surveying programmes, specialized knowledge, repatriation of information and so on	
c) Yes, and they include categories of information listed in Article 17 (2), such as technical, scientific and socio-economic research, training and surveying programmes, specialized knowledge, repatriation of information and so on	

Box LVII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

Article 18 - Technical and scientific cooperation

128. ? On Article 18(1), has your country taken measures to promote international technical and scientific cooperation in the field of conservation and sustainable use of biological diversity?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place (please provide details below)	**X**
d) Yes, comprehensive measures are in place (please provide details below)	
Further information on the measures to promote international technical and scientific cooperation.	
There are a number of agreements with international conservation organizations, international research centers, academic institutions, bilateral cooperation programme with governments of other countries to help in the conservation of biodiversity. Such cooperation also exists at the regional level through the IOC projects.	

129. ? On Article 18(4), has your country encouraged and developed methods of cooperation for the development and use of technologies, including indigenous and traditional technologies, in pursuance of the objectives of this Convention?	
a) No	(Not applicable)

b) No, but relevant methods are under development	
d) Yes, methods are in place	

130. ? On Article 18(5), has your country promoted the establishment of joint research programmes and joint ventures for the development of technologies relevant to the objectives of the Convention?	
a) No	**X**
b) Yes (please provide some examples below)	
Examples for the establishment of joint research programmes and joint ventures for the development of technologies relevant to the objectives of the Convention.	
Some limited joint ventures were set up in the past. There has been no recent such projects in the context of biodiversity conservation.	

131. Has your country established links to non-governmental organizations, private sector and other institutions holding important databases or undertaking significant work on biological diversity through the CHM? (decision V/14)	
a) No	
b) No, but coordination with relevant NGOs, private sector and other institutions under way	
c) Yes, links established with relevant NGOs, private sector and institutions	**X** (but CHM is not in place yet)

The following question (132) is for DEVELOPED COUNTRIES

132. Has your country further developed the CHM to assist developing countries and countries with economies in transition to gain access to information in the field of scientific and technical cooperation? (decision V/14)	
a) No	Not Applicable
b) Yes, by using funding opportunities	
c) Yes, by means of access to, and transfer of technology	
d) Yes, by using research cooperation facilities	
e) Yes, by using repatriation of information	
f) Yes, by using training opportunities	
g) Yes, by using promotion of contacts with relevant institutions, organizations and the private sector	
h) Yes, by using other means (please specify below)	
Further comments on CHM developments to assist developing countries and countries with economies in transition to gain access to information in the field of scientific and technical cooperation.	

133. Has your country used CHM to make information available more useful for researchers and decision-makers? (decision V/14)	
a) No	**X**
b) No, but relevant initiatives under consideration	
c) Yes (please provide details below)	
Further comments on development of relevant initiatives.	

134. Has your country developed, provided and shared services and tools to enhance and facilitate the implementation of the CHM and further improve synergies among biodiversity-related Conventions? (decision V/14)	
a) No	**X**
b) Yes (please specify services and tools below)	
Further comments on services and tools to enhance and facilitate the implementation of CHM and further improve synergies among biodiversity-related Conventions.	

Box LVIII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

Article 19 - Handling of biotechnology and distribution of its benefits

135. ? On Article 19(1), has your country taken measures to provide for the effective participation in biotechnological research activities by those Contracting Parties which provide the genetic resources for such research?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place	**X**
d) Yes, comprehensive legislation are in place	
e) Yes, comprehensive statutory policy and subsidiary legislation are in place	
f) Yes, comprehensive policy and administrative measures are in place	

136. ? On Article 19(2), has your country taken all practicable measures to promote and advance priority access by Parties, on a fair and equitable basis, to the results and benefits arising from biotechnologies based upon genetic resources provided by those Parties?	
a) No	
b) No, but potential measures are under review	
c) Yes, some measures are in place	**X**
d) Yes, comprehensive measures are in place	

Box LIX.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

Mauritius has signed the Cartagena Protocol. Several measures are being set in place. These include, *inter alia*,

1. Enactment of the GMO ACt. The legislation addresses certain measures that ensure responsible development, production, use, importation, exportation and marketing of GMOs;
2. setting up a of National Biosafety Committee, and
3. Public awareness of biotechnology and biosafety at the national level.

The development and application of biotechnology in Mauritius may be considered to be at a preliminary stage in the various institutions, but the knowledge and technical capacities are rapidly increasing. Presently, various institutions are devoted to agricultural researches. A number of institutions, including the University of Mauritius has a Research and Development (R&D) programme in biotechnology comprising tissue culture, disease diagnosis by recombinant DNA technology, marker assisted selections, plant genome mapping and genetic engineering.

Article 20 – Financial resources

Box LX.

Please describe for each of the following items the quantity of financial resources, both internal and external, that have been utilized, received or provided, as applicable, to implement the Convention on Biological Diversity, on an annual basis, since your country became a Party to the Convention.	
a) Budgetary allocations by national and local Governments as well as different sectoral ministries	About 35 million USD annually (This includes both recurrent and capital measures on fisheries, environmental management, Parks management, agricultural services, waste waster management, agricultural research and extension programme, support to NGOs through special fund
b) Extra-budgetary resources (identified by donor agencies)	Around 270,000 USD on average in a year by GEF for the past 14 years or so through the various Implementing Agencies. Mauritius has also benefited the support from the European Commission as part of the 7th and 8th European Development Funds to the tune of 14.29 m€ and 22.33 m€ respectively. The support was mainly on the waste water sector and environment in general. Under the 9th EDF Country Support Strategy agreed between the EC and the Government of Mauritius, 85% of the funds has been earmarked as sector policy support programme (through budgetary aid) directed to the waste water sector.
c) Bilateral channels (identified by donor agencies)	No in cash benefits, rather in the form of cooperation and in kind contributions
d) Regional channels (identified by donor agencies)	No in cash benefits, rather in the form of cooperation and in kind contributions
e) Multilateral channels (identified by donor agencies)	No in cash benefits, rather in the form of cooperation and in kind contributions
f) Private sources (identified by donor agencies)	Figure is negligible and is not available
g) Resources generated through financial instruments, such as charges for use of biodiversity	Fees collected in the form of environment protection fee paid by hotels and Boarding houses (0.75% of the annual turnover) Also money from monkey export.

Box LXI.

Please describe in detail below any major financing programmes, such as biodiversity trust funds or specific programmes that have been established in your country.
The EPA provides for the National Environment Fund. Coastal Hotels and Boarding Houses (with more than 4 bedrooms) are required to pay an environment protection fee of 0.75% of their annual turnover. The Ministry of AgroIndustry and Fisheries allocate an annual export quota of feral *Macaca fascicularis* to local firms (three) totaling some 6000 heads per year. A contribution of USD 50 per head is credited into the National Parks and Conservation Fund which has been created under the Wildlife and National Park Act. The Section 17 (1) © of this Act also provide for the delivery of payment of a fee of Rs 100. / Permit and this payment is also credited into the conservation fund.

137. ? On Article 20(1), has your country provided financial support and incentives to those national activities that are intended to achieve the objectives of the Convention?	
a) No	
b) Yes, incentives only (please provide a list of such incentives below)	
c) Yes, financial support only	
d) Yes, financial support and incentives (please provide details below)	
Further comments on financial support and incentives provided.	
As indicated above, most of the funding also geared towards conservation and protection of biodiversity resources (whether directly or indirectly) is provided by the Government of Mauritius. These are mainly revenues derived from the taxations systems prevailing in Mauritius and the funds created. These are being used to fully support biodiversity and environment related projects/ programme/ activities implemented by NGOs, private and public sectors.	

The next question (138) is for DEVELOPED COUNTRIES

138. ? On Article 20(2), has your country provided new and additional financial resources to enable developing country Parties to meet the agreed incremental costs to them of implementing measures which fulfill the obligations of the Convention?	
a) No	(not applicable)
b) Yes (please indicate the amount, on an annual basis, of new and additional financial resources your country has provided)	
Further comments on new and additional financial resources provided.	

The next question (139) is for DEVELOPING COUNTRIES OR COUNTRIES WITH ECONOMIES IN TRANSITION

139. ? On Article 20(2), has your country received new and additional financial resources to enable it to meet the agreed full incremental costs of implementing measures which fulfill the obligations of the Convention?	
a) No	
b) Yes	**X**

140. ? Has your country established a process to monitor financial support to biodiversity, including support provided by the private sector? (decision V/11)	
a) No	
b) No, but procedures being established	
c) Yes (please provide details below)	**X**
Further comments on processes to monitor financial support to biodiversity, including support provided by the private sector.	
Procedure exists at the level of government to monitor financial support. However, with regard to private sector funding, these are provided by the private firm in an annual report and also financial statements. These reports are submitted to the Registrar of Companies and may be checked as and	

when required.

141. ? Has your country considered any measures like tax exemptions in national taxation systems to encourage financial support to biodiversity? (decision V/11)	
a) No	
b) No, but exemptions are under development (please provide details below)	
c) Yes, exemptions are in place (please provide details below)	**X**

Further comments on tax exemptions for biodiversity-related donations.

Incentives and exemptions are in place for certain project such as Integrated Resort Scheme. If promoter wish to bring innovative technologies into application and which are environment friendly, such initiative may also benefit a 'pioneer' certificate with relevant tax exemptions.

142. Has your country reviewed national budgets and monetary policies, including the effectiveness of official development assistance allocated to biodiversity, with particular attention paid to positive incentives and their performance as well as perverse incentives and ways and means for their removal or mitigation? (decision VI/16)	
a) No	
b) No, but review is under way	**X**
c) Yes (please provide results of review below)	

Further comments on review of national budgets and monetary policies, including the effectiveness of official development assistance.

143. Is your country taking concrete actions to review and further integrate biodiversity considerations in the development and implementation of major international development initiatives, as well as in national sustainable development plans and relevant sectoral policies and plans? (decisions VI/16 and VII/21)	
a) No	**X**
b) No, but review is under way	
c) Yes, in some initiatives and plans (please provide details below)	
d) Yes, in major initiatives and plans (please provide details below)	

Further comments on review and integration of biodiversity considerations in relevant initiatives, policies and plans.

144. Is your country enhancing the integration of biological diversity into the sectoral development and assistance programmes? (decision VII/21)	
a) No	
b) No, but relevant programmes are under development	

c) Yes, into some sectoral development and assistance programmes (please provide details below)	
d) Yes, into major sectoral development and assistance programmes (please provide details below)	**X**

Further comments on the integration of biodiversity into sectoral development and assistance programmes
Biodiversity has been integrated in the major development plans such as the National Development Strategy, the Non Sugar Sector Strategy Plan, the Tourism Development Plan, and the National Environmental Strategies amongst others. Biodiversity conservation and management is also one of the areas entitled to receive assistance from the National Environment Fund and the Conservation Fund.

The next question (145) is for DEVELOPED COUNTRIES

145. Please indicate with an "**X**" in the table below in which area your country has provided financial support to developing countries and/or countries with economies in transition. Please elaborate in the space below if necessary.

Areas	**Support provided**
a) Undertaking national or regional assessments within the framework of MEA (decision VI/8)	
b) *In-situ* conservation (decision V/16)	
c) Enhance national capacity to establish and maintain the mechanisms to protect traditional knowledge (decision VI/10)	
d) *Ex-situ* conservation (decision V/26)	
e) Implementation of the Global Strategy for Plant Conservation (decision VI/9)	
f) Implementation of the Bonn Guidelines (decision VI/24)	
g) Implementation of programme of work on agricultural biodiversity (decision V/5)	
h) Preparation of first report on the State of World's Animal Genetic Resources (decision VI/17)	
i) Support to work of existing regional coordination mechanisms and development of regional and sub regional networks or processes (decision VI/27)	
j) Development of partnerships and other means to provide the necessary support for the implementation of the programme of work on dry and subhumid lands biological diversity (decision VII/2)	
k) Financial support for the operations of the Coordination Mechanism of the Global Taxonomy Initiative (decision VII/9)	
l) Support to the implementation of the Action Plan on Capacity Building as contained in the annex to decision VII/19 (decision VII/19)	
m) Support to the implementation of the programme of work on mountain biological diversity (decision VII/27)	
n) Support to the implementation of the programme of work on protected areas	

(decision VII/28)	
o) Support to the development of national indicators (decision VII/30)	
p) Others (please specify)	

Further information on financial support provided to developing countries and countries with economies in transition.

Box LXII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on: g) outcomes and impacts of actions taken; h) contribution to the achievement of the goals of the Strategic Plan of the Convention; i) contribution to progress towards the 2010 target; j) progress in implementing national biodiversity strategies and action plans; k) contribution to the achievement of the Millennium Development Goals; l) constraints encountered in implementation.

The next question (146) is for DEVELOPING COUNTRIES OR COUNTRIES WITH ECONOMIES IN TRANSITION

146. Please indicate with an "**X**" in the table below in which areas your country has applied for funds from the Global Environment Facility (GEF), from developed countries and/or from other sources. The same area may have more than one source of financial support. Please elaborate in the space below if necessary.

Areas	**Applied for funds from**		
	GEF	**Bilateral**	**Other**
a) Preparation of national biodiversity strategies or action plans	**X**		
b) National capacity self-assessment for implementation of Convention (decision VI/27)	**X**		
c) Priority actions to implement the Global Taxonomy Initiative (decision V/9)			
d) *In-situ* conservation (decision V/16)			**X**
e) Development of national strategies or action plans to deal with alien species (decision VI/23)			
f) *Ex-situ* conservation, establishment and maintenance of *Ex-situ* conservation facilities (decision V/26)			**X**
g) Projects that promote measures for implementing Article 13 (Education and Public Awareness) (decision VI/19)	**X**		**X**

h) Preparation of national reports (decisions III/9, V/19 and VI/25)	**X**		
i) Projects for conservation and sustainable use of inland water biological diversity (decision IV/4)			
j) Activities for conservation and sustainable use of agricultural biological diversity (decision V/5)			**X**
k) Implementation of the Cartagena Protocol on Biosafety (decision VI/26)	**X**		
l) Implementation of the Global Taxonomy Initiative			
m) Implementation of the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity			
n) Others (please specify)			

Further information on application for financial support.

As indicated above, most of the funding geared towards conservation and protection of biodiversity resources (whether directly or indirectly) is provided by the Government of Mauritius. These are mainly revenues derived from the taxations systems prevailing in Mauritius and the funds created. These are being used to fully support biodiversity and environment related projects/ programme/ activities implemented by NGOs, private and public sectors.

D. THEMATIC AREAS

147. Please use the scale indicated below to reflect the level of challenges faced by your country in implementing the thematic programmes of work of the Convention (marine and coastal biodiversity, agricultural biodiversity, forest biodiversity, inland waters biodiversity, dry and sub-humid lands and mountain biodiversity).

3 = High Challenge	1 = Low Challenge
2 = Medium Challenge	0 = Challenge has been successfully overcome
N/A = Not applicable	

Challenges	Programme of Work					
	Agricultural	**Forest**	**Marine and coastal**	**Inland water ecosystem**	**Dry and subhumid lands**	**Mountain**
a. Lack of political will and support	1	1	1	2	Considered not applicable for Mauritius and Rodrigues	Integrated with the Forest Prog. of work
b. Limited public participation and stakeholder involvement	1	1	1	2		
c. Lack of main-streaming and integration of biodiversity issues into other sectors	1	1	1	3		

d. Lack of precautionary and proactive measures	1	1	1	2		
e. Inadequate capacity to act, caused by institutional weakness	1	2	1	3		
f. Lack of transfer of technology and expertise	2	2	2	3		
g. Loss of traditional knowledge	3	1	1	na		
h. Lack of adequate scientific research capacities to support all the objectives	1	1	1	3		
i. Lack of accessible knowledge and information	2	1	1	3		
j. Lack of public education and awareness at all levels	1	1	1	3		
k. Existing scientific and traditional knowledge not fully utilized	1	1	1	2		
l. Loss of biodiversity and the corresponding goods and services it provides not properly understood and documented	1	1	1	2		
m. Lack of financial, human, technical resources	1	2	2	3		
n. Lack of economic incentive measures	1	1	1	2		
o. Lack of benefit-sharing	2	1	1	2		
p. Lack of synergies at national and international levels	2	1	1	2		
q. Lack of horizontal cooperation among stakeholders	2	2	2	2		
r. Lack of effective partnerships	1	1	1	2		
s. Lack of engagement of scientific community	1	1	2	3		

t. Lack of appropriate policies and laws	1	1	1	2		
u. Poverty	0	0	0	0		
v. Population pressure	1	1	1	2		
w. Unsustainable consumption and production patterns	2	1	2	3		
x. Lack of capacities for local communities	2	2	2	2		
y. Lack of knowledge and practice of ecosystem-based approaches to management	2	2	2	2		
z. Weak law enforcement capacity	1	2	2	3		
aa. Natural disasters and environmental change	2	2	2	2		

Inland water ecosystems

148. Has your country incorporated the objectives and relevant activities of the programme of work into the following and implemented them? (decision VII/4)

Strategies, policies, plans and activities	No	Yes, partially, integrated but not implemented	Yes, fully integrated and implemented	N/A
a) Your biodiversity strategies and action plans			X	
b) Wetland policies and strategies		X		
c) Integrated water resources management and water efficiency plans being developed in line with paragraph 25 of the Plan of Implementation of the World Summit on Sustainable Development			X	
d) Enhanced coordination and cooperation between national actors responsible for inland water ecosystems and biological diversity		X		

Further comments on incorporation of the objectives and activities of the programme of work

Implementation of the integrated water resources management as well as for the NBSAP is underway.

With regard to inland water ecosystem, measures pertaining to the water resources as the resource have been integrated but the biodiversity is not yet addressed.

149. Has your country identified priorities for each activity in the programme of work, including timescales, in relation to outcome oriented targets? (decision VII/4)	
a) No	
b) Outcome oriented targets developed but priority activities not developed	
c) Priority activities developed but not outcome oriented targets	**X**
d) Yes, comprehensive outcome oriented targets and priority activities developed	
Further comments on the adoption of outcome oriented targets and priorities for activities, including providing a list of targets (if developed).	
Watershed management activities, pollution control and monitoring amongst others	

150. Is your country promoting synergies between this programme of work and related activities under the Ramsar Convention as well as the implementation of the Joint Work Plan (CBD-Ramsar) at the national level? (decision VII/4)	
a) Not applicable (not Party to Ramsar Convention)	
b) No	
c) No, but potential measures were identified for synergy and joint implementation	**X**
d) Yes, some measures taken for joint implementation (please specify below)	
e) Yes, comprehensive measures taken for joint implementation (please specify below)	
Further comments on the promotion of synergies between the programme of work and related activities under the Ramsar Convention as well as the implementation of the Joint Work Plan (CBD-Ramsar) at the national level.	
The National Parks and Conservation Service has initiated conservation and management activities at the Rivulet Terre Rouge Estuary Bird Sanctuary which has been declared as the first Ramsar site for Mauritius. A second site (Blue Bay Marine Park) has been proposed for consideration by Ramsar. Preparation of a national legal framework on wetlands in also underway. A survey of wetlands in Mauritius is to be initiated with the help of a consultant (either local or international) to earmark and categorise all the wetlands.	

151. Has your country taken steps to improve national data on: (decision VII/4)

Issues	Yes	No	No, but development is under way
a) Goods and services provided by inland water ecosystems?		**X**	

b) The uses and related socioeconomic variables of such goods and services?		**X**	
c) Basic hydrological aspects of water supply as they relate to maintaining ecosystem function?	**X**		
d) Species and all taxonomic levels?		**X**	
e) On threats to which inland water ecosystems are subjected?			**X**

Further comments on the development of data sets, in particular a list of data sets developed in case you have replied "**YES**" above.

The data on the hydrological aspects of water supply are being collected by the respective department of the Ministry of Public Utilities. Data have been collected for more than 50 years.

152. Has your country promoted the application of the guidelines on the rapid assessment of the biological diversity of inland water ecosystems? (decision VII/4)

a) No, the guidelines have not been reviewed	
b) No, the guidelines have been reviewed and found inappropriate	
c) Yes, the guidelines have been reviewed and application/promotion is pending	**X**
d) Yes, the guidelines promoted and applied	

Further comments on the promotion and application of the guidelines on the rapid assessment of the biological diversity of inland water ecosystems.

The biological diversity of inland water ecosystems is a priority issue in Mauritius.

Box LXIII.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

Supply and management of fresh water resource is one among the most important national priorities in Mauritius. Numerous studies and works have been commissioned regarding the management and sustainable use of both surface and underground water resources. However, fresh water aquatic biodiversity have only been scantily studied. It is feared that the native aquatic species in the natural water courses may be facing the threat of extinction as their environment are being intensively pressurised. On the other hand, a number of fresh water aquatic species have been introduced in Mauritius and the commercial farming of only few of them has proved to be viable.

The existence and functions of wetlands in Mauritius have till recently been overlooked. There are some 43 wetlands around Mauritius and a significant number of them have been reclaimed for construction of hotels and in some cases for housing development. Backfilling of wetlands has already

done harm in certain places and is now considered as a priority problem that needs to be tackled as stated in the National Environmental Strategies. Though various policy guidelines exist under the National Development Strategy, a substantial proportion of wetland (more than 50 %) are already lost. The main reason attributed is absence of proper institutional & legal frameworks, as well as private land ownership giving rise to limited control by the competent Authorities.

A Ramsar committee has been set up under the aegis of the NPCS and a study on survey of wetlands in Mauritius is to be initiated with the help of a consultant (either local or international) to earmark and categorise all the wetlands as well as recommend appropriate conservation measures.

Marine and coastal biological diversity - General

153. Do your country's strategies and action plans include the following? Please use an "**X**" to indicate your response. (decisions II/10 and IV/15)	
a) Developing new marine and coastal protected areas	**X**
b) Improving the management of existing marine and coastal protected areas	**X**
c) Building capacity within the country for management of marine and coastal resources, including through educational programmes and targeted research initiatives (if yes, please elaborate on types of initiatives in the box below)	**X**
d) Instituting improved integrated marine and coastal area management (including catchments management) in order to reduce sediment and nutrient loads into the marine environment	**X**
e) Protection of areas important for reproduction, such as spawning and nursery areas	**X**
f) Improving sewage and other waste treatment	**X**
g) Controlling excessive fishing and destructive fishing practices	**X**
h) Developing a comprehensive oceans policy (if yes, please indicate current stage of development in the box below)	
i) Incorporation of local and traditional knowledge into management of marine and coastal resources (if yes, please elaborate on types of management arrangements in the box below)	
j) Others (please specify below)	
k) Not applicable	

Please elaborate on the above activities and list any other priority actions relating to conservation and sustainable use of marine and coastal biodiversity.

Capacity building and training with regard to marine and coastal resources will be provided under the Government/ UNDP/ GEF "Partnesrhips for Marine Protected Areas" project. Community education and sensitization programme would also be developed.

Implementation of Integrated Marine and Coastal Area Management

154. Has your country established and/or strengthened institutional, administrative and legislative arrangements for the development of integrated management of marine and coastal ecosystems?	
a) No	

b) Early stages of development	**X**
c) Advanced stages of development	
d) Arrangements in place (please provide details below)	
e) Not applicable	

Further comments on the current status of implementation of integrated marine and coastal area management.

Mauritius is in the process of launching the study for the ICZM framework. Also as per the EPA 2002, an ICZM Committee has already been established and regular meetings are held. A number of adhoc sub-working groups has been established with specific assignments. Additionally, a Maritime Zone Act has also been enacted.

155. Has your country implemented ecosystem-based management of marine and coastal resources, for example through integration of coastal management and watershed management, or through integrated multidisciplinary coastal and ocean management?

a) No	
b) Early stages of development	**X**
c) Advanced stages of development	
d) Arrangements in place (please provide details below)	
e) Not applicable	

Further comments on the current status of application of the ecosystem to management of marine and coastal resources.

The Government/ UNDP/ GEF "Partnerships for Marine Protected Areas" will be implemented at a pilot site in Rodrigues and it will take on board both the coastal management (involving various users, including farmers and tourism operators as well as the endemic forest) and the adjoining rich marine environment of Mourook, in Rodrigues.

Marine and Coastal Living Resources

156. Has your country identified components of your marine and coastal ecosystems, which are critical for their functioning, as well as key threats to those ecosystems?

a) No	
b) Plans for a comprehensive assessment of marine and coastal ecosystems are in place (please provide details below)	
c) A comprehensive assessment is currently in progress	
d) Critical ecosystem components have been identified, and management plans for them are being developed (please provide details below)	**X**
e) Management plans for important components of marine and coastal ecosystems are in place (please provide details below)	
f) Not applicable	

Further comments on the current status of assessment, monitoring and research relating to marine and coastal ecosystems, as well as key threats to them

Two marine parks have been established along with 8 islet national parks. Threats to the two marine parks have been identified and management plans are under preparation.

157. Is your country undertaking the following activities to implement the Convention's work plan on coral reefs? Please use an "**X**" to indicate your response.

Activities	Not implemented nor a priority	Not implemented but a priority	Currently implemented	Not applicable
a) Ecological assessment and monitoring of reefs			X	
b) Socio-economic assessment and monitoring of communities and stakeholders			X	
c) Management, particularly through application of integrated coastal management and marine and coastal protected areas in coral reef environments			X	
d) Identification and implementation of additional and alternative measures for securing livelihoods of people who directly depend on coral reef services			X	
e) Stakeholder partnerships, community participation programmes and public education campaigns			X	
f) Provision of training and career opportunities for marine taxonomists and ecologists			X	
g) Development of early warning systems of coral bleaching			X	
h) Development of a rapid response capability to document coral bleaching and mortality			X	
i) Restoration and rehabilitation of degraded coral reef habitats			X	
j) Others (please specify below)				

Please elaborate on ongoing activities.

Marine and Coastal Protected Areas

158. Which of the following statements can best describe the current status of marine and coastal protected areas in your country? Please use an "**X**" to indicate your response.

a) Marine and coastal protected areas have been declared and gazetted	X

(please indicate below how many)	
b) Management plans for these marine and coastal protected areas have been developed with involvement of all stakeholders	
c) Effective management with enforcement and monitoring has been put in place	**X**
d) A national system or network of marine and coastal protected areas is under development	**X**
e) A national system or network of marine and coastal protected areas has been put in place	
f) The national system of marine and coastal protected areas includes areas managed for purpose of sustainable use, which may allow extractive activities	**X**
g) The national system of marine and coastal protected areas includes areas which exclude extractive uses	
h) The national system of marine and coastal protected areas is surrounded by sustainable management practices over the wider marine and coastal environment.	**X**
i) Other (please describe below)	
j) Not applicable	

Further comments on the current status of marine and coastal protected areas.

2 Marine Parks and 6 Fishing Reserves in Mauritius and 5 Fishing Reserves in Rodrigues. Also eight islets national park have been proclaimed. The management plans for the two marine parks are under development

Mariculture

159. Is your country applying the following techniques aimed at minimizing adverse impacts of mariculture on marine and coastal biodiversity? Please check all that apply.	
a) Application of environmental impact assessments for mariculture developments	**X**
b) Development and application of effective site selection methods in the framework of integrated marine and coastal area management	**X**
c) Development of effective methods for effluent and waste control	**X**
d) Development of appropriate genetic resource management plans at the hatchery level	**X**
e) Development of controlled hatchery and genetically sound reproduction methods in order to avoid seed collection from nature.	
f) If seed collection from nature cannot be avoided, development of environmentally sound practices for spat collecting operations, including use of selective fishing gear to avoid by-catch	
g) Use of native species and subspecies in mariculture	**X**
h) Implementation of effective measures to prevent the inadvertent release of mariculture species and fertile polypoids.	**X**

i)	Use of proper methods of breeding and proper places of releasing in order to protect genetic diversity	**X**
j)	Minimizing the use of antibiotics through better husbandry techniques	**X**
k)	Use of selective methods in commercial fishing to avoid or minimize by-catch	
l)	Considering traditional knowledge, where applicable, as a source to develop sustainable mariculture techniques	
m)	Not applicable	

Further comments on techniques that aim at minimizing adverse impacts of mariculture on marine and coastal biodiversity.

Presently, there is one promoter carrying out mariculture in Mauritius and the impacts have been mitigated.

Alien Species and Genotypes

160. Has your country put in place mechanisms to control pathways of introduction of alien species in the marine and coastal environment? Please check all that apply and elaborate on types of measures in the space below.

a)	No	**X**
b)	Mechanisms to control potential invasions from ballast water have been put in place (please provide details below)	
c)	Mechanisms to control potential invasions from hull fouling have been put in place (please provide details below)	
d)	Mechanisms to control potential invasions from aquaculture have been put in place (please provide details below)	
e)	Mechanisms to control potential invasions from accidental releases, such as aquarium releases, have been put in place (please provide details below)	
f)	Not applicable	

Further comments on the current status of activities relating to prevention of introductions of alien species in the marine and coastal environment, as well as any eradication activities.

In the case of ballast water, a monitoring task force has been set up by the Ministry of Shipping. However, no actual monitoring has started.

Box LXIV.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;

b) contribution to the achievement of the goals of the Strategic Plan of the Convention;

c) contribution to progress towards the 2010 target;

d) progress in implementing national biodiversity strategies and action plans;

e) contribution to the achievement of the Millennium Development Goals;

f) constraints encountered in implementation.

Marine and coastal biodiversity is high on the priority. However, due to limited funding and inadequate human resources, the implementation of measures pertaining to biodiversity conservation take longer time than may be expected. However, the Key results obtained to date

1. Close season for net fishing and restriction in catching undersized fish.
2. Restocking of lagoon with fish. For example 65,000 juveniles of Gueulle Pavé (*Rhabdosargus sarba*) were produced and released.
3. A successful mangrove propagation programme was initiated. Some 198,000 seedlings planted between 1998 and 2003, with an estimated 138,600 surviving.
4. Establishment of Rivulet Terre Rouge Estuary Bird Sanctuary as a Ramsar site.
5. Proclamation of two Marine Parks totalling 848 ha in October 1997.
6. Proclamation of six Fishing reserves + five in Rodrigues
7. Sand mining has been banned on Mauritius in September 2001
8. Spear and dynamite fishing are banned in the Republic of Mauritius
9. A Mooring buoys program was set up and is being improved to reduce anchor damage.
10. Coral reef and lagoon water monitoring programs are ongoing.
11. Several artificial reefs have been created by sinking unused ships.
12. Public awareness campaign and vulgarisation by NGO's and government ongoing.
13. New legislations have been passed for protection of the marine environment (Fisheries and Marine Resources Act 98 and the EPA 2002)
14. Fishing of threatened species have been banned (e.g. Hawksbill and Green Turtles)
15. Removal of Coral and Shells strictly prohibited.
16. Creation of MOI and National Oceanographic Data Centre (NODC)
17. Review of the National Oil Spill Contingency Plan
18. A National Invasive Alien Species Committee has been set up in 2003.
17. Three fold increase in number of modules in Ecology and conservation biology offered at the University of Mauritius since 2002.
18. Initiation of a biological database by AFRC and MOI
19. Several publications made by the AFRC and other authors.
20. Annual Open day at the AFRC to sensitise and raise public awareness on the fisheries sector.
21. Establishment of some 20 Fish Aggregating Devices around Mauritius coupled with training for Fishers fishing around FADs and six FADs in Rodrigues
22. A number of field guides documenting the marine diversity have been successfully completed and more are under preparation, including for freshwater biota.

Challenges for future

1. Completion of the inventory of the aquatic biodiversity
2. Set up larger areas under protection
3. Find solutions to funding limitations

4. Undertake large scale monitoring of several groups related with monitoring of water quality, climate parameters etc.
5. Biodiversity surveys, description of new species or records and research in natural products from the marine environment.
6. Protection of threatened species and habitat restoration/management (rivers, wetlands, lagoons).
7. Staffing and training of personnel in taxonomy, ecology, conservation and ICZM.
8. Law enforcement and further legislation review (mainly to reduce over-fishing and habitat degradation).
9. Preparation of ICZM plan.
10. Understanding and mitigating wherever possible the impacts of climate change.
11. Raise public awareness about negative impacts of over-fishing and IAS and the need for long-term conservation of native biodiversity.
12. Passing of an adequate IAS law in the country and provide provisions for preventing entry of new pests and to control/eradicate pests already present.
13. Increased effectiveness of border control to reduce risks of introduction of new IAS, improved monitoring system to detect new pest outbreaks and development of improved control methods for already established IAS.
14. Create centralised biological database for easy and efficient access to information, and mapping system to allow efficient monitoring.
15. Legal protection extended to many more threatened species and increased penalties for law contraventions.
16. Improved museum infrastructure and curation.
17. School curriculum adopting teaching of native biodiversity and its conservation as part of the science subject taught.

Agricultural biological diversity

161. Has your country developed national strategies, programmes and plans that ensure the development and successful implementation of policies and actions that lead to the conservation and sustainable use of agrobiodiversity components? (decisions III/11 and IV/6)	
a) No	
b) No, but strategies, programmes and plans are under development	
c) Yes, some strategies, programmes and plans are in place (please provide details below)	**X**
d) Yes, comprehensive strategies, programmes and plans are in place (please provide details below)	
Further comments on agrobiodiversity components in national strategies, programmes and plans.	
The NBSAP and the Non Sugar Sector Strategy Plan	

162. Has your country identified ways and means to address the potential impacts of genetic use restriction technologies on the *In-situ* and *Ex-situ* conservation and sustainable use, including food security, of agricultural biological diversity? (decision V/5)	
a) No	
b) No, but potential measures are under review	**X**

c) Yes, some measures identified (please provide details below)	
d) Yes, comprehensive measures identified (please provide details below)	

Further information on ways and means to address the potential impacts of genetic use restriction technologies on the *In-situ* and *Ex-situ* conservation and sustainable use of agricultural biodiversity.

Annex to decision V/5 - Programme of work on agricultural biodiversity

Programme element 1 – Assessment	
163. Has your country undertaken specific assessments of components of agricultural biodiversity such as on plant genetic resources, animal genetic resources, pollinators, pest management and nutrient cycling?	
a) No	
b) Yes, assessments are in progress (please specify components below)	**X**
c) Yes, assessments completed (please specify components and results of assessments below)	

Further comments on specific assessments of components of agricultural biodiversity.
Specific assessments have been carried on plant genetic resources, pest management and nutrient cycling. The one on animal genetic resources, a study is still underway at the level of AREU and the Animal Production Division of the Agricultural Services of the Ministry of Agro Industry and Fisheries.

164. Is your country undertaking assessments of the interactions between agricultural practices and the conservation and sustainable use of the components of biodiversity referred to in Annex I of the Convention (e.g. ecosystems and habitats; species and communities; genomes and genes of social, scientific or economic importance)?	
a) No	**X**
b) Yes, assessments are under way	
c) Yes, some assessments completed (please provide details below)	
d) Yes, comprehensive assessments completed (please provide details below)	

Further comments on assessment of biodiversity components (e.g. ecosystems and habitats; species and communities; genomes and genes of social, scientific or economic importance).

165. Has your country carried out an assessment of the knowledge, innovations and practices of farmers and indigenous and local communities in sustaining agricultural biodiversity and agro-ecosystem services for food production and food security?	
a) No	**X**
b) Yes, assessment is under way	
c) Yes, assessment completed (please specify where information can be retrieved below)	

Further comments on assessment of the knowledge, innovations and practices of farmers and indigenous and local communities.

166. Has your country been monitoring an overall degradation, status quo or restoration/rehabilitation of agricultural biodiversity since 1993 when the Convention entered into force?	
a) No	
b) Yes, no change found (status quo)	**X**
c) Yes, overall degradation found (please provide details below)	
d) Yes, overall restoration or rehabilitation observed (please provide details below)	
Further comments on observations.	

Programme element 2 - Adaptive management	
167. Has your country identified management practices, technologies and policies that promote the positive, and mitigate the negative, impacts of agriculture on biodiversity, and enhance productivity and the capacity to sustain livelihoods?	
a) No	
b) No, but potential practices, technologies and policies being identified	
c) Yes, some practices, technologies and policies identified (please provide details below)	**X**
d) Yes, comprehensive practices, technologies and policies identified (please provide details below)	
Further comments on identified management practices, technologies and policies.	
New production techniques, namely hydroponics culture , intergrated pests management, low tillage practices, composting and cultivation in greenhouses are being encouraged and gradually being adopted. At the moment there are around 5 ha of hydroponics culture scattered mainly over the Plaines Wilhems and Moka areas (*Pers. Comm.*: S.C Bhurtun, AREU, St Pierre sub-office). In other cases, composts are also being prepared and used used.	

Programme element 3 - Capacity-building	
168. Has your country increased the capacities of farmers, indigenous and local communities, and their organizations and other stakeholders, to manage sustainable agricultural biodiversity and to develop strategies and methodologies for *In-situ* conservation, sustainable use and management of agricultural biological diversity?	
a) No	**X**
b) Yes (please specify area/component and target groups with increased capacity)	
Further comments on increased capacities of farmers, indigenous and local communities, and their organizations and other stakeholders.	
Farmers in Rodrigues and Mauritius are provided training especially for pest control as well as on techniques for sustainable agricultural practices. In general, farmers have devised their own *in situ* methods for protecting their varieties and agricultural biodiversity.	

169. Has your country put in place operational mechanisms for participation by a wide range of stakeholder groups to develop genuine partnerships contributing to the implementation of the programme of work on agricultural biodiversity?	
a) No	**X**
b) No, but potential mechanisms being identified	
c) No, but mechanisms are under development	
d) Yes, mechanisms are in place	

170. Has your country improved the policy environment, including benefit-sharing arrangements and incentive measures, to support local-level management of agricultural biodiversity?	
a) No	
b) No, but some measures and arrangements being identified	**X**
c) No, but measures and arrangements are under development	
d) Yes, measures and arrangements are being implemented (please specify below)	
Further comments on the measures taken to improve the policy environment.	
The appropriate legislations are still at drafting stage, namely, the Seed Act and Breeder's Right Bill.	

Programme element 4 – Mainstreaming	
171. Is your country mainstreaming or integrating national plans or strategies for the conservation and sustainable use of agricultural biodiversity in sectoral and cross-sectoral plans and programmes?	
a) No	
b) No, but review is under way	
c) No, but potential frameworks and mechanisms are being identified	
d) Yes, some national plans or strategies mainstreamed and integrated into some sectoral plans and programmes (please provide details below)	**X**
e) Yes, some national plans or strategies mainstreamed into major sectoral plans and programmes (please provide details below)	
Further comments on mainstreaming and integrating national plans or strategies for the conservation and sustainable use of agricultural biodiversity in sectoral and cross-sectoral plans and programmes.	
In the Non Sugar Sector Strategy Plan (NSSSP) which also has as one of its objectives to promoting conservation of natural biodiversity and fostering sustainable utilisation of natural resources, a number of policy measures have been enumerated.	

172. Is your country supporting the institutional framework and policy and planning mechanisms for the mainstreaming of agricultural biodiversity in agricultural strategies and action plans, and its integration into wider strategies and action plans for biodiversity?	
a) No	
b) Yes, by supporting institutions in undertaking relevant assessments	
c) Yes, by developing policy and planning guidelines	**X**

d) Yes, by developing training material	
e) Yes, by supporting capacity-building at policy, technical and local levels	**X**
f) Yes, by promoting synergy in the implementation of agreed plans of action and between ongoing assessment and intergovernmental processes.	

Further comments on support for institutional framework and policy and planning mechanisms.

Measures have been elaborated under the Non Sugar Sector Strategy Plan and implementation are ongoing/ underway

173. In the case of centers of origin in your country, is your country promoting activities for the conservation, on farm, *In-situ*, and *Ex-situ*, of the variability of genetic resources for food and agriculture, including their wild relatives?

a) No	
b) Yes (please provide details below)	**X**

Further comments on of the conservation of the variability of genetic resources for food and agriculture in their center of origin.

Refer to details provided in Box LVI and the baseline on page 15-16

Box LXV.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

Agro-biodiversity is also one of the priorities for the government.

Institutions Involved

Responsibility for crop biodiversity is presently shared by at least four institutions, the main one being the Agricultural Services (both in Mauritius and Rodrigues) through its Plant Genetic Resources Unit for *in-situ* and *ex-situ* conservation of germplasm for the agricultural sector. Other institutions include the Agricultural Research & Extension Unit (AREU), the MSIRI and the University of Mauritius.

AREU is involved in conservation of germplasm through maintenance of crops by vegetative means in field collections and through evaluation and use in crop improvement programmes. AREU is also responsible for the introduction of new crops varieties for experimental purposes which are propagated by seeds. The MSIRI is predominantly involved in conservation and utilisation of sugarcane, maize and potato germplasm and the maintenance of a national herbarium. The University of Mauritius is concerned with provision of training and maintenance of a crop museum.

Long-term seed storage falls under the responsibility of the Agricultural Services through the National Plant Genetic Resources Centre at Curepipe Experimental Station.

However, storage facilities are still inadequate. This enhances the risk of losing valuable germplasm especially those wild type varieties which are being replaced by higher yielding and hybrid varieties.

Conservation of PGR

Conservation work is mostly targeted to rare and endangered species as well as plant items of commercial and economic significance, including those which could be useful in the future within biological control and integrated pest management programmes. Agricultural biodiversity conservation is in fact essential in the present context where it finds itself increasingly threatened both by natural phenomena and human interventions. These include:

(a) introduction of high yielding varieties that may result in genetic erosion for many crops as well as possibilities of hybridisation with local strains as in the case of maize;

(b) destruction of habitats, which may result in a reduction of population size and distribution of wild relatives of crops;

(c) increase in the use of chemicals which may reduce population size and distribution of species; and,

(d) inadequate storage facilities for seeds and lack of equipment facilities for management of accession in the Plant Genetic Resources Unit. A Field Gene Bank covering an area of 7.5 hectares has been established at Nouvelle Découverte as a means to reinforce the attempts in conservation of plant genetic resources. This gene bank serves for *ex-situ* collection and conservation of agricultural crops.

Concern

Lately, some issues as regards international free exchange of genetic resources have been increasingly in the limelight. Internationally, there is a **growing concern for the protection of farmers' and breeders' rights**. Since the fight against pests and diseases (which do not recognise man-made boundaries) is no longer one man's one nation's concern, international and regional cooperation are very important particularly in the present situation. This is so because crop improvement programmes in almost every country are dependent on exotic germplasm.

Local Status

In the absence of such framework in Mauritius regulating Intellectual Property Rights and exchange mechanisms of crops will severely limit accessibility to new varieties for crop improvement programmes. The **current legislative** void also discourages production of new plant cultivars by local plant breeders as well as the emergence of new horticultural and agro-industrial sectors which make use of exotic germplasm. However, the **policy void regarding the issue of Genetically Modified Organisms (GMOs)**, in terms of ability and capacity for detection, legislation to protect locally produced commodities and consumer rights as well as minimising harmful consequences to health (human, animal and plants) and the environment has now been addressed by the GMO Act 2004.

Policy Recommendations

In view of the above, measures will be taken to:

(i) consolidate the existing germplasm of crop plants both exotic and endemic species for crop improvement programmes by:
- (a) renovating existing seed gene banks so as to provide more space for accommodation of the whole national accessions; and
- (b) providing appropriate training to staff involved;

(ii) characterise all newly introduced crop species and the existing collection of germplasm;

(iii) provide for the necessary legal and institutional framework to address deficiencies concerning Plant Genetic Resources;

(iv) promote long-term conservation of plant genetic resources in gene bank employing ***ex-situ*** seed,

in vitro cultures and cryo-preservation techniques;

(v) adequately equip the Plant Genetic Resources unit to make it act as a repository of notified, released varieties, cultivars, parental lines of released hybrids, genetic stocks, and also as a regional repository of duplicate collections of specific crops;

(vi) complement the activities of the Forestry Service and National Parks and Conservation Service and any other department concerned to ensure availability of exotic and indigenous germplasm through periodic seed increase for evaluation, utilisation and conservation;

(vii) develop and operate a database and information network system on Plant Genetic Resources;

(viii) evaluate the genetic drift in old varieties and landraces; and,

(ix) Conduct research related to medium and long-term conservation of germplasm of primitive cultivars and landraces of cultivated crops associated with traditional agriculture and inbred lines of released hybrids.

The key constraints remain inadequate trained HR and limited funding.

Box LXVI.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:
a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

Forest Biological Diversity

General

174. Has your country incorporated relevant parts of the work programme into your national biodiversity strategies and action plans and national forest programmes?	
a) No	
b) Yes, please describe the process used	**X**
c) Yes, please describe constraints/obstacles encountered in the process	**X**
d) Yes, please describe lessons learned	
e) Yes, please describe targets for priority actions in the programme of work	

Further comments on the incorporation of relevant parts of the work programme into your NBSAP and forest programmes
During preparation of the NBSAP a thematic group on forest biodiversity was constituted and the

relevant parts of the programme of work incorporated.

A draft final NBSAP was sent to UNEP (July 2001) which asked for a revision of the document. An international consultant was recruited to break the document into a Biodiversity country study (June 2003) and a strategy & action plan (July 2003). The resultant document is still under review and not yet finalized.

The National Forestry Policy dated far back in the 60's. The policy has been reviewed and finalized with the assistance of the FAO in 2006. The overall goal of the National Forestry Policy is to create public awareness of role of the forest sector in national development and human wellbeing and to ensure the conservation and sustainable management of forests and forest ecosystems of the country for the benefit of present and future generations.

Box LXVII.

Please indicate what recently applied tools (policy, planning, management, assessment and measurement) and measures, if any, your country is using to implement and assess the programme of work. Please indicate what tools and measures would assist the implementation.
There is no mechanism in place yet.

Box LXVIII.

Please indicate to what extent and how your country has involved indigenous and local communities, and respected their rights and interests, in implementing the programme of work.
Local community involvement in Rodrigues plays an important part in forest restoration. In Mauritius, there is little connection between the local communities and forest biodiversity because of a different social and cultural dynamic.

Box LXIX.

Please indicate what efforts your country has made towards capacity building in human and capital resources for the implementation of the programme of work.
There is no mechanism in place that targets capacity building and capital resources for implementation of the programme of work. However, there has been some training programme carried out locally that indirectly benefit its implementation. Some of these are **Training**: ▪ Undergraduate degree in Biology carried out by the University of Mauritius now incorporates 4 modules related to Ecology ▪ Training of 2 assistant conservator of forests in forest management. ▪ Training of 28 forest officers under SADC forestry sector ▪ Training of 119 forest officers for a certificate in Forestry at the University of Mauritius partly funded by SADC). ▪ Training of 15 forest officers in basic GIS techniques (at MSIRI) and also officers from Rodrigues ▪ Training of private sector people in forest restoration, ecotourism ▪ Training of 1 member of staff of NGO MWF to receive training in horticulture in UK ▪ Biodiversity workshop (funded by UNDP) for training of staff in government, university students and NGOs.

Capital Resources

- Private sector nurseries for propagation of native plants to be used in conservation and tourist developments.
- Ex situ facilities for plants and animals (UNDP, NPCS funding)
- Information centre for conservation (Mont Vert)
- Field station on Round Island (NPCS/GEF funding)

Box LXX.

Please indicate how your country has collaborated and cooperated (e.g., south-south, north-south, south-north, north-north) with other governments, regional or international organizations in implementing the programme of work. Please also indicate what are the constraints and/or needs identified.
Strong links with many international conservation organizations (Kew Gardens, Gerald Durrell Wildlife Conservation Trust, IUCN, Fairchild Botanic Gardens) and universities (e.g. University of East Anglia). Collaboration through workshop has also been carried out. Workshops include ▪ Regional Workshop on IAS (Seychelles) funded by IOC ▪ Access and Benefit Sharing funded by IEPF. ▪ Consultancy e.g. FAO collaboration to revise the Forest Policy ▪ Consultancy for preparation of the National Environment Strategy Collaborations have also been fostered through conservation project such as the Trochetia conservation project (Chicago Zoo), GEF World Bank grant for Restoration of Round Island, IUCN Sir Peter Scott Fund for weeding of Ile aux Aigrettes, ARPEGE a pilot project for the promotion of environmental education programmes funded by 9th European Development Fund project for member countries of the Indian Ocean Commission. Other project include the *Flore des Mascareignes*' project. The funding came from the Government of Mauritius, Institute de Recherche pour le Development (IRD, ex ORSTOM), Commission de l'Ocean Indien (COI/EU) and Mauritius Sugar Industry Research Institute (MSIRI) with collaboration from MSIRI (Mauritius), Musée National d'Histoire Naturelle (Paris), Royal Botanic Gardens. Kew. The collaborations were held with SADC (Southern African Development Community), COI (Commission de l'Ocean Indien), Indian Ocean Rim –Association for Regional Cooperation, New Partnership for African Development (NEPAD), Small Island Developing States (UN) amongst others. **Constraint**: Due to staff turnover and loss of staff from Mauritius, sustainable staff development is difficult to maintain.

Expanded programme of work on forest biological diversity

Programme element 1 – Conservation, sustainable use and benefit-sharing	
175. Is your country applying the ecosystem approach to the management of all types of forests?	
a) No (please provide reasons below)	
b) No, but potential measures being identified (please provide details below)	

c) Yes (please provide details below)	**X**

Comments on application of the ecosystem approach to management of forests (including effectiveness of actions taken, lessons learned, impact on forest management, constraints, needs, tools, and targets).

The ecosystem approach has been identified as the logical approach for management. An Environment Information System is being set up and indicators have been identified that record forest health (e.g. Alien species distribution, status of threatened plant and animal species).

However, there are a number of constraints in implementing the ecosystem approach in the case of Mauritius. These are, geographically disperse/ separated protected areas, land ownership (i.e. legal protection of privately owned forest) enforcement of current legislation, active implementation of management plans and use of native biodiversity for protection of watersheds amongst others.

176. Has your country undertaken measures to reduce the threats to, and mitigate its impacts on forest biodiversity?

Options	X	Details
a) Yes	**X**	Please specify below the major threats identified in relation to each objective of goal 2 and the measures undertaken to address priority actions
b) No		Please provide reasons below

Further comments on measures to reduce threats to, and mitigate the impacts of threatening processes on forest biodiversity (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

Objective 1:

National Invasive Alien Species Committee has been set up coordinate action on IAS. This includes:

- a review of National legislation with regards to IAS
- production of a black list of highly invasive plants to be kept out of Mauritius and Rodrigues
- awareness raising : quarantine posters at the airport
- quarantine protocols in place to keep outer islets free of rodents and other exotic pests
- Forthcoming project: development of a national invasive alien species strategy

Mitigation from IAS

Trial of a predator exclusion fence (based on NZ technology)

Awareness raising: poster exhibit on IAS

Forest restoration: weeding of native forest to allow regeneration (both public and private land)

Academic studies on weeding techniques and the impact of IAS

Eradication programmes for IAS (e.g. crows, pigeons, whitefly, cypress aphid)

Objective 2:

Not seen as applicable

Objective 3: A multi-sectoral National Climate Committee was established in 1990 to evaluate the impacts of climate change in various sectors, and a sub-committee was set up in 2004 to implement measures and activities in the context of climate change.

Objective 4: Strategic plan for islets and National Park address the control of fires if they should arise.

Objective 5: Not seen as applicable

Objective 6: Land is a limited resource. There is inadequate legislation to protect the remaining native forests.

Threats: Conversion to other land use (e.g. development, pasture for deer hunting)

Privately owned land: There is little relevant legislation applicable to forest protection on private land. 65% of remaining forest is on private land, which includes forest of high conservation importance. There have been no studies on economic valuation of forest biodiversity.

The National Development Strategy (Government of Mauritius 2003) includes the designation of a network of Environmentally Sensitive Areas to reinforce a 'general presumption' against development in these areas using the precautionary approach. The network includes coastal features, wetlands, mountain areas and other areas of high biodiversity (both privately owned and state lands).

An area Action Plan has been developed for La Ferme region in Rodrigues

177. Is your country undertaking any measures to protect, recover and restore forest biological diversity?

Options	X	Details
a) Yes	X	Please identify priority actions in relation to each objective of goal 3 and describe measures undertaken to address these priorities
b) No		Please provide reasons below

Further comments on measures to protect, recover and restore forest biological diversity (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

Objective 1:

The most important classification of forests is whether it is predominantly native or predominantly invasive alien species. This objective is thus not seen as applicable.

Objective 2:

Active work to establish the status and distribution of threatened species, single species recovery and community restoration on both government and private land.

National Threatened Plants Technical Committee coordinates the work on threatened plants, incorporating the targets of the GSPC and IUCN criteria.

Objective 3:

Following the study of Page & d'Argent (2000) a comprehensive forest area network for Mauritius was suggested. Implementation of this plan has yet to happen, constraints include land ownership but there is a plan to acquire Bassin Blanc (c360 hectares). A 500ha of old plantation forest has been declared as a Reserve to protect the Mauritius Paradise Flycatcher.

Because IAS is a significant threat to biodiversity, active management of forests is essential. Thus, an effective network also requires active restoration. This is being put into place as follows:

60ha of National Park is under active management (regular weeding and enrichment planting).

4.44ha of Nature Reserves are under active management (as specified above).

Active restoration is underway on the islets of Ile aux Aigrettes (26ha), Round Island (151ha) and Flat Island (253ha).

There are also some restoration projects in privately owned native forest and replanting of old agricultural land (sugar cane) with native species.

Additionally, there are four nature reserves under active management in Rodrigues.

Some 3500 ha have been afforested so far. This contributes to the prevention of soil erosion, the creation of windbreaks, and the provision of timber. However, there is some concern over the continuing use of exotic species. The Forestry Unit is reafforesting an average of 100 ha per year and uses two nurseries (Solitude and Baie aux Huitres).

There is a routine maintenance of forest (thinning, weeding, coppicing) practiced on over 200 ha of forestland, to promote the Javanese garden system (vegetation below tree canopies) hence mitigating the effects of soil erosion.

A forest management and development plan has also been developed and a forestry manual is available. The forest cover has been digitalized and a Forest Management Information System (FMIS) established. The officers have been trained in the manipulation of the FMIS software and in Arc View Geographical Information System in 2004.

Community forests have been developed on about 200 ha of lands in 5 villages. Beneficiaries were trained in forest nurseries and management.

Management measures are presently being taken for the restoration of the native flora, which in turn will have a positive impact on the population of native fauna. These include:

a. Establishment of nature reserves through the plantation of endemic species.
b. Raising of mostly endemic species for propagation.
c. Reforestation of existing exotic forest with endemic species so as to retrieve to a native one.
d. Institutional strengthening through the collaboration of government organizations and NGO's.

Native and endemic plants

A total of 39 species of native plants have been listed for Rodrigues. These species are being closely monitored and intensive works are carried out to facilitate the germination, growth and development of these plants.

On some islets around Rodrigues some native species were found and these are also being closely monitored.

A programme for encouraging the propagation of economically valued species is ongoing. One such example is the cultivation of *Pandanus heterocarpus* (Vacoas) used as raw material in handicraft.

178. Is your country undertaking any measures to promote the sustainable use of forest biological diversity?		
Options	**X**	**Details**

a) Yes	X	Please specify priority actions in relation to each objective of goal 4 and describe measures undertaken to address these priorities
b) No		Please provide reasons below

Further comments on the promotion of the sustainable use of forest biological diversity (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

Timber and non-timber forest products tend to be exotic species. Plantations of exotics do not usually support high levels of biodiversity as native forest. 30% of timber used is locally produced by the Forestry Service whilst the rest are imported.

Objective 1

UNDP GEF/ SGP funded a study to promote sustainable use of medicinal and artisanal plant species used as raw materials for communities in Rodrigues.

Objective 2

The use of bushmeat, firewood and CITES listed species are not seen as threats to biodiversity.

Objective 3

UNDP GEF/ SGP funded a study to promote sustainable use of medicinal and artisanal plant species used as raw materials for communities in Rodrigues.

EU and Whitely Funded project to set up village nurseries in Rodrigues that produced native plants for reforestation, community plantings and village protection.

Objective 4

Seven projects to propagate endemic and medicinal plants (under the non-sugar sector strategic plan) are in progress. Draft legislation on intellectual property rights has been prepared and sent to the state law office for vetting.

A material transfer agreement for any biological material (native and exotic) has been approved by the State Law Office and is in place.

The GMO Act covers monitoring of all GMOs. Information on risk assessment of GMOs and their impact on ecology and biodiversity will be required under this Act. This Act has yet to be fully proclaimed. Adequate representation of genetic diversity of endangered plant species has begun to be addressed through *in situ* conservation (CMAs and Nature Reserves) and *ex situ* conservation (through field genebanks and arboreta)

Single species recovery programmes of Mauritius Fody and Echo parakeet pay attention to conserving the genetic diversity of these species.

179. Is your country undertaking any measures to promote access and benefit-sharing of forest genetic resources?

Options	X	Details
a) Yes	X	Please specify priority actions in relation to each objective of goal 5 and describe measures undertaken
b) No		Please provide reasons below

Further comments on the promotion of access and benefit-sharing of forest genetic resources. (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets)

A material transfer agreement for any biological material (native and exotic) has been approved by the State Law Office and is in place.

A draft legislation on intellectual property rights has been prepared and sent to the state law office for vetting.

Also funding for the implementation of a clearing house mechanism has been secured.

Programme element 2 – Institutional and socio-economic enabling environment

180. Is your country undertaking any measures to enhance the institutional enabling environment for the conservation and sustainable use of forest biological diversity, including access and benefit-sharing?

Options	X	Details
a) Yes	X	Please identify priority actions in relation to each objective of Goal 1 and describe measures undertaken to address these priorities
b) No		Please provide reasons below

Further comments on the enhancement of the institutional enabling environment for the conservation and sustainable use of forest biological diversity, including access and benefit-sharing (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

In general, coordination and institutional responsibilities for all the relevant legislations need to be simplified and clarified to allow for more efficient implementation of conservation activities. Priority action for each objective are:

Objective 1

During the NBSAP process the gaps and issues under the thematic group 'forest biodiversity' was addressed. This document has still not been finalized.

Even though the NBSAP is not in place, the main causes of biodiversity loss are understood and addressed through technical committees and implemented on a small scale.

Objective 2

a) The National Environment Action Plan II contains a component regarding forest biodiversity, and is supported by EIPII which contains a number of biodiversity projects. Earlier, a White Paper for a National Conservation Strategy was published in 1985.

A National Development Strategy (2004) has formulated strategies to protect and conserve forest biodiversity; A Climate Change Action Plan (1998) contains response measures with regard to forestry; A Draft Strategic Plan for 16 islets and a draft management plan for 9 of these islets were completed in 2004, and The Forest Policy is under review with the assistance of the FAO

b) Meetings on Synergies and interlinkages on multilateral environmental agreements as a follow up to decision SS VII/I of the seventh special session of UNEP's Governing Council on International Environmental Governance are in progress.

c) The action plan from the NBSAP has still not been finalized.

The Forest Policy is being revised (with FAO), and a series of criteria and indicators for SFM is being developed. An Environmental Information System is being developed (see above) and the following indicators have been identified:

- *Ratio of endangered/threatened species to total species of flora and fauna.*
- *Dominance of exotic species among native species.*
- *Economic loss due to ecological damage by cyclones*.

d) Internationally and nationally funded projects for scheduled activities under EPA 2002 must go through an EIA procedure in which biodiversity conservation has been enshrined.

e) Mauritius is member of SADC and has ratified the SADC Protocol on Wildlife Conservation and Enforcement, and SADC Protocol on Forestry (October 2002), African Convention on the Conservation of Nature and Natural Resources (1968). The revised text of July 2003 in being considered by Government for ratification.

Objective 3

See above for details

Objective 4

Unsustainable harvesting of timber is not applicable. Conversion of forest land to other land use and land clearing in environmentally sensitive areas such as water catchment areas, waterlogged areas, mountain slopes and islets requires an EIA (under EPA 2002). However, this does not include activities such as opening of pasture for deer ranching on private land.

181. Is your country undertaking any measures to address socio-economic failures and distortions that lead to decisions that result in loss of forest biological diversity?

Options	X	Details
a) Yes		Please identify priority actions in relation to each objective of Goal 2 and describe measures undertaken to address these priorities
b) No	X	Please provide reasons below

Further comments on review of socio-economic failures and distortions that lead to decisions that result in loss of forest biological diversity (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

There is no measure to address socio-economic failures or decisions that lead to decisions resulting in loss of forest biodiversity.

However, native tree seedlings and technical guidance are provided free of charge to private forest land owners for use on Mountain and River Reserves as well as to local authorities and socio-cultural organizations.

182. Is your country undertaking any measures to increase public education, participation and awareness in relation to forest biological diversity?

Options	X	Details
a) Yes	X	Please identify priority actions in relation to each objective of goal 3 and describe measures undertaken to address these priorities
b) No		Please provide reasons below

Further comments on measures to increase public education, participation and awareness in relation to forest biological diversity (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

Public education and awareness forms an integral part of the routine activities carried out by the relevant government department and also NGOs.

Talks on forest biodiversity as well as guided tours are carried out upon request made by schools and organizations. Seedlings of native plants are also given for the creation of endemic corner in the school compound. Poster exhibitions, brochures, films and newspaper articles are produced regularly. There is a new visitor's centre on upland forest biodiversity. For Rodrigues, there is a dedicated education officer who visits schools regularly and there are weekly weeding days for volunteers in the forest (run by an NGO).

At the level of the IOC, there is the 'ARPEGE' programme which is underway. It also aims at environmental awareness for children and comprises component of training trainers meant for school teachers.

However, one key constraint is limited availability of staff to carry out awareness programmes. Also because of the academic focus of the school curriculum and the academic calendar, there is also little time available for talks, and field trips.

Programme element 3 – Knowledge, assessment and monitoring

183. Is your country undertaking any measures to characterize forest ecosystems at various scales in order to improve the assessment of the status and trends of forest biological diversity?

Options	X	Details
a) Yes	X	Please identify priority actions in relation to each objective of Goal 1 and describe measures undertaken to address these priorities
b) No		Please provide reasons below

Further comments on characterization of forest ecosystems at various scales (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

A classification of forest types was established by Vaughan and Wiehe (1937). Page & d'Argent (1997) carried out a baseline survey of forest quality and distribution for much of the country. A survey of private forest lands to compete this study will be carried out shortly.

A digitized map of Mauritius, and aerial photos are available for quantification of forest cover and quality whilst for Rodrigues, the GIS has been completed. The Remote Sensing Unit of the Ministry of Agro industry and Fisheries is carrying out a project using satellite imagery to identify different forest types.

The constraint is that is training in GIS for staff in conservation institutions and use of software is needed.

184. Is your country undertaking any measures to improve knowledge on, and methods for, the assessment of the status and trends of forest biological diversity?

Options	X	Details
a) Yes	X	Please identify priority actions in relation to each objective of goal 2 and describe measures undertaken to address these priorities
b) No		Please provide reasons below

Further comments on improvement of knowledge on and methods for the assessment of the status and trends (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

Monitoring on the status of biological diversity is being carried out in the CMAs and other areas of importance. As indicated earlier, an Environmental Information System is being developed and it will be operational by the end of 2006. The following relevant indicators (out of 32) have been identified:

- *Ratio of endangered/threatened species to total species of flora and fauna* (the baseline information for this is the IUCN red list – currently being updated and involving field surveys)
- *Dominance of exotic species among native species.*
- *Economic loss due to ecological damage by cyclones*.

Other criteria and indicators are in the process of being developed within the framework of sustainable forest management in collaboration with FAO.

185. Is your country undertaking any measures to improve the understanding of the role of forest biodiversity and ecosystem functioning?

Options	X	Details
a) Yes	X	Please identify priority actions in relation to each objective of goal 3 and describe measures undertaken to address these priorities
b) No		Please provide reasons below

Further comments on the improvement of the understanding of the role of forest biodiversity and ecosystem functioning (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

A number of student from the University of Mauritius as well as from abroad are carrying out research projects to investigate aspects of the forest ecosystem. There are also few university-trained technicians available to carry out research at the level of the NPCS and also the Forestry Service.

Different management techniques are being trialed (e.g. using chemicals, different weeding regimes) to increase efficiency of forest restoration.

There is a long-term monitoring programme on Round Island (started in 1976, and repeated every 7 years). There is a yearly monitoring programme on Ile aux Aigrettes surveying weed distribution.

186. Is your country undertaking any measures at national level to improve the infrastructure for data and information management for accurate assessment and monitoring of global forest biodiversity?

Options	X	Details
a) Yes	X	Please identify priority actions in relation to each objective of goal 4 and describe measures undertaken to address these priorities
b) No		Please provide reasons below

Further comments on the improvement of the infrastructure for data and information management (including effectiveness of actions taken, lessons learned, impacts on forest biodiversity, constraints, needs, tools and targets).

So far there is no coordinated information management system, but databases have been set up for single species, nurseries and propagation, nature reserve plant list and taxonomic information.

A Darwin Initiative project (now completed) was set up to train staff in database design and GIS developed several databases (on single species and for nursery records). It is being followed up with a project funded by the Mauritius Research Council to coordinate databases and incorporate a GIS aspect into the information.

Further training in information management and database use is needed.

Box LXXI.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

Key results obtained to date under the Forest and Terrestrial Biodiversity programme

1. A revised and updated National Forestry Policy (2006). The overall goal of the National Forestry Policy is to create public awareness of role of the forest sector in national development and human wellbeing and to ensure the conservation and sustainable management of forests and forest ecosystems of the country for the benefit of present and future generations.

2. Eight islet National Parks recently created (June 2004) bringing total area of National Parks to 6,888.38 ha. Purchase of Bassin Blanc area underway.

3. There are 14 Nature Reserves in Mauritius totalling an area of 798.88 ha and two Private 'Nature Reserve' covering 13 ha. In the case of Rodrigues, some 3400 ha of forest is under legal protection, including the four Nature Reserves.

4. On mainland Mauritius, a total of 45 ha of forest in 12 localities currently receive weeding and

fencing conservation management. Another 37.5 ha is either weeded or fenced bringing the total area of mainland receiving some form of conservation management to 82.5 ha.

5. A National Invasive Alien Species Committee has been set up in 2003.

6. The National Threatened Native Plants Committee has been revived in 2004 after a few years of inactivity and is now proving a valuable tool in support of plant conservation efforts.

7. Management plans for protected areas are either existing or in preparation.

8. Several successful species recovery programme completed, mainly for endemic birds. Many native and endemic plant species successfully propagated and reintroduced in their original habitat.

9. Increased inter institutional collaboration, mainly through Committees.

10. Initiation of controlled scientific research into improved cost-effective ways of controlling established IAS

11. Three fold increase in number of modules in Ecology and conservation biology offered at the University of Mauritius since 2002.

12. Initiation of a biological database for threatened plants (NTNPC) and herbarium collection (MSIRI).

13. Initiation of surveys of less-known biological groups (Darwin Initiative on native insects) and increased research on chemical compounds of native plant species.

14. Several new endemic species (molluscs and higher plant) discovered and described in recent years, new records of native species made in Mauritius and half a dozen species hitherto believed extinct relocated.

Key lessons learned

1. Conservation management of native forests has shown to be highly beneficial to native biodiversity but needs to be extended on a larger scale.

2. Captive breeding, reintroduction and augmentation have proved to be valuable tools to save a few vertebrate species that were on the brink of extinction.

3. A resolute shift away from species-centered conservation towards an ecosystem approach is required to ensure sustainable conservation.

4. Conservation efforts focused till now mainly on state land while privately owned forests are being left mostly unmanaged hence losing biodiversity.

Challenges for future

1. Larger scale restoration including new areas to be protected and managed for conservation, such as biodiversity rich mountain reserves and dry lowland forest; creation of habitat corridors between isolated fragments and implementing new concept of micromanagement as recommended by NTNPC.

2. Survey of privately own land to assess their biodiversity values for eventual conservation prioritisation and devising incentives to encourage private land owners to conserve biodiversity on their land.
3. Improve local capacity through creation of courses in ecology and conservation for professionals, setting up General Elective Module on native biodiversity and conservation at UoM, and training of personnel in taxonomy.
4. Experiment new potentially cheaper weed control measures and contractual mechanisms (as recommended by Wildlife & National Park Advisory Council).
5. Passing of an adequate IAS law in the country to provide provisions for preventing entry of new pests and to control/eradicate pests already present and raise public awareness about negative impacts of IAS and the need for conservation.
6. Involvement of volunteers in conservation work (as discussed on Wildlife & National Parks Advisory Committee) and development of community based conservation projects.
7. Increased prospects for careers in conservation related jobs (both technical and managerial).
8. Create centralised biological database for easy and efficient access to information, and mapping system to allow efficient monitoring.
9. Legal protection extended to many more threatened species and increased penalties for law contraventions.
10. Improved museum infrastructure and curation and strengthening of links with Natural History Museum.
11. Conduct *ex-situ* propagation/breeding and reintroduction programs where suitable.
12. Creation and maintenance of inter institutional committees and streamlining of bureaucratic procedures where possible to improve fruitful collaboration.
13. Amendment of legislation for non-duplication and harmonisation (ex Nature Reserves Act and Wildlife & National Parks Act)
14. More institutions to develop a research oriented component, increased institutional collaborative research and coordinating research to avoid duplication.
15. School curriculum adopting teaching of native biodiversity and its conservation.
16. Encourage involvement of international NGOs (staffed predominantly by Mauritians) for biodiversity conservation and benefit from funding, expertise and local capacity building.
17. Explore and develop ways by which ecotourism can benefit native species conservation on Mauritius.
18. Synergies required between institutions involved in conservation of biodiversity.
19. Streamlining and demarcations of responsibilities of conservation stakeholders to avoid duplication.

Biological diversity of dry and sub-humid lands

187. Is your country supporting scientifically, technically and financially, at the national and regional levels, the activities identified in the programme of work? (decisions V/23 and VII/2)	
a) No	
b) Yes (please provide details below)	**X**

Further comments on scientific, technical and financial support, at the national and regional levels, to the activities identified in the programme of work.

Mauritius is not situated in an arid or semi arid zone, and does not face the problem of desertification, although land degradation is a problem, especially for Rodrigues, there is no dryland biodiversity per se. In the case of Mauritius the actions included under the forest biodiversity programme of work would apply here.

188. Has your country integrated actions under the programme of work of dry and sub-humid lands into its national biodiversity strategies and action plans or the National Action Programme (NAP) of the UNCCD? (decisions V/23, VI/4 and VII/2)	
a) No	**X**
b) Yes (please provide details below)	
Further comments on actions under the programme of work of dry and sub-humid lands integrated into national biodiversity strategies and action plans or the National Action Programme (NAP) of the UNCCD.	
There are a number of plans and strategy documents that relate to land degradation and sustainable land use. These include the National Development Strategy (2003), the National Environmental Strategies (1998), the Non-Sugar Sector Strategic Plan (2003). However, the NAP is being finalised at the level of Forestry Services.	

189. Has your country undertaken measures to ensure synergistic/collaborative implementation of the programme of work between the national UNCCD process and other processes under related environmental conventions? (decisions V/23, VI/4 and VII/2)	
a) No	
b) Yes, some linkages established (please provide details below)	**X**
c) Yes, extensive linkages established (please provide details below)	
Further comments on the measures to ensure the synergistic/collaborative implementation of the programme of work between the national UNCCD processes and other processes under related environmental conventions.	
Linkages exist between the forestry programme and the UNFCCC Climate Change Action Plan. The issue of carbon sink is also being considered.	

Programme Part A: Assessment	
190. Has your country assessed and analyzed information on the state of dryland biological diversity and the pressures on it, disseminated existing knowledge and best practices, and filled knowledge gaps in order to determine adequate activities? (Decision V/23, Part A: Assessment, Operational objective, activities 1 to 6)	
a) No	**X**
b) No, but assessment is ongoing	
c) Yes, some assessments undertaken (please provide details below)	
d) Yes, comprehensive assessment undertaken (please provide details below)	
Further comments on the relevant information on assessments of the status and trends and dissemination of existing knowledge and best practices.	
There is little biodiversity unique to dryland.	

Programme Part B: Targeted Actions	
191. Has your country taken measures to promote the conservation and sustainable use of the biological diversity of dry and sub-humid lands and the fair and equitable sharing of the benefits arising out of the utilization of its genetic resources, and to combat the loss of biological diversity in dry and sub-humid lands and its socio-economic consequences? (part B of annex I of decision V/23, activities 7 to 9)	
a) No	
b) Yes, some measures taken (please provide details below)	**X**
c) Yes, many measures taken (please provide details below)	

Further comments on the measures taken to promote the conservation and sustainable use of the biological diversity of dry and sub-humid lands and the fair and equitable sharing of the benefits arising out of the utilization of its genetic resources, and to combat the loss of biological diversity in dry and sub-humid lands and its socio-economic consequences.

The EU Anti-erosion programme has been funding projects in Rodrigues. Specifically these have involved replanting of overgrazed land with fast growing exotic species to stabilise soil (carried out by Forestry Service, Rodrigues). The next phase of this project is the gradual replanting of these areas with native species and is funded by the Rodrigues Regional Assembly.

192. Has your country taken measures to strengthen national capacities, including local capacities, to enhance the implementation of the programme of work?	
a) No	
b) Yes, some measures taken (please provide details below)	**X**
c) Yes, comprehensive measures taken (please provide details below)	
d) Yes, all identified capacity needs met (please provide details below)	

Further comments on measures taken to strengthen national capacities, including local capacities, to enhance the implementation of the programme of work.

EDF interventions for agricultural development in Rodrigues (1984-2004) were realized in 4 project phases. Under these phases the following were executed:

a) Rehabilitation of 390 ha of river valleys through consolidation of terraces and drains for cultivation in the region of Mourouck, Riviere Banane, Riviere Coco, Grand Baie, Baie Malgache, Oyster Bay, Port Sud Est, Anse Ally and Baie Diamant.
b) Planters were assisted through distribution of seeds and fruit trees. Mechanisation was introduced in the fields. The Pest Control unit was set up.
c) Construction of pumping stations and water distribution networks, 11 dams and filter dykes along rivers were rehabilitated and 3 water harvesting structures and an irrigation reservoir at Cascade Victoire were constructed,
d) 42 km of roads and 15 km of track roads were built to ease the marketing of agricultural produce,
e) Construction of a market for sale of agricultural products and slaughterhouses.
f) Setting-up of 1000 ha of sylvopastoral, 100 ha community pastures and 15 ha of individual pastures
g) Improvement of the breeding stock was done through the introduction of new breeds.
h) Rodriguans were trained.
i) The Honey Centre was built and equipped with facilities to develop the sector in Rodrigues. Beekeepers are supported by the Commission for Agriculture through beekeeping extension service, hiring of equipments, breeding and selling of queen bees and transformation of crude wax into foundation wax.
j) Gabion works were installed in the erosion sensitive areas along rivers to stabilize land degradation.

k) The last EDF phase consolidated the past activities and furthermore financed the introduction of novel crop environment protection technologies such as greenhouse.
l) Trials were conducted on the performance of drought resistant crop varieties, pest control etc.
m) A feasibility study was conducted for the preparation of a soil fertility map of the agricultural lands. The proposal included the set up of a laboratory for analysis of soil samples locally.

On a smaller scale, the EU anti-erosion project also funded a project (directed by Mauritian Wildlife Foundation) to replant village areas with native plants to combat soil erosion.

A Government/ UNDP/GEF project on Capacity Building for a Sustainable Land Management has been finalized and funding secured. The project has adopted an open approach to the identification and analysis of all forms of land degradation on both islands as well as for the identification of SLM mitigation measures.

Box LXXII.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on:

a) outcomes and impacts of actions taken;
b) contribution to the achievement of the goals of the Strategic Plan of the Convention;
c) contribution to progress towards the 2010 target;
d) progress in implementing national biodiversity strategies and action plans;
e) contribution to the achievement of the Millennium Development Goals;
f) constraints encountered in implementation.

Mountain Biodiversity

Programme Element 1. Direct actions for conservation, sustainable use ad benefit sharing

193. Has your country taken any measures to prevent and mitigate the negative impacts of key threats to mountain biodiversity?

a) No	
b) No, but relevant measures are being considered	
c) Yes, some measures taken (please provide details below)	**X**
d) Yes, many measures taken (please provide details below)	

Further comments on the measures taken to prevent and mitigate the negative impacts of key threats to mountain biodiversity

The maximum altitude in Mauritius is 828 m amsl, and there are three mountain ranges. Despite of the low altitude, these areas have been defined as mountains. Due to difficult access, areas of forest on these slopes have not been cleared. These remnants also represent important hotspots of native biodiversity. Most of the vegetation types in these areas are a continuation of those found at lower altitudes, therefore facing similar threats such as invasive alien species and pressure for development. Reporting for such areas have been included under the forest biodiversity and programme of work.

Specific impacts and mitigation for 'mountains' include:

Land slides and erosion: Mountain reserves are defined land lying between the ridge line and the mountain reserve line. The altitude of this line exceeds that of the base line of the mountain by one third of the difference of altitude between the ridge line and the base line. Unauthorised felling of

trees is not permitted in a mountain reserve.
Fire : Firebreaks are opened in relatively dry mountain areas to prevent spreading of fire.
Invasive species: To reduce their impact weeding and restoration is carried out. There are three Nature Reserves in mountainous areas (1ha is actively weeded), and two CMAs (Mt Cocotte 0.4ha of cloud forest and Morne Seche (9ha)). One hectare is also actively weeded on the summit of Le Morne Brabant. There is one privately-managed mountain ridge being actively managed (c7 hectares has been weeded so far), and one privately managed mountain reserve that is almost restored.
Many species in those listed areas are also Critically Endangered and thus are included in *ex-situ* propagation programmes to prevent their extinction.

Two committees also working on Forest Biodiversity, namely the NTPTC and IASTC are also helping to oversee this work.

194. Has your country taken any measures to protect, recover and restore mountain biodiversity?	
a) No	
b) No, but some measures are being considered	
c) Yes, some measures taken (please provide details below)	
d) Yes, many measures taken (please provide details below)	**x**

Further comments on the measures taken to protect, recover and restore mountain biodiversity

In addition to information provided earlier the following restoration works are being carried out.

- Re-afforestation of Signal mountain: Reafforestation of an area of 65 ha divided into three blocks of 20 ha, 20 ha and 25 ha respectively. The first block of 20 ha had already been fenced and planted with indigenous species
- Preparation of Management Plan for mountain nature reserves, Le Pouce (68.8ha 1 ha to be weeded) and Corps de Garde (90.33ha – 1ha under active management),
- Reafforestation programme in Rodrigues (50 -75 ha over the past years 20 years)

195. Has your country taken any measures to promote the sustainable use of mountain biological resources and to maintain genetic diversity in mountain ecosystems?	
a) No	**x**
b) No, but some measures are being considered	
c) Yes, some measures taken (please provide details below)	
d) Yes, many measures taken (please provide details below)	

Further comments on the measures to promote the sustainable use of mountain biological resources and to maintain genetic diversity in mountain ecosystems

There is little use of mountain biodiversity, and no local community is directly dependent upon it.

Slopes of the mountains (privately owned and state lands) are often used for deer ranching. There is inadequate monitoring and enforcement of forest clearing (legally the clearing should not exceed 5%).

196. Has your country taken any measures for sharing the benefits arising from the utilization of mountain genetic resources, including preservation and maintenance of traditional knowledge?	
a) No	

b) No, but some measures are being considered	
c) Yes, some measures taken (please provide details below)	**X**
d) Yes, many measures taken (please provide details below)	

Further comments on the measures for sharing the benefits arising from the utilization of mountain genetic resources

Any sharing of the biodiversity resources is covered under the Material Transfer Act. Also the legislation on Intellectual Property Rights is under preparation.

Programme Element 2. Means of implementation for conservation, sustainable use and benefit sharing

197. Has your country developed any legal, policy and institutional framework for conservation and sustainable use of mountain biodiversity and for implementing this programme of work?

a) No	
b) No, but relevant frameworks are being developed	
c) Yes, some frameworks are in place (please provide details below)	**X**
d) Yes, comprehensive frameworks are in place (please provide details below)	

Further comments on the legal, policy and institutional frameworks for conservation and sustainable use of mountain biodiversity and for implementing the programme of work on mountain biodiversity.

The Forests and Reserves Act 1983 provide the framework for forest management and resources in general. In addition, the Wildlife & and National Parks Act (1993) and the Environment Protection Act (2002) also applies. The National Forestry Policy dated far back in the 60's. The policy has been reviewed and finalized with the assistance of the FAO in 2006. The overall goal of the National Forestry Policy is to create public awareness of role of the forest sector in national development and human wellbeing and to ensure the conservation and sustainable management of forests and forest ecosystems of the country for the benefit of present and future generations.

198. Has your country been involved in regional and/or transboundary cooperative agreements on mountain ecosystems for conservation and sustainable use of mountain biodiversity?

a) No	**X**
b) No, but some cooperation frameworks are being considered	
c) Yes (please provide details below)	

Further information on the regional and/or transboundary cooperative agreements on mountain ecosystems for conservation and sustainable use of mountain biodiversity

No linkages have yet been established with sub-regional and regional action programmes or scientific networks for the purpose of advancing sustainable land management strategies

Programme Element 3. Supporting actions for conservation, sustainable use and benefit sharing

199. Has your country taken any measures for identification, monitoring and assessment of mountain biological diversity?

a) No	
b) No, but relevant programmes are under development	
c) Yes, some measures are in place (please provide details below)	**X**
d) Yes, comprehensive measures are in place (please provide details below)	

Further comments on the measures for identification, monitoring and assessment of mountain biodiversity
Monitoring programme include the biological diversity found in the mountain areas. The monitoring is included as part of the conservation work carried out by all the conservation stakeholders (Forestry Service, NPCS, University of Mauritius, the Mauritius Herbarium (MSIRI), Mauritian Wildlife Foundation). This includes exploration of very remote areas of native vegetation as well.

200. Has your country taken any measures for improving research, technical and scientific cooperation and capacity building for conservation and sustainable use of mountain biodiversity?	
a) No	
b) No, but relevant programmes are under development	X (included in the forest BD POW)
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	

Further comments on the measures for improving research, technical and scientific cooperation and capacity building for conservation and sustainable use of mountain biodiversity
This is included in the general conservation training (as specified in the Programme of Work for Forest Biodiversity).

201. Has your country taken any measures to develop, promote, validate and transfer appropriate technologies for the conservation of mountain ecosystems?	
a) No	**X**
b) No, but relevant programmes are under development	
c) Yes, some measures are in place (please provide details below)	
d) Yes, comprehensive measures are in place (please provide details below)	

Further comments on the measures to develop, promote, validate and transfer appropriate technologies for the conservation of mountain ecosystems

Box LXXIII.

Please elaborate below on the implementation of this programme of work and associated decisions specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.
The information provided under the forest PoW also applies in this case.

E. OPERATIONS OF THE CONVENTION

202. Has your country actively participated in subregional and regional activities in order to prepare for Convention meetings and enhance implementation of the Convention? (decision V/20)	
a) No	**X**
b) Yes (please provide details below)	
Further comments on the regional and subregional activities in which your country has been involved.	

203. Is your country strengthening regional and subregional cooperation, enhancing integration and promoting synergies with relevant regional and subregional processes? (decision VI/27 B)	
a) No	**X**
b) Yes (please provide details below)	
Further comments on regional and subregional cooperation and processes.	
Mauritius is member of SADC and has ratified the SADC Protocol on Wildlife Conservation and Enforcement, and SADC Protocol on Forestry (October 2002), African Convention on the Conservation of Nature and Natural Resources (1968). The revised text of July 2003 in being considered by Government for ratification.	

The following question (204) is for DEVELOPED COUNTRIES

204. Is your country supporting the work of existing regional coordination mechanisms and the development of regional and subregional networks or processes? (decision VI/27 B)	
a) No	Not Applicable
b) No, but programmes are under development	
c) Yes, included in existing cooperation frameworks (please provide details below)	
d) Yes, some cooperative activities ongoing (please provide details below)	
Further comments on support for the work of existing regional coordination mechanisms and the development of regional and subregional networks or processes.	

205. Is your country working with other Parties to strengthen the existing regional and subregional mechanisms and initiatives for capacity-building? (decision VI/27 B)	
a) No	
b) Yes	**X**

206. Has your country contributed to the assessment of the regional and subregional mechanisms for implementation of the Convention? (decision VI/27 B)	
a) No	**X**
b) Yes (please provide details below)	
Further comments on contribution to the assessment of the regional and subregional mechanisms.	

Box LXXIV.

Please elaborate below on the implementation of this article and associated decisions specifically focusing on: a) outcomes and impacts of actions taken; b) contribution to the achievement of the goals of the Strategic Plan of the Convention; c) contribution to progress towards the 2010 target; d) progress in implementing national biodiversity strategies and action plans; e) contribution to the achievement of the Millennium Development Goals; f) constraints encountered in implementation.

F. COMMENTS ON THE FORMAT

Box LXXV.

Please provide below recommendations on how to improve this reporting format.
1. The size of the document renders it difficult for circulation even electronically. Possibilities to create sub documents to be explored. This will facilitate the tasks locally as different groups of stakeholders are usually involved. 2. The section numbers should stay constant. 3. There is too much repetition between questions, and often the questions lack clarity. 4. Also due to the wide nature of the decisions, it seems inappropriate to attribute certain measures to a specific question 5. Another problem arose with gaps in the choice of answers. In such cases, the nearest answer was chosen.

6. The structure of the third national report require a detailed knowledge of CBD Articles, all the decisions of the Conference of Parties and recommendations of the SBSTTA to respond correctly to the questions. This together with an inadequate vulgarisation of the Convention on Biological Diversity makes it difficult to engage all the stakeholders under one roof to discuss the report. Therefore 3 sub working groups were devised facilitated by experienced resource persons. Despite this approach, responses from stakeholders required further inputs

7. Report is too lengthy and therefore not environment friendly.