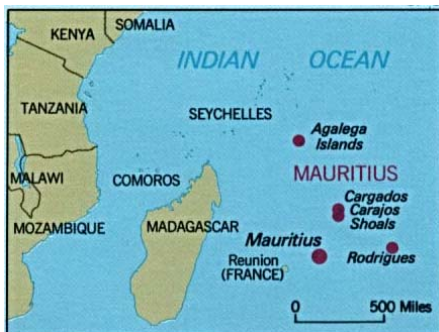
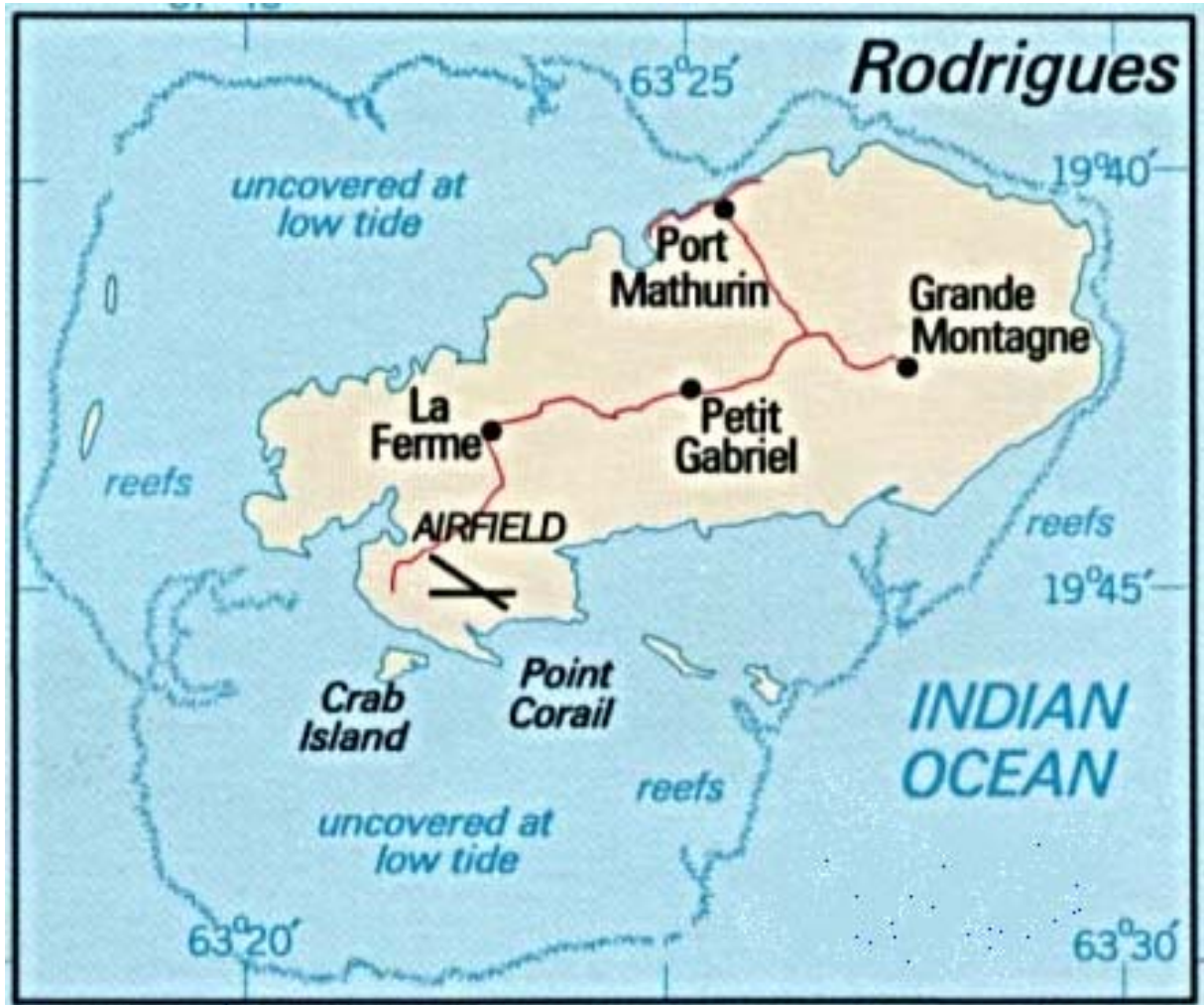


The Rodrigues Islets Strategic Framework



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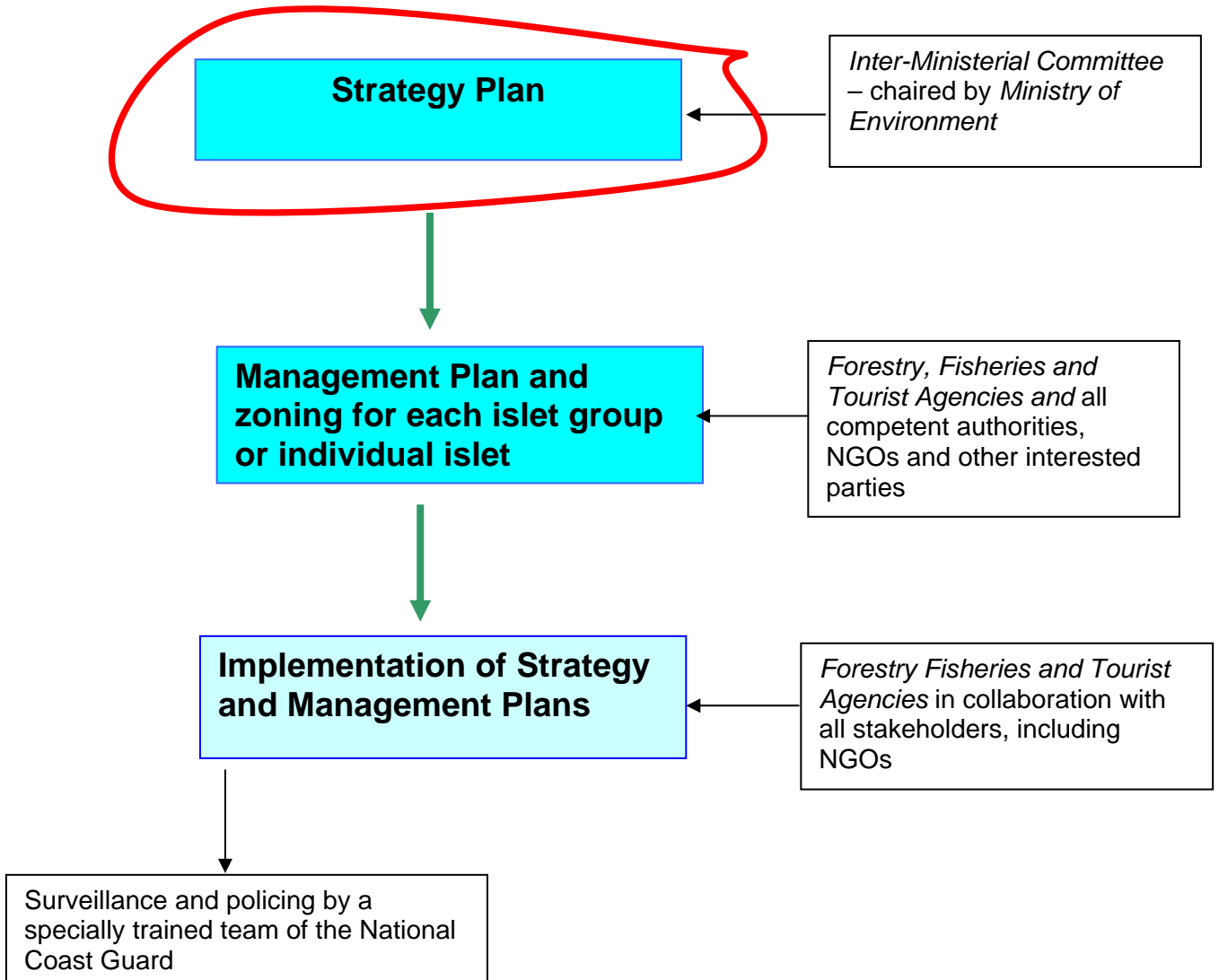
The present document is the result of extensive consultations and visits to the various islets by a consultant team from the Belgium firm AGRER, which visited Mauritius from November 2003 through February 2004 and conducted a series of workshops, which considered the various aspects of the Strategic Plan for the 16 Islets that comprise the Islets National Park.

Funding was through the Environmental Investment Program II

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**For the Rodrigues Regional Assembly,
Government of Mauritius**

Sequential Planning and Management of the Islets



Executive Summary

1. The flora and fauna of Mauritius and Rodrigues and their offshore islets has evolved through millions of years of isolation and adaptation, and is characterised by a high diversity and endemism that is particularly susceptible to population declines and extinction. Much of the native flora and fauna has disappeared over the past 400 years of human settlement, and many components of the remainder are internationally recognized as threatened and vulnerable. The major threat to biodiversity is the continuing degradation by invasive exotic species and human activities on the 1.6 % of the land that remains as native habitat.
2. This report outlines a possible Rodrigues Islets Strategy, with a focus on Cocos, Sables, Crab and Gombrani,¹ The prime objective of which is the protection and conservation of the remnant native animal and plant populations that still exist on relatively isolated lagoon and offshore islets.
3. This planning framework has been developed through consultation at an institutional level and through a stakeholder participatory planning process conducted at three workshops, held in Mauritius in November 2003 and February 2004, and additional meetings with the Chief Commissioner, Deputy Chief Commissioner, heads of relevant sector units and various other stakeholders including boat-operators and MWF (Rodrigues), in Rodrigues. The main focus of these workshops was the development of a strategic plan for the islets of Mauritius. However, much of the output is relevant to Rodrigues at the strategic level.
4. This is presented here, in the context of Rodrigues, as an introduction to the management plans for Cocos, Sables, Crab and Gombrani. The consultants do not suggest that this document be treated as a Strategic Plan *per se*, but be used as a framework on which to develop an equivalent plan through further workshops in Rodrigues, with full stakeholder participation.
5. The strategic framework has three main themes:
 - The development of a management strategy for protection and enhancement of the existing natural resources;
 - Encouraging support for conservation efforts through public awareness campaigns, education and the use of some islets to raise awareness of biodiversity and conservation issues through the provision of research, educational and recreational facilities; and
 - The enforcement of laws that prevent habitat degradation and destruction, littering, poaching and theft of protected plant and animal species
6. The 4 Islets that are the focus of this report, comprise of two important sea bird breeding and roosting islets: Cocos and Sables, which are already designated Nature Reserves, under the Forestry and Reserves Act, 1983; and two other islets Crab and Gombrani, which present opportunities for restoration and multi-purpose development.
7. Cocos and Sables are vegetated sand-bar islands on the outer margin of western lagoon of Rodrigues, whereas Crab is a rocky outcrop close to the coast of Rodrigues, and Gombrani is a coralline islet to the south of the main island.
8. Following recommendations from the participatory workshops, the individual islets are then classified in terms of their proposed designation. The main purpose of the designation is to make apparent and easily understood the degree of access allowed to the individual islets. This

¹ which is part of the ToR of the AGRER consultant team recruited through the National Parks and Conservation Service in Mauritius and funded by the Ministry of Environment.

will facilitate understanding by the general public, and enable more effective policing and enforcement. Two designations were agreed upon: Open Reserve and Closed Reserve. This is equivalent to the Strict Nature Reserve and Open Nature Reserve designation recommended by the Islets National Parks Task Force but it was the consensus of the workshops that for the time being, the designation closed and open reserve would lead to less confusion as many of the islets are already designated Nature Reserves under the Forestry and Reserves Act of 1983. When the issue of institutional ownership detailed above has been resolved, the exact terminology used in designation could be revisited.

9. The Closed Reserves are strictly for the purpose of conservation and protection of native biodiversity and access is restricted to authorized personnel for the purposes of monitoring, enforcement and restoration of native habitat. Open Reserves can be multipurpose with an array of activities allowed, ranging from protection, conservation, research, eco-tourism, education, and public awareness to recreation.
10. The range of activities has been determined through consideration of each individual islet's potential in supporting the three major themes of the strategic plan; and their current value in terms of:
 - Native species biodiversity;
 - Cultural importance;
 - Naturalness² and habitat fragility; and
 - Current use and potential for restoration. Different parts of a particular islet may have different conservation value and therefore may require different management techniques and interventions. A series of zones are proposed to identify particular areas associated with different conservation values and to assist in management design. These zones should be developed within the islet management plans; based on biotope maps and location of fragile habitats and important native species.

Proposed Zonation

1. *Protection Only* a focus on protection of a relatively undegraded resource. Access is severely restricted to authorized personnel for monitoring and evaluation purposes only. The number and duration of visits by authorized personnel should also be limited. No management interventions other than enforcement are necessary.

2. *Restoration Only* signifies a focus on conservation management; the level of environmental degradation merits intervention either for the purposes of habitat restoration or to protect ecosystem functions. This may include re-introduction of endangered native species as a way of increasing their distribution among the various islets, thereby reducing the risk of extinction. Access is limited to authorized management and enforcement personnel

3. *Limited Public Access* signifies a focus on development of the area for scientific experimentation in restoration techniques and eco-tourism; the zone characteristics indicate a relatively robust ecosystem, where such activities pose little risk to endemic species, either because of the low level of native species biodiversity or because they are well established and resilient. The relative robustness of the ecosystem would also allow low-risk experiments in conservation management techniques with respect to environmental habitat manipulation, habitat restoration and reintroduction of native species. Specific vulnerable areas may still require protection, other areas habitat restoration and conservation management. Given the likely high level of capital investment needed to enhance the relatively degraded islet ecosystems, Public-Private-Partnerships should be encouraged. Eco-tourist visits should be encouraged but restricted in number and supervised through the provision of guided tours, the cost of which would be included in an entrance

² Level of degradation

1. *Limited Public Access 2* signifies a focus on education and public awareness. The zone would be developed to inform and encourage a public interest in conservation issues. The zone would have a network of signed pathways leading visitors through the various habitats and ecosystems present. It would also provide a venue for information dissemination to the general public of the progress in environmental conservation, rehabilitation and restoration activities pursued by the government. Community participation and involvement would be actively encouraged; local government and other interested community group representatives would be progressively given “ownership” of islet developments. Opportunities may exist to establish a field centre and infrastructure to enable high school and undergraduate students to carry out environmental management and ecological field experiments. Education and public awareness facilities such as a small museum, displays of native species, aquarium and the like may be considered.

5. *Recreation* signifies public access for the prime purpose of recreation. Unlike the other zone classifications, overnight camping would be allowed. However, other conservation management activities would be necessary and desirable to support the prime objective of the strategy and to ensure the sustainable development and management of a particular islet resource.

Spatial zoning will facilitate management on the “multipurpose” islets; the different zones signifying different sanctioned activities, thereby ensuring adequate protection of ecosystem integrity, and conservation of fragile habitats and areas of scientific interest.

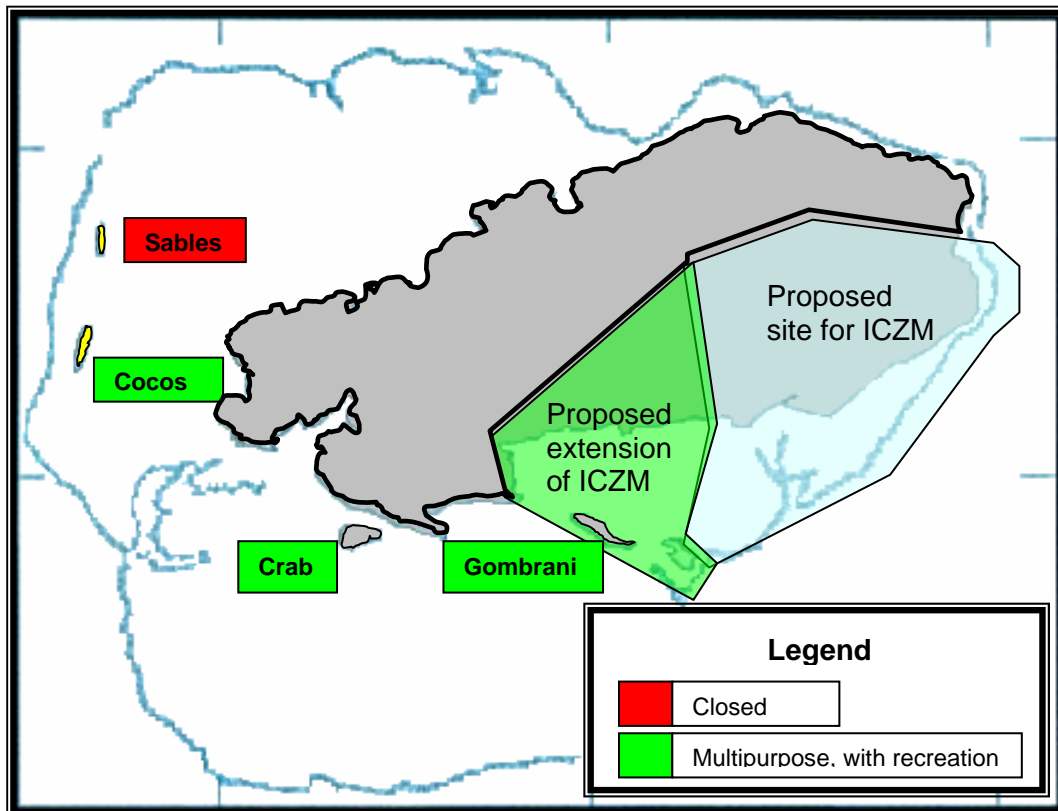
Zonation Scheme for Islets

	Zones	
a	Protection Only	- Monitoring, protection and enforcement only
b	Restoration Only	- Conservation management only
c	Limited Public Access 1	- Eco-tourism and scientific research, conservation management
d	Limited Public Access 2	- Education and public awareness, conservation management
e	Recreation	- Mainly recreation

It is proposed that Sables remains, as it is presently in law a closed islet, with visits restricted to management and enforcement personnel. The status of Cocos again remains the same and acquires an Open Status in terms of allowed visits from eco-tourists and for recreational purposes. An Open Status is also proposed for Crab and Gombrani. Open status allows zoning which enables control of access to different parts of the islet for different purposes.

To facilitate the establishment and operation of these Islets various, policy, institutional and enforcement issues need to be addressed.

Schematic of Rodrigues Islets



Policy

The *strategic objectives* for the environment at a national level have been set and are presented in the *National Environmental Strategy and Action Plan 1999*.

Environmental and conservation issues need to become part of the national agenda, which recognises the importance of environmental quality to the economy of Mauritius, especially with respect to its reputation as a prime tourist location. To this end, as stated in NEAP2 *“It is necessary to inform and mobilize the public since national environmental policy places great emphasis on the duties of the individual in environmental protection.”*

Public awareness and education needs to be a prime policy initiative of the Islets development strategy. The protection and conservation of biodiversity and native species will be difficult to sustain without the support of the general public, both from the political, financial and implementation perspective. Public interest creates the demand for specific environmental services, and eco-recreational facilities. Public support encourages continuous government commitment and funding; and enforcement is less onerous and more effective with the cooperation of the general public. It is imperative that the Rodrigues Islets Strategy includes mechanisms through which the public becomes much more informed about the importance of conservation and biodiversity to the development of Rodrigues as a up-market tourist destination.

These would include, embedding environment and conservation in the primary and secondary school curriculum with a specific emphasis on the environment of Rodrigues; the development of a public awareness campaign that dealt with environmental stewardship as well such matters as littering and

fire-lighting; the encouragement of youth groups to participate in management of certain islets and the development of some islets for public education and eco-recreation.

The competent authorities responsible for the conservation, eco-tourism and recreation on the islets need to enhance their public awareness and education capacity by cooperation with those authorities responsible for education to develop curricula; organizing awareness raising events; educating the media to inform and interest the public in the natural heritage of Mauritius and Rodrigues as well as informing them of their responsibilities; supporting NGOs in taking forward environmental education projects; and working with the Ministry of Tourism and Mauritius Tourism Promotion Authority and *Association Rodriguaise des Tours Opérateurs* (ARTO), to raise awareness of tourists and tour operators to the environmental sensitivity of Mauritius and Rodrigues.

Finally, on a separate issue, it needs to be recognized that these islets are part of the coastal and marine ecosystem. Their protection, management and development will not be successful if they are treated as isolated plots of terrestrial habitat. There is a need to integrate the Islet National Park into a broad-based integrated coastal zone development strategy.

Institutional Issues

The protection of flora and fauna is largely the responsibility of the Ministry of Agriculture, Food Technology and Natural Resources. The declaration of a Nature Reserve is the prerogative of the Forestry Department of the Ministry of Agriculture under the Forest and Reserve Act of 1983. However, the declaration of the National Park is the prerogative of the National Conservation and Parks Service also with the Ministry of Agriculture, under the Wildlife and National Parks Act of 1993. However, NPCCS has no representation in Rodrigues.

At present, the Islets of Cocos and Sables are managed by Fisheries, and Crab Island is under the authority of Agriculture and is used as a sheep breed-stock station. There is a strong argument on the grounds of institutional efficiency for consolidating the conservation responsibility of the Islets into one authority, thereby allowing a more effective allocation of limited resources, information and experience.

Enforcement Issues

Enforcement of existing legislation is the responsibility of several authorities, including the National Coastguard and Fisheries, but there appears to be limited co-ordination at an operational level, and a general lack of dedicated resources, including properly trained officials, to carry out assigned functions in a consistent and effective way.

Information

Successful planning and management requires information, monitoring and evaluation of present and past experiences. Existing information and data storage and dissemination facilities need to be upgraded and linked to facilitate easy access. The establishment of an Inter-Agency Network, accessible through the Internet, should be considered, with the relevant agencies servicing the requirements of dedicated information nodes. Monitoring and evaluation capabilities need to be enhanced in all institutions that are currently involved in wildlife conservation.

Public Private Partnerships

Certainly public private partnerships between the private sector, NGOs, etc. should be encouraged as they allow access to complementary resources and experiences and have been shown to be successful in Mauritius and Rodrigues, as illustrated by the partnership developed between the NPCCS, Forestry and Mauritius Wildlife Foundation.

However, such partnerships must be firmly rooted in formal legally binding contractual obligations that detail expectations from the viewpoint of all partners so as to minimize potential misunderstandings and give necessary redress to remedy perceived conflicts of interest. Given the recent ruling of the State Law Office the allocation of management responsibilities will need to be based on the Management Plans that are to be developed by the competent authority.

Community Participation

It is also fundamental for the long-term effectiveness of any management plan to engender local community support. Public participation in the management of reserved areas needs to be encouraged and needs to be legally strengthened.

Where the demarcation of the islets includes coastal margins or marine areas, the use by local fishermen needs to be taken into account. Collaborative efforts need to be developed. Demarcation, whether in the form of a marine protected area or a buffer zone does not necessarily mean that fishing will be proscribed, although specific areas within the zone may be off limits or specific gear types may be proscribed. Given the knowledge that the local fishermen may have of the area, it is important to include them in the development of the islets, and where possible enable employment within the system, or if a planned development is likely to impact on livelihood to facilitate the movement to alternative livelihoods.

Global Warming and Fire

The sandbar islets and low-lying coralline islets, namely Sables, Cocos and Gombrani, will be susceptible to global warming induced sea-level rise. They are to differing degrees already highly influenced by the sea, and cyclone storm surges. Crab will be less dramatically impacted by sea level rise, as there is sufficient gradation of topography to enable the shoreline retreat.

The risk of fire on many of the islets will increase given the proposed use of some the islets for eco-tourism, education and recreation. Various management measures and contingency plans need to be drawn up to ensure that the risk of fire is minimised and if in the event of an outbreak of a serious fire the response will be rapid and effective. It is recommended that the islets be cleared of potential tinder remaining from weed clearance and path clearance, that signs warning of fire risk are clearly posted and that the development of a rapid response force be considered within the coastguard and other relevant authorities. Each islet management plan should address locality specific risks with regard to fire and cyclones.

1 The Potential and Importance of Rodrigues Islets for Conservation and Eco-tourism

The rocky volcanic island of Rodrigues is 560 km to the northeast of Mauritius. The Portuguese have the honour of discovering Rodrigues for Europe and named it after their intrepid explorer seamen, but it was the Dutch who are first recorded as alighting on the island, albeit very briefly in 1601. The Frenchman Francois Leguat and a small band of Huguenot companions sailed away from religious persecution in France and settled on the island for two years in 1691. The island's flora and fauna were a source of food, survival, rather than conservation was a priority in those days. Subsequent visitors used the island as a food resource leading to the extinction of the giant tortoise and the flightless Solitaire bird. The French returned to the island in the early 18th century, but abandoned Rodrigues by the end of that century. The British landed in 1890 and used it as a provisional base from which to attack and capture Mauritius. Rodrigues gained independence in union with Mauritius in 1968, and has now regional autonomy with a Ministry of Rodrigues within the Mauritian Government and a resident Commissioner and assembly to administer island affairs.

Rodrigues is the smallest of the Mascarene main islands. Although measuring only 8km by 18 km Rodrigues supports a population of about 40,000 inhabitants, almost all of African descent. After the abolition of slavery in Mauritius, many freed slaves chose to begin a new life by moving to Rodrigues. The economic mainstays of the island are fishing, subsistence agriculture, handicrafts and tourism and subsidized imports from Mauritius. The maritime fisheries around the island are still relatively productive. As well as having some excellent deserted beaches, the island is surrounded by a relatively untouched coral reef.

Flora and Fauna

Since the islands colonisation in the 17th century, its forest cover has been destroyed by felling and intensive grazing; over farming; exacerbated by cyclone damage. This is especially apparent on the coastal slopes, which are stripped of much of their natural vegetation. The secondary growth with which the forest has been replaced consists of mainly of introduced exotic species.

Terrestrial biodiversity importance is still high, despite the rapid land conversion from the palm rich forest, thought to have originally covered much of the island. 145 indigenous and 49 endemic plants have been recorded. Of the 38 or so remaining species of plants native to Rodrigues, all but two are considered endangered, vulnerable or rare. Many endemic birds are extinct with only two threatened endemics remaining; the Rodrigues warbler (*Acrocephalus rodricanus*) and the Rodrigues fody (*Foudia flavicans*). Rodrigues had no endemic reptile species the endemic vertebrates are the warbler, the fody and the fruit bat. There are however, a number of endemic invertebrates.

Some plant species are down to a few specimens in the wild: *café marron*, *bois pipe*, *mandrinette* and *bois pasner* are all in a precarious position. The government is acting to protect vegetation plots of critical important species in areas such as Grande Montagne, Pigeon, Cascades Mourouk, St Louis and Anse Quito. Rare species are grown in nurseries on Rodrigues and then planted in these plots. It is hoped that these areas will eventually become refuges for the island's rare endemic fauna, such as the warbler, fody and fruit bat all of which have begun to recover from near extinction in the 1960's.

Rodrigues is surrounded by an extensive coral reef platform that forms an almost continuous rim enclosing the 200km² and eighteen small islets. More than a hundred species of coral are found in the lagoon. The reef is being monitored on a yearly basis under the Global Reef Survey. The 2000 check showed the reef in good condition with a 51% cover of live coral and just 2% coral mortality.

The coastal islets off the Mauritius mainland and Rodrigues are some of the last refuges of the plants and animals that were once common in the lowland and coastal regions of the main island. Even so

the easy access of the lagoon islets in Rodrigues means that they have also suffered from over-grazing and the introduction of exotic trees and weeds.

The western sandbar islets of Cocos and Sables are nesting sites for large colonies of seabirds, including the fairy tern and the noddy. The group of islets to the south in the lagoon of the Grande Passe - Mourouk area that includes Gombrani, along with Hermitage, Chat and Flat islands are famous for their unique flora. The Grande Passe channel is the largest natural channel in Rodrigues. Within this area the Port-Sud-Est pass has been declared as a fishing reserve. The boundaries of this reserve are to be extended and given Marine Protected Area status.

There is some degree of recognition of the problems affecting the coastal and marine environment in Rodrigues in some sectors of society. The willingness to make the necessary changes exist but capacity and resources are lacking.

2 Legislative and Policy Support

There are a number of legal and policy tools³, which, if adequately enforced and implemented, provide the basis for the protection, conservation, and restoration of the islets at the state and international level.

Developments in conservation have been accompanied by new or modified legislation that has specifically dealt with conservation concerns. Endemic reptiles were given protection in 1973. Protection was extended to all native birds in 1977. Fruit bats were given protection in 1983. The Forests and Reserves Act (1983) contains conservation provisions while the Environment Protection Act (1991) provides the overall framework for environmental protection in Mauritius. In 1994 Mauritius' first National Park was established under the Wildlife and National Parks Act (1993)⁴, an act that also contains other biodiversity conservation provisions.

Recommendations for the development of marine parks and active marine conservation in Mauritius date back to the early 1970s. Awareness of marine ecosystem degradation became more mainstream in the late 1970s both at a public and government level. A marine reserve at Blue Bay was proclaimed a National Park in 1997, under the Wildlife and National Parks Act, 1993.

The Ministry of Agriculture developed a conservation strategy plan in 1985. This has now been largely superseded by the National Biodiversity Strategy and Action Plan for the Republic of Mauritius (2001)⁵.

The *strategic objectives* for the environment at a national level have been set by the *National Environmental Strategy and Action Plan 1999*⁶. The sections on *Terrestrial Biodiversity and Coastal Zone Management* are particularly relevant, describing the important aspects that need to be considered and incorporated into any strategic planning for the *Islets National Park*.

2.1 Institutional Setting

2.1.1 Government Agencies

Rodrigues has recently become autonomous with the establishment of the Rodrigues Regional Assembly (RRA) and the Executive Council of Commissioners. The Chief Commissioner is responsible for the Fishery and Environment Sector. Various department heads undertake the daily administrative management of the various sectors under Mauritian law, and are responsible to the Island Chief Executive and the Chief Commissioner. Under the new autonomy provided for under the

³ see Appendix I & II

⁴ see Appendix III

⁵ Not yet finalized, see Appendix IV

⁶ see Appendix V

Rodrigues Regional Assembly Act 2001, the RRA is mandated to appropriate legislation. in consultation with the State Law Office, for protection and management of marine and natural resources. Under the decentralised situation District Councils are responsible for detailed planning and development approvals at village and community levels.

Units responsible for managing natural resources in Rodrigues include: Rodrigues Environmental Unit, Rodrigues Forestry Unit, the Rodrigues Fisheries Protection Unit, the Fisheries Research and Training Unit and the Rodrigues Water Unit. The National Parks and Conservation Service is not presently represented.

Management of coastal and marine resources is not as fragmented as in Mauritius, however coordination remains weak, leading to sub-optimal outputs. In particular, enforcement of rules and regulations pertaining to lagoon fisheries and wildlife protection seem need to be more effectively applied.

2.1.2 Non-Government Organizations

There are a number of NGO's and Community Based Organisations (CBO's) concerned with the Rodrigues coastal and marine environment. These organizations work closely with the RRA and its various units contributing towards awareness raising and sensitisation of the environmental matters. CBO's include fishermen communities, ecologists, octopus fisherwomen and others.

The development of terrestrial conservation work in Mauritius since 1973 has been a story of fruitful national and international collaboration. The activities of the non-government organisation Mauritian Wildlife Foundation (MWF) are highly significant.

The relationship between the NPCS, Mauritius and the MWF has been one of parallel collaborative and supportive development. Established in 1984 as the Mauritian Wildlife Trust with support the Durrell Wildlife Conservation Trust, Jersey, MWF has worked closely with government, in particular with the NPCS with whom it signed a Memorandum of Agreement in 1994, which was renewed in 2000. MWF has focussed on terrestrial conservation and biodiversity issues. Previous to the involvement of MWF, Rodrigues in the management of the bio-diversity of the islets was under the GEF Mauritius Bio-diversity Restoration.

During 1995, the visiting team conducting Phase II of the Mauritius Offshore Islands Project eradicated the mouse population on Île Cocos and Île aux Sables and did a significant amount of weeding (Khadun, pers. com., 1996). Raleigh International also conducted extensive weeding, on Cocos and Sables removing *Leucaena leucocephala* in 1993 (Kershaw, 1993). MWF Rodrigues was established in 1996.

The first NGO addressing marine environmental issues, the Rodrigues Shoals

2.1.3 Tourist Sector

Association Rodriguaise des Tours Operateurs (ARTO) is the body that represent tour operators on Rodrigues. Rodrigues tourism markets itself under the eco-tourism label and this holds great potential, especially given the high density of tourist operations in Mauritius. Development of this sector is presently constrained by the limited number of flights from mainland Mauritius and hotel rooms. However, the growth of tourism in Rodrigues has seen the emergence of a number of tourist based activities including, restaurants, game fishing, car rentals and handicraft activities, which support about one thousand jobs at the present time. Significant expansion of the tourist sector is planned, given the potential of the island and serious limitations for other economic activities. The islets of Rodrigues offer some potential as a tourist resource, especially as eco-tourist venues. If carefully managed the use by tourist would not necessarily have a serious impact on the islets native biodiversity and could part of the revenue from tourism could be used to enhance and restore some of the islets to make them more attractive to eco-tourists.

2.1.4 Global Environmental Fund

GEF (UNDP) is seed funding a demonstration site of a Marine Protected Area in the lagoon of the Grande Passe - Mourouk area. The proposed area borders on the islet of Gombrani. The consultants have discussed with the Commissioner the possibility of extended the declared area to include Gombrani Islet and the western part of the lagoon (see Figure I)

2.1.5 Other Stakeholders

The stakeholders identified above (Government and NGO) are the key and secondary stakeholders, i.e. they are involved with plan delivery. However, consideration must be made to the primary stakeholders (i.e. those affected in a positive or a negative way by the plan, but who traditionally have little involvement with its delivery). Primary stakeholders include local people and their representatives, who exploit the natural resource of the islets (e.g. fishermen, hunters, fishermen representatives, and Community groups in towns adjacent to the near shore islands, members of the tourist and recreational sector and boat operators.

Particularly relevant to the management of Cocos and Sables are the boat operators that ferry visitors to these islets. Presently they are not represented by any coherent organization. They purchase permits from the administration on a per trip basis, which causes problems at the weekend when demand for their services is high but the administrative office is closed. In general the rules and regulations of visits needs to be developed in consultation with the boat operators and they need and want to be trained so that they can act more effectively as guides as well as ferrymen. It would be more efficient if the boat operators organized themselves into a cooperative that could handle their permit requirements and negotiate on their behalf with the administration, the larger hotels and tour operators.

For long term and sustainable success of the lagoon islets, it is vital that many of the present primary stakeholders become more involved with the plan and its implementation, and thus have some sense of ownership over them.

Educational and scientific institutions also need to be consulted as potential users of the open nature reserves and nature parks.

3 Development of the Islets Rodrigues Strategic Plan Framework

The development of this framework came out of the participatory Strategic Planning Workshops held in Mauritius November 2003 and February 2004. The workshops were given the over-arching objective or development goal as that determined by the *Islets Task Force*; namely the conservation, protection, and enhancement of endangered and endemic fauna and flora of Mauritius and Rodrigues, through the development of a series of islet management plans.

The long-term development vision is to enable this invaluable resource to be used to enhance the reputation of Mauritius and Rodrigues as a highly desirable tourist venue; to ensure that any use of the islets is sustainable and does not endanger the continued existence of these now unique ecosystems with their component habitats and attendant flora and fauna; while continuing to provide local recreational amenities for present and future generations.

Workshop participants recognized that in order to ensure the continuation of these natural resources for the use of future generations, it would require not only a technical strategy of wildlife protection and enhancement, but also there would need to be developed concomitant strategies for education and public awareness and cost effective enforcement which would ensure success in the long-term, by eliciting the support of the general public and engaging the various key stakeholders.

Taken as a whole, the consensus of a strategy for conservation of native species through the development of the Rodrigues Islets may be thought of as a series of inter-related and interacting priorities:

1. To ensure adequate protection and restoration to enhance the existing natural resources;
2. To reduce the risk of extinction of any endangered species that are limited to one or two islands through the reintroduction of these species to islets where they have been exterminated; and
3. To increase public awareness of the importance of the conservation of native species biodiversity.

Three parallel strategic objectives were therefore developed which addressed these priorities:

- Conservation and Protection;
- Public Awareness and Education; and
- Legislation and Enforcement

Underpinning all these objectives is the need to enhance information development, exchange and dissemination to all parties interested in the conservation of the native species of Mauritius and Rodrigues.

This document has been prepared to assist the Rodrigues competent authorities and other interested parties to develop an Islets Strategy specifically for Rodrigues.

3.1 Strategy for Conservation and Protection

The participatory workshop round-table on conservation and protection developed the following planning schematic

Planning Objective

Preservation of Bio-diversity & Natural and Cultural Heritage

Outcome 1

Protection of Endangered Species and Habitats

Conservation of terrestrial and marine bio-diversity

Restoration of natural habitats

Outcome 2

Conservation of Historical Sites

Restoration of cultural identities

General Outputs

Zoning of Islets

Identify natural characteristics of each islet and designate functionality / role in overall strategy

General Activities

Identification of threats and issues to be addressed (short-term / long-term)

Consolidation of sites and areas

Rehabilitation / Maintenance of sites and areas

Capacity building

Input requirements:
identification of available resources / institutional responsibilities / private public partnerships

3.1.1 Islet Characteristics; Categorisation and Zoning of the Islets

Following recommendations from the participatory workshops, the individual islets are then classified in terms of their proposed designation. The main purpose of the designation is to make apparent and easily understood the degree of access allowed to the individual islets. This will facilitate understanding by the general public, and enable more effective policing and enforcement. Two designations were agreed upon: Open Reserve and Closed Reserve. This is equivalent to the Strict Nature Reserve and Open Nature Reserve designation recommended by the Islets National Parks Task Force but it was the consensus of the workshops that for the time being, the designation closed and open reserve would lead to less confusion as many of the islets are already designated Nature Reserves under the Forestry and Reserves Act of 1983. When the issue of institutional ownership detailed above has been resolved, the exact terminology used in designation could be revisited.

The Closed Reserves are strictly for the purpose of conservation and protection of native biodiversity and access is restricted to authorized personnel for the purposes of monitoring, enforcement and restoration of native habitat. Open Reserves can be multipurpose with an array of activities allowed, ranging from protection, conservation, research, eco-tourism, education, and public awareness to recreation.

The range of activities has been determined through consideration of each individual islet's potential in supporting the three major themes of the strategic plan; and their current value in terms of:

- Native species biodiversity;
- Cultural importance;
- Naturalness⁷ and habitat fragility; and
- Current use and potential for restoration.

Different parts of a particular islet may have different conservation value and therefore may require different management techniques and interventions. A series of zones are proposed to identify particular areas associated with different conservation values and to assist in management design. These zones should be developed within the islet management plans; based on biotope maps and location of fragile habitats and important native species.

Classification and Zonation Scheme for Islets

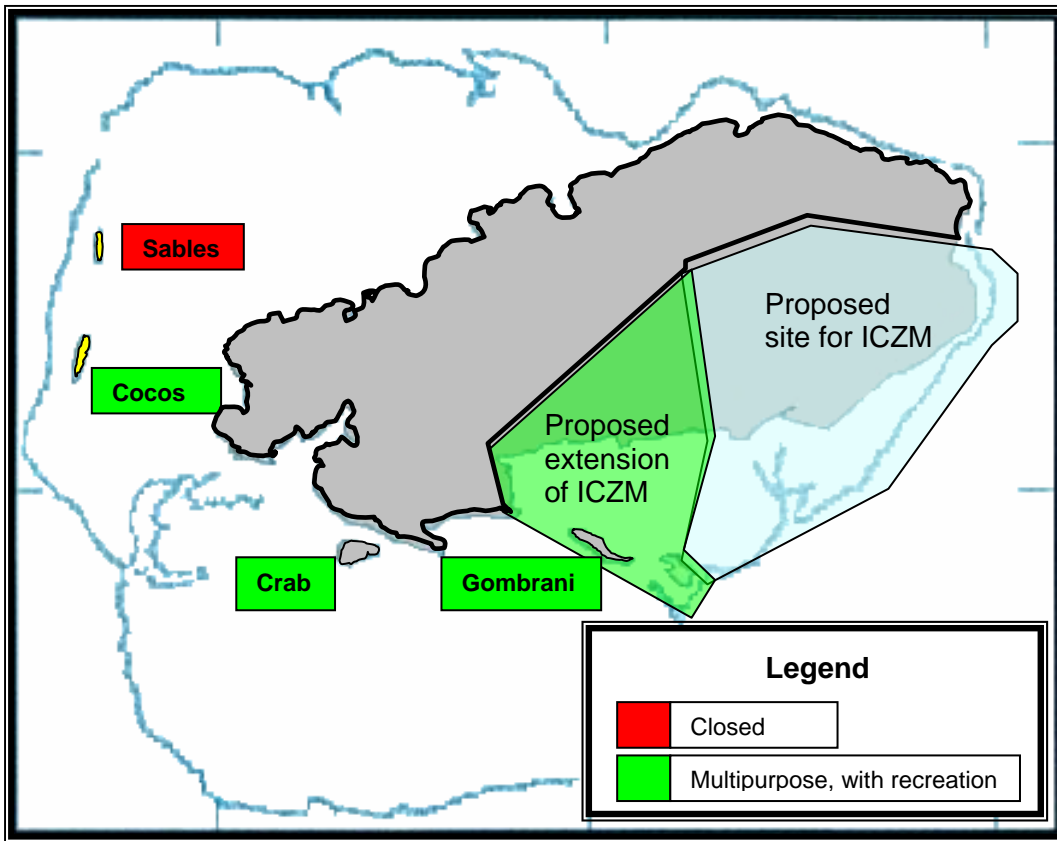
The Zonation delimitations can be on the same basis as the classification of the islets themselves:

- a. Protected
- b. Managed for purposes of Restoration
- c. Scientific Research/ Eco-tourism
- d. Education / Public Awareness;
- e. Recreation.

The zonation plans should be detailed in the management plans for each individual islet, based on the geomorphology of the islet, ecosystem functionality, the spatial distribution of biotopes, the location of rare endemic species and the need and practicality of visitor control.

⁷ Level of degradation

Figure 1 Schematic of Rodrigues



Zonation Scheme for Islets

	Zones	
a	Protection Only	- Monitoring, protection and enforcement only
b	Restoration Only	- Conservation management only
c	Limited Public Access 1	- Eco-tourism and scientific research, conservation management
d	Limited Public Access 2	- Education and public awareness, conservation management
e	Recreation	- Mainly recreation

This document includes proposed management plans for the Islets of Cocos and Sables, which are treated as a single ecological unit and the Crab Island and Gombrani.

3.1.2 Threats and Issues to Biodiversity Conservation

Threats and issues fall under six separate categories:

1. Intentional or accidental destruction or degradation of habitat by humans;
2. Disturbance by humans;
3. Removal, poaching, theft of valuable species;
4. Introduction of invasive plants and animals that threaten the existence of the native species, either through, destruction of habitat, competition or predation;
5. Introduction of native species that have not previously been known to exist in a particular location;
6. Sea-level rise and fire
7. Accidental transference of protected species to other locations.

Degradation of Habitats by Humans

Major threats such as construction and agriculture are obvious and easy to control. Less easy to control is destruction caused by fire, trampling and littering.

The lighting of fires is prohibited in all designated Nature Reserves. However, cooking on open fires is a tradition at picnics. The provision of barbeques facilities at frequently visited sites and strict patrols to ensure compliance will hopefully reduce this risk. Presently it appears that the Forestry Department when it clears underbrush and exotic species from forested land leaves the felled scrub *in situ*. This unfortunately provides good tinder during the dry season may facilitate the spread of fire. All such clearing of scrub in the future should also include removal either physically or through controlled burning or mulching at site.

Trampling of important habitat can normally be prevented by the provision of good pathways, which encourage people to stay on particular tracks, as they are easier to negotiate.

Littering is unsightly but also more importantly provides a potential source of food to pest species. There is a need to provide litter disposal facilities and collection routines at all popular islet venues.

Disturbance by Humans

Certain areas in Open Status islets, such as nesting grounds or sensitive habitats should be protected. This can either be done through zoning (see above), by fencing and signposting the area or by provision of pathways that lead away from the area.

Removal, Poaching, Theft of Valuable Species

Specimens of some species will be attractive to collectors, given their rarity value. This inevitably leads to poaching and theft. Islets that are planted with rare plants or repopulated with endangered species will have to be secure, through stationing of wardens, regular patrols and effective law enforcement.

Introduction of Invasive Plants and Animals

All islets, to a greater or lesser extent, are affected by invasive species, which at a minimum have a disruptive effect on the native flora and fauna.

Animal pests

Currently, all islets under consideration, with the exception of Crab Island have been cleared of the larger mammals. Crab Island is currently serves as a sheep stock-breeding station. There are no rats, mice or shrews on Ile Cocos or Sables, but the consultant team, saw evidence of rats during the trapping exercise, on Crab and possibly mice on Gombrani.

Plants and weeds

Weed species particularly *Flacourtia* (prune), *Cordia*, *Leucaena* and *Lantana* are a major problem, which crowd out and constrain the re-establishment of native plant species. The need to aggressively control the spread of dominant weed species increases once the introduced grazers are removed. It is possibly a good mid-term strategy to maintain some sheep on Crab so as control the spread of weeds. However their grazing needs to be more managed to prevent over-grazing and further destruction of the already degraded habitat.

Woody plants can also pose a problem. However, under specific circumstances *Casuarina* performs an important function of windbreak on the immediate coastal fringe of many of the islets and should be maintained, until a more appropriate functional native species replacement is found.

Any islet that has a significant number of visitors has an increased risk of accidental introduction of exotic species. This is not an important issue where islets are relatively degraded or already have established populations of exotic species but is a major concern on islands that are relatively pristine or are being rehabilitated.

Sea level rise and fire

Some of the sandbar islets and low-lying coralline islets, such as Sables, Cocos and Gombrani, will be susceptible to global warming induced sea-level rise. They are to differing degrees already highly influenced by the sea, and cyclone storm surges, and as such there is no plans to have substantial developments on these islets. The basaltic islets with more topographic features will be less influenced by any predicted sea-level rise.

The risk of fire on many of the islets will increase given the proposed use of some the islets for eco-tourism, education and recreation. Cocos has already suffered from a serious fire incident, which destroyed approximately one third of the islets vegetation. Various management measures and contingency plans need to be drawn up to ensure that the risk of fire is minimised and if in the event of an outbreak of a serious fire the response will be rapid and effective. It is recommended that the islets be cleared of potential tinder remaining from weed clearance and path clearance, that signs warning of fire risk are clearly posted and that the development of a rapid response force be considered within the coastguard and other relevant authorities. Each islet management plan should address locality specific risks with regard to fire and cyclones.

3.1.3 Input Requirements: Identification of Available Resources and Institutional Issues

Substantial expertise exists in Mauritius and Rodrigues and a large amount of work has been achieved and is continuing with the assistance of NGOs and external funding (e.g., GEF).

However, the institutions dealing with biodiversity conservation need increased funding to enable them to enhance their capacity to respond to the growing pressure on the remaining native habitat. More resources need to be dedicated to monitoring and evaluation of remaining resources to enable effective policy formulation.

Both the Biodiversity Strategic Action Plan and National Environmental Strategy suggest the further involvement of NGO and private sector organisations, as well increased involvement of public in management activities.

Such arrangements should be developed, in part to access alternative funding resources and capacity, and in part to mainstream environmental and conservation issues into economic activities. It is proposed that future leasing arrangements are very clearly laid out in detail. It is proposed that the leasing contracts involve two aspects:

1. Service Level Agreement (SLA) – these identify the conditions of the maintenance of the lease. This could be, for example, thorough clearing of all litter on the islet and/or carryout yearly weeding operations on a set of identified species. The SLA would be clearly stated in a way that permits the competent authority to monitor the conditions of the lease.
2. Managed development – the aim of the strategic management plan is not to maintain the status quo, but to increase the conservation value of the islets whilst maintaining visitor and tourism potential of some of the islets. Thus a clear framework for development and a timeline should be agreed as part of the lease. This could be for example, development of a specific type of sanitary infrastructure within 2 years and the creation of walkways on specific areas to help visitor zonation on the islet. Such development should be expressed in a negotiated Logistical Framework in which the activities up to the ultimate goal for the island are clear to both the leaser and lessee.

There remains duplication, ambiguity and potential for conflict in the designation of protected areas and responsibility for their conservation. There is a strong argument on the grounds of institutional efficiency for consolidating the conservation responsibility of the Islets into one authority, thereby allowing a more effective allocation of limited resources, information and experience.

3.1.4 Community Participation

It is fundamental for the long-term effectiveness of any management plan to engender local community support. Public participation in the management of reserved areas needs to be encouraged and needs to be legally strengthened.

This is particularly true for the Rodrigues Islets. For example, there are approximately 600 registered and amateur fishermen in the Marouk area, and approximately 2,000 on the whole island. Artisanal lagoon fishing is the main fishery and is mostly used for local consumption. However, part of the fish and octopus is dried or frozen and sent for sale in Mauritius.

Cocos and Sables present an excellent opportunity for collaboration between the government agencies, NGOs and local community groups. MWF Rodrigues has considerable experience in ecological restoration and has already been involved with work on Cocos and Sables. The dissemination of relevant information among stakeholders is vitally important and needs to be done in a sensitive manner that engenders cooperation. MWF Rodrigues is in an excellent position to expand its role in the community by expansion of its community-based approach, starting with education, training and information dissemination of the boat operators associated with Cocos and Sables.

3.1.5 Final Comment: the Need to take a Ecosystems Approach

Although the Islets Strategy is being developed to protect native populations of terrestrial species, it needs to be recognized that the islets are part of the coastal and marine ecosystems. Their protection, management and development will not be successful if they are treated as isolated pieces of terrestrial habitat. There is a need to integrate the Islet development into a broad-based integrated coastal zone development strategy. It is therefore recommended that adjacent lagoon and coastal margins be surveyed to assess coastal resources as part of the information requirement for the development of islet management plans.

There are in reality two separate practical objectives in the creation of a demarcated coastal or marine zone around the individual islets or islet groups.

The first reason is to protect the ecosystem functionality of the islet and coastal margin resources; such demarcation can be designated a Marine Protected Area, in which an array of activities are allowed and others are proscribed. The demarcation of a MPA needs to be based on the coastal ecosystem functionality and habitat identification developed through coastal surveys and biotope mapping, with the objective of protecting key areas such as mangroves, seagrass beds and coral reefs all of which are important in the protection of the islet fringe and the sustainability of coastal fisheries in that they are the nursery grounds and feeding grounds of coastal fish and shrimp species.

The second reason for coastal water demarcation is with respect to facilitation of enforcement, whereby a buffer zone is created around the islet. For example a 1 km zone, which has restricted access to boats either in time or space; access is given for specific activities such as diving or fishing but only during daylight hours and at specific locations. This will enable control of illegal activities such as poaching and theft from the islets and ensure that various infrastructure such as mooring buoys are used in an appropriate manner.

However, there is legislative and institutional overlap and ambiguity in jurisdiction that needs to be addressed. Notwithstanding the Wildlife and National Parks Act of 1993, by virtue of section 7 of the Fisheries and Marine Resources Act 1998, the Minister to whom the subject fisheries and marine resources is assigned may by proclamation declare to be a Marine Protected Area (a) any area called "Mauritius waters" including seabed underlying such waters; (b) any land associated with such waters; and (c) any wetland. Under the 1998 Act, MPAs may themselves be designated as fishing reserves, marine parks or marine reserves and the Minister may by regulations prescribe measures for protection, conservation and management of these areas including the prohibition of certain activities and the carrying out of activities subject to imposed conditions.

Where the demarcation of the islets includes coastal margins or marine areas, the local use by fishermen needs to be taken into account. There are presently no MPAs in Rodrigues but five fishing reserves have been established. Fishing with seine nets is prohibited but other forms of traditional fishing are not regulated. The enforcement of and compliance to existing regulations is limited.

The failure to consult and involve communities and other stakeholders in management of reserves contributes to the low level of compliance.. Collaborative efforts need to be developed. Innovative management techniques involving stakeholders and developing community managed 'no take' zones as fish refuges have not been tried

Demarcation, whether in the form of a marine protected area or a buffer zone does not necessarily mean that fishing will be proscribed, although specific areas with the zone may be off limits or specific gear types may be proscribed. Given the local knowledge that the fishermen of the area may have, it is important to include them in the development of the islets, and where possible enable employment within the system.

If the proposed MPA is to be implemented these fishermen will become the main primary stakeholders that will need to be consulted and the impact of the MPA regulations on their livelihood assessed and any negative impacts ameliorated by facilitating the movement to alternative livelihoods.

3.2 Strategy for Education, Public Awareness and Eco-tourism

The participatory workshop round-table on Eco-tourism, Education and Awareness developed the following planning schematic

Planning Objective

Increase awareness of biodiversity and historic sites, and encouragement of the development of eco-tourism to support the local economy

Outcome 1

Future generations sensitized to the value of Mauritian biodiversity conservation and environmental protection

Outcome 2

Increased Public Awareness

Outcome 3

Establishment of sustainable eco-tourism (environmentally and financially)

Outputs1

Primary and secondary education on environment including conservation; the importance of local knowledge and resources.

Funding mechanism for field-based education

Established use of islets for research / study / outdoor classrooms

Provision of infrastructure and materials

Time frame

Outputs2

Media campaigns for environment:
Anti littering;
Good-stewardship;
Anti-poaching

Awareness training programs for:
tour operators;
guides, etc

Environmental youth movement activities

Community participation

Outputs3

Establishment of institutional arrangements:

- “One-stop shop” for private operators, licensing authority, monitoring and control of operators;
- Granting of leases;
- Partnership facilitation and arrangements.

Management Plan Frameworks for each Islet including:

- Legal obligations
- Zoning;
- Pest management;
- EIA;
- Access;
- Carrying capacity;
- Commercial exploitation.

3.2.1 Primary and Secondary Education / Public Awareness

The protection and conservation of native species will be difficult to sustain without the support of the general public, both from the political, financial and implementation perspective. Public interest creates the demand for specific environmental services, and eco-recreational facilities. Public support encourages continuous government commitment and funding; and enforcement is less onerous and more effective with the cooperation of the general public.

Increasing the awareness of environmental issues is most effective when started at an early age; the development of a Rodriguan identity and ethos is imperative to engender respect for the environment and to instil a sense of belonging. The right attitude towards the environment can be nurtured through visits, guided nature tours and “hands-on” activities; children will learn to conserve the environment. At higher levels students may undertake projects and research on the islets in conservation of endemic species and sustainable development.

The relevant authorities in environment, fisheries and education need to ensure that environmental issues are given sufficient recognition and weight in the school curricula, and the lessons are taught in a relevant manner, which introduce children of all ages to environmental issues. These would include environment and conservation, with emphasis on the national environment and the importance of the islets in conserving the native fauna and flora of Rodrigues.

There is also a need to strengthen environmental awareness in government agencies that deal with issues that can impact on the environment or are associated with the maintenance of environmental quality. A basic understanding how various human activities undermine the ecological processes that support biodiversity should be developed particularly among those responsible for various enforcement and control activities, e.g. coast-guard, customs, environmental police.

It is recommended that the Department of Environment coordinate the development of a set of environmental training modules on specific subjects, including biodiversity and native species, with and for different target audiences such as schools, government agencies, and NGOs.

The DoE needs to enhance their Public Awareness and Education capacity through:

- Organizing awareness raising events, for example about the coastal zone and the islets. Such events need to be specifically designed to satisfy the interests and the needs of the target audience, e.g., youth, women’s groups, farmers, fishermen, NGOs, tourism and recreation.
- Educating the media as to the importance of environmental issues and assisting them to entertain, inform and interest the public in the natural heritage of Mauritius as well as informing the public as to the threats to the environment and their responsibilities.
- Supporting NGOs in taking forward environmental education projects.
- Working with the Ministry of Tourism and *Association Rodriguaise des Tours Operateurs* (ARTO), to raise awareness of tourists and tour operators to the environmental sensitivity of Mauritius and Rodrigues, through notices in hotels etc.

3.2.2 Eco-tourism

The strategic goal of the tourism sector as stated in NEAP2 is:

“to support the tourism industry such that it can continue to fulfil its development role for the country without creating environmental or social impacts that would undermine its long-term future”.

Tourism effects environmental quality and yet is dependent on a high quality environment for its success. Mauritius has successfully targeted high quality, high spend tourist who are largely attracted by the promise of pristine lagoon water, un-crowded beaches and high quality facilities and service.

Although Mauritius has regulations and laws that protect the much of the environment, inadequate planning and enforcement has lead to a degradation of the very parts of the coastal zone, which most attracts tourists to Mauritius and Rodrigues.

The islets represent a relatively undeveloped and as yet untapped resource for tourism, especially with increasing land pressure on the coastal mainland. However, traditional hotel-based tourism, especially the mid-market level, has not shown itself historically to be conducive to environmental protection or conservation. The record of the tourist industry is not one of eco-friendly sustainability. Without a long-term vision the un-controlled tourist industry tends to mine coastal resources, consuming them rather than using them in a sustainable fashion.

It will be necessary that any tourist-based activities allowed on the Islets be highly regulated, monitored and enforced, to ensure that the overall conservation objectives are not compromised.

That said, it is also obvious that the development of a high profile conservation agenda by the Forestry and Environment in cooperation with the Tourism sector will be mutually beneficial. Tourism is important to the national economy; a green image for the tourist industry helps attract the more desirable customer; and the tourist sector is able to invest sufficient funds to service high upfront capital costs to cover infrastructure and service development that are needed prior to any revenue generating activities.

Essentially it is necessary to encourage the sustainable use of appropriate natural resources for tourism and recreation. Eco-tourism should enable funding of more expensive conservation projects without undermining their objectives.

Each islet group will need a management plan, that will take the form of a contractual agreement between the Government Administration and the contractor⁸ with details all planned uses, buildings and infrastructure as well as accessibility constraints, activity restrictions, and enforcement, as well as agreed indices for management success that will allow assessment of adherence to agreements and covenants.

Leasing to large-scale tourist consortiums must ensure adequate access for local recreational or educational use, through group concession charges, special site days, or licensing of local operators, etc. to enhance the link between major tourist developers and the local community.

Certainly public private partnerships between government agencies and the private sector, NGOs, etc. should be encouraged as they allow access to complementary resources and experiences.

However, such partnerships must be firmly rooted in formal legally binding contractual obligations that detail expectations from the viewpoint of all partners so as to minimize potential misunderstandings and give necessary redress to remedy perceived conflicts of interest. Given the recent ruling of the State Law Office, the allocation of management responsibilities will need to be based on the Management Plans such as those examples provided by the current consultant contract. Ideally, these management plans need to be developed in partnership with current and potential stakeholders to ensure effective implementation.

⁸ whether NGO, private sector or individual

Planning of eco-tourism needs to be transparent and developed, in the case of the lagoon islets, in consultation with the local community, as well as taking into consideration the local recreational demands and carrying capacity of the islets that will be access by the public and eco-tourists ⁹.

It is also fundamental for the long-term effectiveness of any management plan to engender local community support. Public participation in the management of reserved areas needs to be encouraged and needs to be legally strengthened.

⁹ The carrying capacity is a function of the environmental value or scientific importance, habitat sensitivity or resilience, and the supportive infrastructure developed at the site

3.3 Strategy for Improvement of Legislation, Policing and Enforcement

The participatory workshop round-table on Legal Framework and Enforcement developed the following planning schematic:

Planning Objective

The creation of an Islets National Park and marine area (1km) under the aegis of the NPCS as per Wildlife and National Park Act, 1998

Outcome

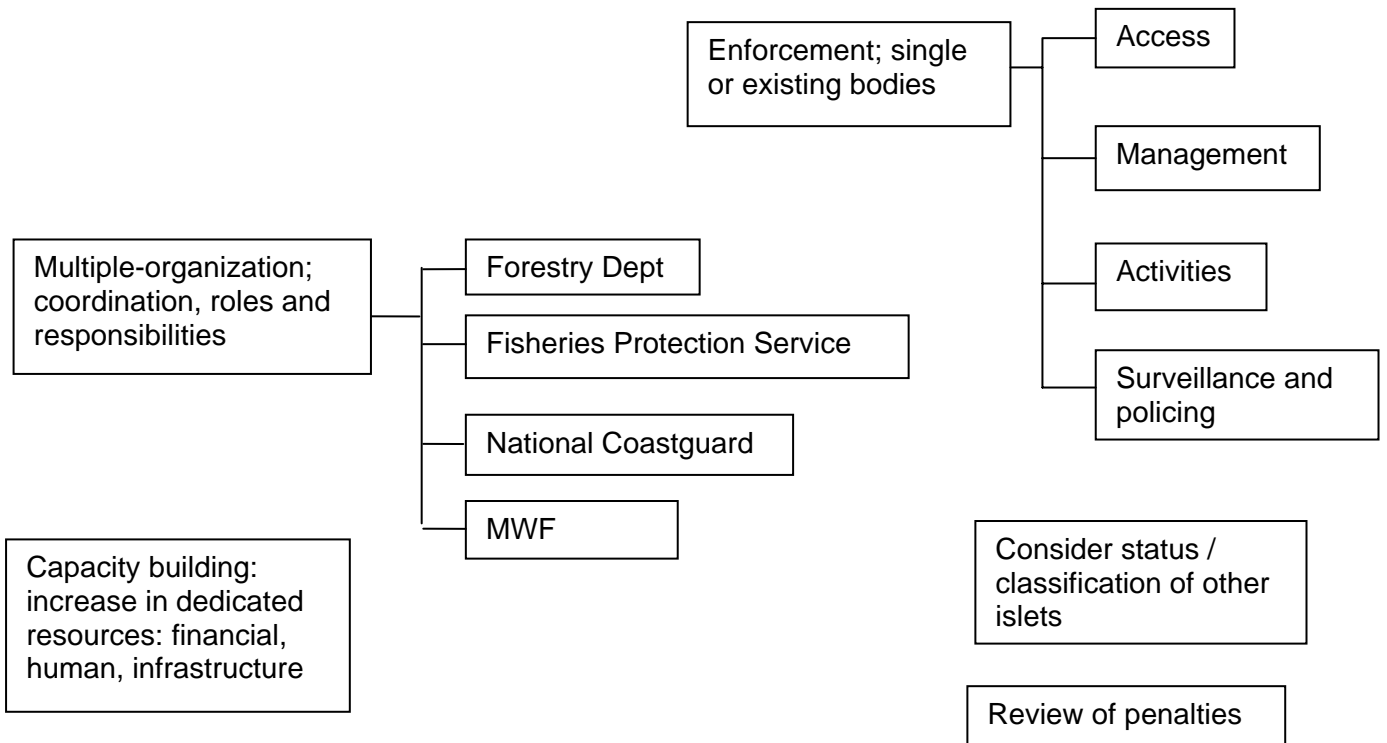
Legal framework for sustainable management; including scientific research & monitoring

Output 1

Simplified and clear delineation of institutional responsibilities with respect to Islets National Park

Output 2

Clear description of monitoring, evaluation and management frameworks and protocols, and enforcement responsibilities for each islet group



The roundtable on Legislation and Enforcement, at the Strategy Planning Workshop identified the need to provide effective efficient enforcement mechanism for surveillance and policing of the islets, and suggested that this should rest with a single enforcement body to avoid duplication and inefficient use of resources.

There is a comprehensive legal and policy framework that supports the development of strategic plan for the Rodrigues Islets. The protection of flora and fauna is defined in Mauritian Law and Policy and is, currently, largely the responsibility of the Ministry of Agriculture, Food Technology and Natural Resources, with the central role of NPCS clearly defined as the implementing authority for islet conservation. Although NPCS is has no permanent equivalent unit within the Rodrigues administration. The remit if environment falls directly under the Chief Commissioner, and the Environmental Unit, with both Forestry and Fisheries involved with various aspects of the management of the islets.

In addition, the future conservation of the islets is directly in line with the International Conventions signed by the Government of Mauritius.

The law is quite comprehensive in scope; however:

- The legal and institutional framework is fragmented, with relevant provisions being dispersed across a number of different acts and regulations, often giving rise to jurisdictional overlaps (e.g. powers of law-making and enforcement being conferred on a range of different authorities in respect to the same matters).
- There is a potential for uncertainty and conflict between different legislation, which seeks to protect potentially overlapping areas of land according to different criteria and under the control of different institutions. This needs to be resolved through the rationalization of land designations and consolidation of institutional responsibility.
- There appears to be insufficient coordination between the planning regime under the Town and Country Planning Act, the EIA procedure under the Environmental Protection Act and the relevant nature protection legislation to ensure that proper consideration is given to protected areas and the flora and fauna generally in the planning and development process.

A single piece of legislation is needed to address these legislative and institutional issues so as to clearly allocate institutional responsibilities and provide unambiguous instructions to facilitate the coordinative effort that will be required for sustainable management of the islets

Many of the islets are still being degraded; the Islets Task Force (2001) identified evidence of significant amounts of illegal activities on some islets (e.g. encampments, littering, fires). This suggests that full implementation and the objectives of the legal and policy framework have not been achieved. Central to this is the issue of enforcement.

- Most existing environmental laws are inadequately enforced, mainly due to lack of resources and capacity in government departments, a lack of awareness of the laws themselves, overlapping responsibility for enforcement, and legal limitations on the admissibility of evidence in court proceedings.

The responsibility for the prevention of these activities at present fall under the mandate of National Coastguard, The National Coastguard clearly has extensive powers of enforcement under this National Coastguard Act, 1988¹⁰, but it is not clear to what extent they are putting these powers into practice. The resources and training dedicated to prevention of islet degradation is limited and are

¹⁰ See Appendix III

included with the more substantive coastguard duties, which means supporting ongoing conservation management efforts may be given relatively low priority.

The responsibility for enforcement needs to be made clearer. The development of focused enforcement officers needs to be achieved. It may be more effective to hand over this role to *Police de L'Environnement* (as proposed by the Task Force 2001) or to create a Special Marine Protection Squad, within the coastguard as (proposed by BSAP 2001).

Since they are better placed and equipped to carry out monitoring and surveillance of activities on and adjacent to the islets of the National Park, it may be beneficial to provide some “wildlife and conservation” enforcement training to NCG officials, combined with the development of some form of Memorandum of Understanding between the National Coastguard, and other enforcement authorities including the Environment Ministry, responsible agencies in Rodrigues, and other involved management organisations.

In light of the coast guards already extensive remit, a focussed special force of officers (be it the *Police de L'Environnement* or a Special Marine Protection Squad) appears to necessary to provide adequate law enforcement. The men of this unit should not only be adequately trained as law enforcement officers, but also as a group be aware of the conservation management issues of the islets as well as providing guidance, advice and interpretation to islets visitors and tourists. All of which will require additional training and resources, whatever the final institutional arrangement.

3.4 Information Requirements

Existing information and data storage and dissemination facilities need to be upgraded and linked to facilitate easy access. The establishment of an Inter-Agency Network should be considered, with relevant agencies servicing the requirements of dedicated information nodes.

It is recommended that the Ministry of Environment, the NPCCS and responsible agencies in Rodrigues, begin to establish a Common Environmental Information System. Developed and maintained to be able to process and analyze environmental information and disseminate reports to all concerned. Activities will include:

- Collecting and classifying environmental information and data relating to specific activities and locations, and analyzing this to provide top management and concerned staff and other organizations with the information needed in the preparation policies and plans to rationalize decision-making.
- Development of a systematic environmental monitoring and evaluation system that will provide input to the information system.
- Documentation of the information systems, programs, and databases, and issuance of reports.

Appendix I: Mauritian Legal Framework

There already exists a comprehensive legal and policy framework, which pertains to strategic management of the target Islets.

State Legal Instrument	Relevant issues to Islets
Forests & Reserves act 1983	<p>Falling under Ministry of Agriculture, Food Technology and Natural Resources (MoA), this provides protection for areas of land designated as Nature Reserves.</p> <p>The Forestry Service is responsible for management, except for Nature Reserves under the jurisdiction of NPCCS.</p>
Wildlife and National Parks Act 1993	<p>This is the predominant legislation for protection of islet flora and fauna and falls under, MoA implemented through NPCCS.</p> <p>This Act permits designation of land by the President, which is of natural, scenic, scientific, educational, and recreational, of other importance or value to the State.</p>
State Lands Act (1874)	<p>State lands include the <i>Pas Geometric</i> (1895 Act) which include islets, which can be reached at low tide from the mainland. The Act ensures that no encroachment (e.g. building, cultivation) is carried out on State land (except with permission from the Minister of Housing and Lands), and that no dumping (e.g. sand, coral etc) shall be carried out.</p> <p>If Islets are leased then the Act requires that plantation are kept in a “neat and tidy” state, and that the lessee should prevent removal of sand, interference with rods, and cutting and removal of trees.</p>
Environmental Protection Act (1991)	<p>This Act includes the coastal zone (up to 81.21 m landward from the high tide mark) and the Exclusive Economic Zone (to 200 nm offshore). The act ensures protection of the environment.</p>
National Coast Guard Act 1988	<p>Under the Ministry of Home Affairs, the coast guard are responsible for the enforcement of any law pertaining to the maritime area and the “prevention and suppression” of any illegal activity.</p>
Fisheries and Marine Resources Act (1988)	<p>This act regulates fishing in Mauritian water and provides protection, conservation and protection of fisheries and marine resources.</p>
Pleasure Crafts Act (1993)	<p>Responsible for the licensing and control of pleasure craft</p>
Continental Shelf Act (1970)	<p>This Act prohibits or restricts any exploration or exploitation, which would cause unjustifiable interference with navigation, fishing, or the conservation of the living resources.</p>
Removal of Sands Act 1975 (Amended 1997)	<p>This Act regulates coral sand mining at sea, and co-ordinates sand extraction at the four designated sites around Mauritius.</p>

International Conventions

Mauritius has also signed up to a number of International Conventions, which are relevant to Islet management.

International Convention	Relevant issues to Islets
Convention on Biological Diversity (CBD; 1992)	This Convention, signed by the Ministry of Environment but implemented through the NPCS, requires signatories to protect biodiversity and to implement sustainable development policies.
Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES; 1973)	This convention regulates international trade in endangered flora and fauna, and this compliment the Sate Law of the Wildlife and National Parks Act (1993).
UN Framework Convention of Climate Change (1992)	This objective of this Convention is the stabilisation of Greenhouse gases, and is implemented through the National Climate Committee under the Prime Ministers Office.
United Nations Convention on the Law of the Sea (UNCLOS; 1982)	Requires that coastal states ensure through conservation and management the maintenance of living resources in the Exclusive Economic Zone.

Appendix II: National Policy Support

In addition, Mauritius has a number of State and Regional policies and Plans, which provide a policy framework for a strategic plan of the islets.

National policy	Relevant issues to Islets
<p>National Biodiversity Strategy and Action Plan (BSAP; 2001)</p>	<p>The National Vision set out in BSAP is:</p> <p><i>“By the end of year 2010, the safety of biotic wealth for the Republic of Mauritius will be ensured, its values appreciated by society at large. The biodiversity resources will be sustainably used and managed through improved comprehensive policies, legal frameworks, and appropriate conservation techniques so as to enhance their environment, social and economic contributions.....”</i></p> <p>It specifically identifies the islets and proposes:</p> <p><i>“As far as management of the offshore islets is concerned, conservation and restoration works are well underway on Round Island and Isle aux Aigrettes. However, it is felt that a coherent long-term plan for the remaining islets be drawn up, which will cater for the different demands in a co-ordinated way”</i></p> <p>The BSAP identifies a number of threats to the islets:</p> <ul style="list-style-type: none"> • Lack of staffing and capacity in NPCS and Forestry Service. • Lack of co-ordination between the various organisations involved in biodiversity and an urgent need for a lead organisation to co-ordinate and disseminates information. • Strengthening public participation in the management of reserve areas. • A re-focus of coast guard on safety and security issues and the development of a Special Marine Protection Squad. <p>It proposes a five-point action plan:</p> <ol style="list-style-type: none"> 1. Bring all ecologically sensitive islets under NCPS. 2. Construction of permanent field stations on islets classified as strict nature and potential reserves. 3. Complete inventory of all existing biological resources. 4. Eradication and management plan of invasive species and introduction of native species. 5. Preparation of management plans.

<p>National Environmental Strategy (NES; 1999)</p>	<p>Recommends protection of the islets be improved by:</p> <ul style="list-style-type: none"> • Creation of a Management Plan • Restoring Biodiversity of Islets <p>Further, it recommends:</p> <ul style="list-style-type: none"> • Bringing Management under NPCCS • Increasing capacity of NPCCS • Maximise role of NGO's in specific projects • Increase involvement of private sector and public in conservation activities • Identifying options for income (e.g. sponsorship, entrance levies).
<p>National Physical Development Plan (NPDP; 1994)</p>	<p>Aimed to balance development and protection of the environment. The Plan proposes:</p> <ul style="list-style-type: none"> • Development of a conservation plan for the Islets • Prior to adoption of this management plan, no development will be allowed which could destroy or adversely affect the islets • Prior to adoption of the management plan, no intensification of visitor or tourist activities would be permitted.

Appendix III: Summary of Acts Significant to the Development of the Islets National Park Strategic Plan

The Forests & Reserves Act, 1983 and Wildlife and National Parks Act, 1993 are the two laws critical to the development of Islets National Park.

Forest and Reserves Act, 1983

The Forest and Reserves Act established and delineated forest, mountain, river and nature reserves throughout Mauritius and Rodrigues. This is the principle legislation governing the management of forest resources including brushwood and nature reserves on mainland and on some of the islets. Much of the issues addressed are related to the planting and the felling and removal of trees and protected plants, and the introduction of animals to the delineated areas without proper authorization.

Other offences include: destruction of plants, introduction of weeds, , lighting fires, littering, and activities leading to soil erosion.

Wildlife and National Parks Act, 1993

This is the principle legislation for the protection of flora and fauna with the Wildlife Regulations of 1998, giving effect to the CITES Convention in Mauritian law.

Part II of the Wildlife and National Parks Act establishes and mandates the *National Parks and Conservation Service*, to include: the management of reserved land and the conservation of wildlife within a national park; carry out educational activities and provide and disseminate information, related to reserved land and conservation of wildlife within the national parks....

Part IV of the Wildlife and National Parks Act provides for the establishment and management of National Parks and other reserves. It states that:

The President may, by proclamation declare any State land, nature reserve, *Pas Geometriques*, or other land as a National Park or other reserve, where-

- a. Such land is of natural, scenic, scientific, educational, recreation or other importance or value to the State;
 - b. The preservation of the land is necessary to properly protect to permit access to, or management of, or to allow public viewing or enjoyment of such land.
2. Notwithstanding any other enactment, no work or development shall take place on the reserved land unless approved by the Minister or in a management plan
 3. A management plan –
 - a. Shall contain information regarding the relevant reserved land or buffer zone, statements of the objectives for management and prescriptions for management of the subject land;
 - b. May designate zones within the reserved land to which the public shall not have access except on written authorization of the Minister.

Part V and the schedules of the act detail the protection of fauna and fauna under the act.

By having a clear conservation objective, the Wildlife and National Parks Act, 1993 can be regarded as complementary to and a reinforcement of the Forest and Reserves Act, 1983. There is no explicit statement of conservation objectives in the Forest and Reserves Act, although these are obviously addressed within the proscribed activities listed in the act.

There is no mention of powers of exclusion within the original Forest and Reserves Act; although this has been amended (July 2003) under paragraph 3A Control of Access to Nature Reserves: The authorized officer may prohibit or restrict access to any nature reserve, and shall cause signs to be displayed in the nature reserve indicating the prohibition or restriction of access. There is also no mention of zoning for management purposes or educational responsibilities that are mandated to the National Parks and Conservation Service.

There is also an implicit assumption that a National Park is different to the various reserves designated under the Forest and Reserves Act. An example of such was the declaration in 1997 of the Blue Bay Marine Park as a National Park, which states "WHEREAS land, under the said Act includes land covered by sea or other waters and the part of the sea or those waters covering the land".

Finally, it should be noted that there is potential for uncertainty and even conflict between the Wildlife and National Parks Act and Forest and Reserves Act. The two different acts are seeking to protect areas of land according to different criteria and under the control of two different institutions. This is causing confusion and is potentially a major constraint and diversion to the agenda of the establishment of the Islets National Park. There is a strong argument for transferring the conservation function of Nature Reserves to the NPCCS, which has more experience, information and resources dedicated to conservation of such areas, whilst leaving the planting and exploitation of trees to the forestry authorities under the Forest and Reserves Act.

National Coast Guard Act 1988

The National Coastguard Act of 1988 established the National Coastguard; a specialist unit of the Police Force under the command of the Commissioner for Police. Under section 6 of the Act the National Coastguard "shall be responsible for ... the enforcement of any law relating to protection of the maritime zones, [and].... the detection, prevention and suppression of any illegal activity within the maritime zones." These duties are "subject to .. any environmental law". In addition, under section 12, their powers include authority ... to prevent any activity likely to constitute a threat to maritime zones including the seabed, the flora, the reefs."

Appendix IV: Summary National Biodiversity Strategy and Action Plan

National Parks and Conservation Service, Ministry of Agriculture, FT and Natural Resources in collaboration with UNEP and GEF (July 2001)

Page	Comment
xv	<p>National vision</p> <p><i>“By the end of year 2010, the safety of biotic wealth for the Republic of Mauritius will be ensured, its values appreciated by society at large. The biodiversity resources will be sustainably used and managed through improved comprehensive policies, legal frameworks, and appropriate conservation techniques so as to enhance their environment, social and economic contributions.....”</i></p>
4-6	<p>Policy Framework - history</p> <p>1985 “National Conservation Strategy” White Paper To ensure essential ecological processes, preserve genetic diversity and sustainable utilisation of species and ecosystems</p> <p>1991 “National Environmental Policy” White Paper Attain sustainable development which would safeguard welfare and pursue conservation, ecosystem quality and environmental quality.</p> <p>1997 – Vision 2020 – the National long Term Perspective Study Resource Management Approach of entire ecosystem.</p> <p>1999 – National Environmental Action Plan (NEAP 2) Goal <i>“To follow the principles of sustainable development by providing environmental services, encouraging responsible environmental practices and enforcing appropriate environmental standards in order the safeguard the health and welfare, conserve the heritage and enhance the quality of life of all the people of Mauritius”</i></p>
21	<p>Tourism growth</p> <p>International visitors 180,000 in 1980, 375,000 in 1993 and 650,000 in 2000. Tourist income approximately Rs 15 billion in 2000. Islets expected to yield Rs 1 million per year.</p>
22	<p>Value of maintaining environmental quality</p> <p>Estimated from tourist revenues of ~ Rs 2.2 billion per year.</p>
66	<p>Capacity</p> <p><i>“One of the main constraints facing organizations involved in Conservation of Biodiversity is the lack of resources – both human and financial. Both the National parks and the Conservation Service and the Forestry Service have a severe staffing problem, both at the technical and field staff levels.”</i></p>
67	<p>Co-ordination</p> <p><i>“There is a lack of co-ordination between the various organizations involved in biodiversity and there is an urgent need for a lead organization to co-ordinate and disseminate information.”</i></p>

70	<p>Need for Islet Management</p> <p><i>“As far as management of the offshore islets is concerned, conservation and restoration works are well underway on Round Island and Isle aux Aigrettes. However, it is felt that a coherent long-term plan for the remaining islets be drawn up, which will cater for the different demands in a coordinated way”.</i></p>
78	<p>Public Participation</p> <p><i>“Public participation in the management of reserve areas could be legally strengthened. Although the public may make written representations in relation to a draft management plan, under section 13(7) (of the Wildlife and National Parks act 1993), these do not have to be taken into account...the process of drawing up plans could be made more transparent and participatory than it currently is in the law”.</i></p>
79	<p>NPCS status</p> <p><i>“One of the most pressing gaps at the Institutional level is that though established in 1994, all the staff except the Director are on secondment at the NPCS and there is not any official organogram for this Department. The NPCS is currently understaffed and available posts for high-level staff needs to be advertised. The Organizational structure requires and urgent expansion to cater fore the increasing workloads”.</i></p>
82	<p>Public awareness</p> <p><i>“Any conservation and utilization programme require the cooperation and support from the public. However activities on public awareness is practically non-existent in this sector”.</i></p>
95	<p>Eco-tourism definition used</p> <p><i>“responsible travel that protects the natural environment and sustains the well being of the local population”</i></p>
99	<p>Marine protection enforcement</p> <p><i>“The creation of a Special Marine Protection Squad to ensure a permanent surveillance of marine resources should be of prime importance in the wake of a re-definition if intervention and the role of the National Coast Guard....In this breadth, the responsibilities of the National Coast Guard should be revisited and focused, among other, and essentially on safety and security issues”.</i></p>
104	<p>Rodrigues – institutional co-ordination</p> <p><i>“The Coastal and Marine resources are managed in a somehow fragmented manner. Lack of collaboration between the Departments managing the coastal and marine resources has made room for duplications and conflicts in management of these resources”</i></p>
107	<p>Salient “Guiding Principles” for BSAP</p> <p>Appropriate Institutional strengthening and legal frameworks coupled with capacity building through formal and non formal education, training, research are the requisite for good sustainable management of biodiversity resources.</p> <p>Biodiversity conservation require concerted actions and close collaboration amongst all stakeholders at the National Level.</p> <p>Public Sensitization and Awareness is one of the best approaches to minimize anthropogenic impact on biological diversity.</p>

109	<p>Strategic Goal of Terrestrial Biodiversity <i>“ensure that native Mauritian biodiversity survives, flourishes and retains its genetic diversity and its components are optimally utilized for the continued progress and socio-economic growth of the country”</i></p> <p>Strengthen ongoing conservation activities by:</p> <ul style="list-style-type: none"> • Bringing ecological sensitive Offshore islets under the responsibility of NPCS • Increasing the capacity of NPCS to prioritize, plan, co-ordinate, monitor and report • Maximizing the role of NGO's to undertake specific projects • Increasing the involvement of the private sector and the public in conservation activities • Identifying options for income to fund management activities.
109-114	<p>Terrestrial Biodiversity – operational objectives:</p> <ol style="list-style-type: none"> 1. Ensure adequate institutional and proper human resource capacity for sustainable management of terrestrial biodiversity resources. 2. Provide training in specialized areas for proper biodiversity management. 3. To devise a comprehensive database for sustainable management of biodiversity resources. 4. Review legal framework and policies for sustainable biodiversity management. 5. Ensure public awareness and national sensitization to preserve biodiversity. 6. Upgrade infrastructure facilities for terrestrial biodiversity management. 7. Improve offshore islet management 8. Encourage research and community involvement in biodiversity management. 9. Emergency response plan to face threats with biodiversity losses. 10. Promote national and international technical cooperation to enhance biodiversity activities. 11. To ensure adequate protection and management of the ecologically important caves and wetlands of Mauritius.
112-113	<p>From operational objective 7 “Improve offshore islet management”:</p> <ol style="list-style-type: none"> 6. Bring all ecologically sensitive islets under NCPS. 7. Construction of permanent field stations on islets classified as strict nature and potential reserves. 8. Complete inventory of all existing biological resources. 9. Eradication and management plan of invasive species and introduction of native species. 10. Preparation of management plans.
130	<p>Operational Objective 5 for Freshwater and Marine Aquatic Biodiversity <i>“Water surrounding Offshore Islets to be surveyed and proclaimed as new Marine Protected Areas”</i></p> <p>The water around Islets, which are not presently MPAs, need to be surveyed and as appropriate to be declared as MPAs together with a preparation of a management plan.</p>

131	<p>Operational Objective 10 for Freshwater and Marine Aquatic Biodiversity <i>“To harmonize the enforcement capacity among the different Ministries.”</i></p> <p>More than 10 pieces of legislation that aim to control coastal zones enforced through Fisheries protection Service (through MoF), National Coast Guard, Environment Police (MoE), Ministry of shipping, Mauritius Oceanography Institute and Local Authorities.</p>
134	<p>Operational Objective 6 for Strategies to Bridge the Gap <i>“Strict Control of Pleasure Craft Operations”</i></p> <p>Presently inadequate mechanism for the control of boat activities on the offshore islets, including littering.</p>

Appendix V: Summary of National Environmental Strategy and Action Plan (NEAP2)

The *strategic objectives* for the environment at a national level have been set and are presented in the *National Environmental Strategy and Action Plan 1999*. The sections on *Terrestrial Biodiversity and Coastal Zone Management* are particularly relevant, describing the important aspects that need to be considered and incorporated into any strategic planning for the *Islets National Park*.

Relevant recommended initiatives include:

Institutional

- Bring management of all protected areas under the responsibility of the NPCCS; and
- Establish a coastal zone unit within the Department of Environment that should coordinate other government agencies in a unified approach.

Both of which have been initiated.

- Train NPCCS staff to enable them to fulfil their responsibilities;
- Develop pest control strategy and techniques and train key personnel, e.g., customs officers, park wardens, *coast guard and environmental police*¹¹.

Policy

- Increase stakeholder participation in resource conservation to raise public awareness, reduce poaching and encourage sustainable cultivation of commercial species;
- Encouraging the extensive participation of stakeholders, including communities, civic groups, NGOs, economic sectors, and other public interests and increase the transparency of the decision-making process that impacts on the coastal zone;
- Increasing the involvement of the private sector and the public in conservation activities;
- Increasing the capacity of the NPCCS to prioritise, plan, co-ordinate, monitor and report, and coordinate with NGOs;
- Maximise the role of the NGOs to undertake specific projects (provision of support e.g., duty free imports, work permits for expatriate staff).

Legislative

- Review existing laws, regulations and codes, and agency mandates in order to facilitate a coastal zone management inter-agency partnership by reducing ambiguity, amending legislation,

¹¹ Additions to original report

strengthening guidelines, filling gaps, minimizing duplication, and streamlining review and approval processes;

- *Review existing laws, regulations and codes, and agency mandates and responsibilities in order to ensure sufficient enforcement to provide full protection to species proscribed in the Wildlife and National Parks Act 1993 and Wildlife Regulations 1998¹;*
- Review taxes, permit charges and other levies for the use of coastal zone by private sector enterprises;
- Prepare and implement clear and unambiguous standards and guidelines;
- Introduce national standards for waste and transportation licensing; and
- Increased fines for littering and waste dumping.

Information

- Monitor protected areas to determine the state of the resource (biotope mapping, % land under native species, numbers of threatened species, etc.), pressures (exotics, number of visitors, levels of illegal collection etc.), and perceived value (public awareness, satisfaction, willingness to pay);
- Carry out ecological survey of privately owned land and the riverine environment to inform work on Environmentally Sensitive Areas.

Finance and Investment

- Identify options for income generation to fund management activities (e.g., sponsorship, entrance levies, etc.);
- Consider the application of economic instruments to encourage conservation and preservation of lands with biodiversity resources.
- Build further facilities for captive breeding;

Research into management methods to control and eradicate exotics.