

# Seychelles National Biodiversity Strategy and Action Plan

## National Report

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**Annex 1. List of acronyms used**

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## Executive Summary

The purpose of this Report is to fulfill the national responsibility of the Seychelles to the Convention on Biological Diversity. The Convention states that each Contracting Party shall present National Reports on the implementation of the Convention. According to the Conference of Parties to the Convention, the first National Reports should focus on the implementation of National Strategies and Action Plans (Article 6 of the Convention).

The introductory section of this Report summarizes the Goals and Policy Objectives of the Seychelles National Biodiversity Strategy and Action Plan (NBSAP) and relates them to the Articles of the Convention. The NBSAP has 11 Goals and 37 Policy Objectives to support these goals. The international conventions that Seychelles has signed or acceded to and which has relevance to the NBSAP and to the Convention on Biological Diversity are listed, as are internationally funded programs pertaining to biodiversity in the country. The next section is entitled 'Background' and assesses the status and trends in biodiversity, the value of biodiversity and the threats to this biodiversity. Seychelles biodiversity has great scientific, economic and other worth - currently estimated at SR.1.46 billion per annum - but is under severe threats from a variety of sources. The section also assesses the status of institutional and legal mechanisms. The 'Strategy and action Plan' section examines the status, development and implementation of the NBSAP. It relates the constraints anticipated and encountered and the national experience in dealing with this. In 'Collaboration and Partnership' the methods and progress in ensuring the involvement of stakeholders in the NBSAP process is described. The Seychelles NBSAP has garnered an unprecedented level of stakeholder and sectoral collaboration and cooperation. Some 25 organizations have contributed in one way or another to the NBSAP. The two national Workshops were well attended by a cross-section of interests. Resources needed to implement the NBSAP are described as are the resources already garnered for implementation of certain projects in the Action Plan. As regards Monitoring of the NBSAP, a Secretariat is proposed as a project in the Action Plan to execute this action and develop monitoring parameters and criteria.

## **Preface**

This National Report to the Conference of Parties of the Convention on Biological Diversity is a component of the Seychelles National Biodiversity Strategy and Action Plan Project funded by the Global Environment Facility (GEF) and the World Wildlife Fund International, and facilitated by the United Nations Environment Programme (UNEP). Technical expertise to assist in implementing the project has been provided by the World Conservation Union (IUCN).

The purpose of this Report is to fulfill the national responsibility of the Seychelles to the Convention on Biological Diversity. Specifically Article 26 of the Convention states that each Contracting Party shall ‘present to the Conference of Parties reports on measures which it has taken for implementation of the provisions of this Convention and their effectiveness in meeting the objectives of this Convention’. Decision 11/17 of the Conference of Parties to the Convention specifies that the first national reports ‘will focus...on the measures taken for implementation of Article 6 of the Convention, as well as information available in country studies’. Article 6 of the Convention, states that all contracting parties must ‘develop national strategies plans or programs for the conservation and sustainable use of biological diversity’. The contents of this first National Report therefore concern only the initiation of the Seychelles National Biodiversity Strategy and Action Plan, including the Biodiversity Assessment.

The Table of Contents and format of the Report is based on “ Further Guidelines for the preparation of National Reports” prepared by the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA).

## 1. Introduction

The Seychelles is highly committed to fulfilling national obligations specified in the Convention. As a first step, the country has undertaken the production of the Biodiversity Assessment, the National Biodiversity Strategy and Action Plan, and the National Report, which are required in Articles 6 and 26

The Biodiversity Assessment was designed to gather existing information on the status and trends of the country's species, genetic materials and habitats and landscapes, the status of current conservation and use mechanisms, and the economic costs and benefits involved. It is intended to be a first iteration of the opportunities and problems of protecting and mobilising the country's biological diversity.

The NBSAP summarises the descriptive data and information in the Biodiversity Assessment, identifies the country's vision for biodiversity and its objectives, the needs and gaps, and the actions needed to bridge the gaps. It also provides a timetable for action over a Plan period of 5 years, the funding requirements, project descriptions, and the list of partner organisations involved in implementation.

The first National Report to the Conference of the parties is this current document. It is due in January 1998 and will cover the measures the country is taking to implement the Convention and the effectiveness of these measures. In Decision 11/17, the Conference of parties decided that the focus of the first set of national reports should be on the implementation of the National Biodiversity Strategy and Action Plans. The table overleaf summarises the stages in development and implementation of the NBSAP.

Table 1. Stages in development and implementation of the NBSAP

<i><b>TASKS</b></i>	<i><b>STATUS</b></i>
Government approval and adoption of NBSAP process	✓
GEF Enabling Activities	✓
NBSAP Task Force	✓
Program Co-ordinator	✓
Stock taking	✓
Identification	✓
Biodiversity Assessment	✓
National Workshops	✓
Preparation of NBSAP	✓
National Consultation and Participation	✓
Monitoring program	👉
Preparation of Financial Strategy	✓
Formulation of Action plan	✓
Cabinet Approval of NBSAP	*
Preparation of National Report	✓

✓ Completed; \* Ongoing; 👉 Planned

## 2. Goals and Objectives

The Goals and Objectives for conservation of biodiversity and sustainable use of its components were devised during the NBSAP process from April to October 1997. This was achieved through a Biodiversity Assessment, meetings with stakeholders, two National Workshops and the work of the Task Force. Whilst the Goals and Objectives attempt to bridge the gaps identified in the Biodiversity Assessment they also relate extremely closely to the Articles of the Convention.

The Goals of the NBSAP are to:

1. Support general measures for Conservation and Sustainable use
2. Strengthen Identification and monitoring of biodiversity
3. Increase in-situ conservation of biodiversity
4. Promote ex-situ conservation
5. Introduce ways and means for sustainable use of biodiversity
6. Introduce incentive measures for biodiversity conservation

7. Improve appropriate biodiversity related research and training
8. Augment public education and awareness of all facets of biodiversity
9. Minimize adverse impacts on biodiversity
10. Ensure access to and judicious control of genetic resources
11. Evaluate and use appropriate biotechnology

The Goals and supporting Objectives of the NBSAP are elaborated further in the next few pages.

## **GOAL 1. Support General Measures for Conservation and Sustainable Use**

Supports Article 6 of the Convention

### **Policy Objective 1.1**

Develop, strengthen or adapt national strategies and plans for the conservation and sustainable use of biological diversity and adopt measures to implement these.

### **Policy Objective 1.2**

Establish or strengthen institutional mechanisms and capacity in the Ministry of Environment, other Government organisations, NGO and private sectors for the conservation and sustainable use of biodiversity and its components.

### **Policy Objective 1.3**

Introduce standard operating procedures, and establish management policy for the conservation of biodiversity and sustainable use of its components.

### **Policy Objective 1.4**

Integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral plans, policies and projects

**GOAL 2. : Strengthen Identification and Monitoring of Biodiversity**

Supports Article 7 of the Convention

**Policy Objective 2.1**

Identify key components of biological diversity, which would be important for conservation and sustainable use

**Policy Objective 2.2**

Monitor key components of biological diversity through standardised methods, gather priority data through rapid assessment techniques and establish a reporting mechanism to provide information on those.

**Policy Objective 2.3**

Maintain, organise and disseminate data on biodiversity and its components through standardised databases and integrated networks

**GOAL 3. Increase *In- Situ* Conservation of Biodiversity**

Supports Article 8 of the Convention

**Policy Objective 3.1.**

Consolidate the existing system of protected areas, improve knowledge of appropriate classification, configuration and design, and develop where necessary, legislation, guidelines, system plans and management plans.

**Policy Objective 3.2**

Ensure wider participation in planning and management of protected areas, with opportunities for the involvement of NGOs, district-based organisations and the private sector as well as international organisations

**Policy Objective 3.3**

Identify, monitor and manage physical and natural resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use.

#### Policy Objective 3.4

Strengthen the protection of sensitive ecosystems and critical habitats that occur outside legally protected areas

#### Policy Objective 3.5

Determine the ecological relationship between protected areas and their adjacent areas, protect these areas by legislative and other measures, and if relevant promote environmentally sound and sustainable development in them with a view to furthering protection.

#### Policy Objective 3.6

Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, *inter alia*, through the development and implementation of plans, special projects or other management strategies.

#### Policy Objective 3.7

Where ecologically and socially appropriate, introduce artificial habitats in natural surroundings to supplement or augment those that have been destroyed or degraded

#### Policy Objective 3.8

Identify, prevent the introduction of, control, or eradicate those alien species, which threaten, or could potentially threaten, native ecosystems, habitats and species.

#### Policy Objective 3.9

Identify organisms potentially useful in biological control, identify the risks associated with their release and if appropriate introduce under controlled conditions as far as possible.

#### Policy Objective 3.10

Identify the risks associated with the use and releases of living modified organisms (LMOs) and if necessary establish means for regulation and control

#### Policy Objective 3.11

Research and document local peoples' knowledge and practices, which are relevant for conservation and sustainable use of biological diversity

### Policy Objective 3.12

Consolidate, harmonise and/or revise legislation for the protection of threatened species and sensitive ecosystems.

## GOAL 4. Promote Ex-situ Conservation

Supports Article 9 of the Convention

### Policy Objective 4.1

Adopt measures for ex-situ conservation of components of biological diversity, regulate collection from natural habitats for ex-situ conservation purposes, and establish or strengthen facilities for ex-situ conservation with a view to complementing in-situ conservation.

### Policy Objective 4.2.

Adopt measures for the recovery and rehabilitation of threatened species and their re-introduction into their natural habitats under appropriate conditions.

## GOAL 5. Introduce Ways and Means for Sustainable Use of Biological Diversity

Supports Article 10 of the Convention

### Policy Objective 5.1.

Continue to integrate consideration of the value of biodiversity and of sustainable use of biological resources into decision making across different sectors.

### Policy Objective 5.2.

Strengthen measures relating to the use of biological resources to avoid or minimise adverse impacts, and encourage co-operation between government and the private sector in developing methods for sustainable use of biological resources.

### Policy Objective 5.3.

Encourage and support biodiversity conservation and sustainable use at the district levels and by local groups and communities.

## **GOAL 6: Introduce Incentive Measures for Biodiversity Conservation and Sustainable use**

Supports Article 11 of the Convention

### **Policy Objective 6.1.**

Introduce techniques and mechanisms to allow adoption of socio-economic measures that can act as incentives for the conservation and sustainable use of biological diversity.

## **GOAL 7. Improve biodiversity related Research and Training**

Supports Article 12 of the Convention

### **Policy Objective 7.1.**

Establish or strengthen scientific and technical education and training for the purpose of identification, conservation and sustainable use of biological diversity, and encourage participatory learning and research between professionals, students and the public.

### **Policy Objective 7.2**

Encourage and promote research, which contributes to the conservation and sustainable use of biological diversity.

### **Policy Objective 7.3**

Seek international co-operation in the use of appropriate advances in research and technology in developing methods for conservation and sustainable use of biological resources.

## **GOAL 8.: Augment Public Education and Awareness of all facets of Biodiversity**

Supports Article 13 of the Convention

### **Policy Objective 8.1.**

Promote and increase public understanding of the importance of, and the measures required for, the conservation and sustainable use of biological diversity through established strategies and participatory methodologies

### Policy Objective 8.2.

Seek local and international co-operation in strengthening the capacity for educational and public awareness programs with respect to conservation and sustainable use of biological diversity.

### Policy Objective 8.3

Facilitate the access to and exchange of information from publicly available sources, relevant to the conservation and sustainable use of biological diversity.

## **GOAL 9.: Minimise Adverse Impacts on Biodiversity**

Supports Article 14 of the Convention

### Policy Objective 9.1

Continue to identify and monitor processes and categories of activities having or likely to have significant adverse impacts on the conservation and sustainable use of biological diversity and take appropriate actions.

### Policy Objective 9.2

Research, monitor and where appropriate introduce alternative methods of production, manufacturing, harvesting and other use categories that would encourage sustainability and reduction of impacts

### Policy Objective 9.3

Strengthen, harmonise or clarify the procedures, categories and other appropriate elements within the environmental impact assessment legislation as they pertain to impacts on biological diversity, and improve the scientific and ecological knowledge base to assist in this.

### Policy Objective 9.4

Promote appropriate institutional, legislative, technical or other arrangements to ensure that the environmental consequences of sectoral programs and activities that have or are likely to have impacts on biological diversity are taken into account and reduced.

### Policy Objective 9.5

Promote or strengthen national, as well as trans-frontier co-operation, arrangements for emergency responses to activities or events, whether caused naturally or otherwise, which present a grave and imminent danger to biological diversity and encourage international co-operation to supplement such efforts.

## **GOAL 10 Ensure access to and judicious control of genetic resources**

Supports Article 15 of the Convention

### Policy Objective 10.1

Promote or strengthen legislative, policy, administrative and other measures to determine access to, research on and collection of indigenous biodiversity within the country's territory.

### Policy Objective 10.2

Promote appropriate conditions and measures for legal access to genetic resources deemed important for agriculture, forestry and animal husbandry.

## **Goal 11. Evaluate and Use Appropriate Technology**

Supports Article 16 of the Convention

### Policy Objective 11.1

Promote measures to research, evaluate and determine access to technologies that are relevant to the conservation and sustainable use of biological diversity

### 3. International Agreements and Programmes which relate to the NBSAP

Seychelles has signed or ratified several international conventions, which relate to the Goals of the NBSAP. The major international instruments of relevance are summarised below.

Table 2. International Conventions

The 1972 UNESCO Convention for the Protection of the World Cultural and Natural Heritage.
The 1973 Convention on International Trade in Endangered Species (CITES);
The 1968 African Convention on the Conservation of Nature and Natural Resources;
The 1985 Nairobi Convention for the Protection, Management and Development of the Marine Coastal Environment of the Eastern African Region as well as its Protocols, particularly the Protocol Concerning Protected Areas and Wild Fauna and Flora in the East African Region.
Convention for the Prevention of Pollution from Ships (MARPOL 1973/78)
Convention on the Law of the Sea (1982)
Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989)
Framework Convention on Climate Change (1992)

#### Internationally-funded Programs.

The Seychelles launched an ambitious Environmental Management Plan 1990-2000 (EMPS) in 1990 for donor financing. The titles and status of projects in the EMPS and others added subsequently, of relevance to the NBSAP and which have been implemented or ongoing can be found overleaf.

Table 3. Donor financed projects

Project	Funding (R'000)	Funding	Project Status
Biodiversity and National Parks programme	500	EU	Completed
Coastal and plateau fisheries management plan	83	ODA	Completed
Coastal environmental management	1 656	COI	Ongoing
Coastal fisheries development project	8 000	Japan	Not started
Contingency plan for marine pollution	927	GEF, USA, ICOD	Completed
Environmental assessment procedures	80	France	Completed
Environmental legislation	476	UNDP, FAO	Completed
Forest fire contingency plan	480	France	Completed
Improvement of national marine parks	200	USA	Completed
Integrated biodiversity, marine and coastal centre	1 283	EU	Completed
La Digue Solid Waste Land Fill	300	EU	Ongoing
Le Niol water treatment works	3 567	EU	Ongoing
Abatement of marine pollution (MARPOL)	440	GEF	Completed
Medicinal and aromatic plants	200	EU	Completed
National forest management plan	73	FINIDA	Completed
Pollution monitoring, control and advisory service	340	UNDP	Completed
Protection of endangered sea turtles	1 012	GEF	Ongoing
Rehabilitation of Curieuse National Park	753	France, DTF	Completed
Restoration and preservation of Aldabra	693	GEF	Completed
Review of coastal zone management plans	320	COI	Completed
State of environment report	52	France	Partially completed
Upgrading the national botanical garden	350	EU	Completed
Wildlife inventories and protection of species	1 315		Ongoing
Anse aux Pins-Anse Royale sewerage project	1 167	Japan	Not started
Anse Volbert sewerage project	4 300	-	Not started
Beau Vallon Bay sewerage project	9 160	Private	Not started
Control of pesticides	213	FAO	Completed
Control of toxic or potentially hazardous chemicals	103		Ongoing
Control on import and export of plants and animals	104	FAO	Completed
Control programme for offshore drilling	210		Completed
Expand environmental education	660	Canada	Completed
Expand environmental training	420	Canada	Completed
Greater Victoria sewerage projects	11 667	Private	Not started
Assessment of Climate Change and Sea Level Rise	65	GEF	Ongoing
Improvement of vehicle tests and testing facility	750	GOS	Completed
Marine resource management plans	455	-	Pending
Roche Caiman sewerage project	2 250	GOS	Completed
Standards for Air, Water and Noise Pollution	46	GOS	Ongoing

#### 4. Background

The Biodiversity Assessment for Seychelles was completed between April to June 1997. It is 320 pages long and has been summarised into 60 pages in the NBSAP. The main trends are listed in this National Report.

##### *Assessment of Biodiversity*

##### Agriculture.

The total land area suitable for farming is about 10 000 ha of which 6 000 ha are coconut and other tree crop plantations. It is estimated that less than 400 ha are developed for vegetables or other annual crops. Considerable areas have been lost to other uses, particularly housing. There are 270 registered farms of which some 20 are large (averaging 100 ha each). There are no native vegetables and fruits used in agriculture.

##### Forestry

It is estimated that the total forest area of Mahé, Praslin, Curieuse, La Digue and Silhouette islands is 17 600 ha, and about 78% of their land area. Twenty percent of the forests are within National Parks or other protected areas. The other islands of Seychelles are estimated to have additional 23 000 ha of forests of which nearly 15 000 ha are within National Parks or other protected areas. The total area of forest land on Mahé is 11 740 ha of which 2 980 ha are located inside the Morne Seychellois National Park. Of the total supply of wood and wood products no more than a quarter is met by domestic supply while the balance is imported.

Table 4. Area of forest (ha)

	<i>Albizia</i>	<i>Mixed</i>	<i>Plantation</i>	<i>Coconut</i>	<i>Bush</i>	<i>Deforested</i>
<b>Curieuse</b>	0	110	20	10	120	30
<b>La Digue</b>	10	390	0	90	270	0
<b>Silhouette</b>	410	400	0	430	600	0
<b>Praslin</b>	30	1210	50	60	1350	270
<b>Mahe</b>	960	3570	410	2310	4450	40

## Fisheries

Local fishermen exclusively operate the artisanal fisheries sector. Altogether, an estimated 1,000 fishers, possessing a fleet of about 400 fishing vessels, landed a total of 4509.9 Mt in 1996. In addition some lobsters, octopus and crabs are also taken.

Table 5. Major species composition (%) of the artisanal catch.

Species Group	1990	1991	1992	1993	1994	1995	1996
Karang ( <i>Carangoides spp.</i> )	32	34	33	30	25	30	35
Red Snapper ( <i>Lutjanus spp.</i> )	9	11	3	3	5	13	8
Zob ( <i>Aprion veriscens</i> )	10	15	11	15	14	13	10
Kaptenn ( <i>Lethrinus spp.</i> )	7	6	10	7	6	7	7
Bonite ( <i>Euthynnus spp.</i> )	5	3	4	3	4	2	4
Vyey ( <i>Epinephelus spp.</i> )	5	5	5	4	3	4	3
Kordonnyen ( <i>Siganus spp.</i> )	6	3	8	7	5	7	8
Makro dou ( <i>Rastrelliger spp.</i> )	7	4	5	6	13	8	9
Others	19	19	21	24	26	16	16
<b>Total Landings (Mt.)</b>	<b>4393</b>	<b>5354</b>	<b>5718</b>	<b>4923</b>	<b>4428</b>	<b>4313</b>	<b>4510</b>

Several aquaculture projects have been successful, namely the pearl oyster (*Pinctada margaritifera*, *Pinctada maxima* and *Pteria penguin*) and giant clam (*Tridacna maxima* and *T. squamosa*) farm on Praslin and the prawn farm on Coetivy Island. The first harvest of pearl are expected in 1998

Table 6. Aquaculture production

### *Penaeus monodon* production

Year	1994	1995	1996
<b>Production in Mt.</b>	164,000	196,000	279,00

### Giant calms exported.

Year	1994	1995	1996
<b>Number exported</b>	1,900	1,960	1,100

### Habitats

There are various habitat types in the Seychelles. The table below summarises the information on these.

Table 7. Characteristics of main habitat types in Seychelles

<i>Type</i>	<i>Altitude</i>	<i>Location</i>	<i>Area</i>	<i>Species diversity</i>	<i>Species endemicity</i>
<b>Forests</b>					
Beach and Dune	Sea level	G & C	?	High	Low
Lowland	0-300m	G	?	High	Low
Intermediate	200-500m	G	?	Low-High	High
“Glacis”	200-500	G	?	Low	High
Mountain Mist	400-900	G	?	Low	High
<b>Mangroves</b>	Sea level	G&C	C=1000ha	Low	Low
<b>Rocky shores</b>	sea level	G	G=100kms	Low	Low
<b>Sandy shores</b>	sea level	G&C	G= 70kms	Low	Low
<b>Reefs</b>	-	G&C	G=130 sq.km	High	Low
<b>Seagrass beds</b>	-	G&C	?	Low	Low
<b>Algal beds</b>	-	G&C	G=100sq.km	Low	Low
<b>Submarine banks</b>	-	G&C	49,550 sq.km	Low	Low
<b>Open Ocean</b>	-	EEZ	1.3 million sq.km	Low	Low

Key: G= Granitic islands; C= Coral islands  
 ? indicates insufficient knowledge; - indicates not relevant

### Species

The Seychelles harbours about 10,000 species of living organisms many of which are endemic. The table overleaf summarises much of the existing information.

Table 8. Summary of information on taxa (including sub-species)

Group	No. of species	No. of endemic species	No. of threatened species
<b>Micro- alga</b>	250	?	?
<b>Fungi</b>	?	?	?
<b>Bryophytes</b> Hepaticae	62	11	5 (?)
<b>Macro-algae</b> Terrestrial & freshwater	75	?	-
Marine	170	-	-
<b>Ferns</b>	90	10	?
<b>Angiosperms</b>	900-1000	G=80; C=33	38
<b>Invertebrates</b>			
Sponges	350	5 (?)	?
Sea anemones	55	-	-
Stony corals	178	2 (?)	-
Octocorallians	71	?	-
Free-living flatworms	40 (?)	4 (?)	2 (?)
Proboscis worms	15(?)	2 (?)	(?)
Marine molluscs	300 (?)	(?)	(?)
Terrestrial molluscs	68	44	18
Freshwater molluscs	11	1	1
Serpulids	50	?	?
Leeches	3	2	2
Scorpions	3	1	2
Spiders	150	17	1 (?)
Sea spiders	22	?	?
Isopods	50	?	?
Shrimps	165	9 (?)	?
Land & freshwater crabs	32	1	-
Insects	3,500 (+)	1,800	140 (?)
Millipedes	28	13	6
Feather stars	10	1	-
Sea stars	32	-	-
Brittle stars	44	-	-
Sea Urchins	33	-	-
Sea Cucumbers	35	2 (?)	?
<b>Vertebrates</b>			
Fish	1000 (+)	10-20 (?)	?
Amphibians	12	11	4
Snakes (including marine)	4	2	?
Lizards	25		1
Turtles			
Side neck turtles	3	3	2
Sea turtles	4	-	4
Tortoises	1	1	1
Birds (not including migrants)	62	30	8
Bats	6	3	1
Marine Mammals	21	-	5 (?)

Key: ? indicates insufficient knowledge; - indicates absence

### *Protected Areas*

Despite historical habitat protection in Seychelles soon after colonisation in 1770, such as the Pas Geometriques, much of the protected area system presently in place dates to the 1960's. The multiplicity of protected areas in Seychelles means that there are many issues that are continue to be of concern. The main issues fall into these broad categories:

- Multiplicity of Statutory Authorities
- Criteria for Selection and Protection Areas
- “Paper Parks”
- Application of Non-conservation objectives in Protected Areas
- Developments outside Protected Areas-Buffer Zones
- Public Involvement
- Tourism and Protected Areas
- Property Ownership and Acquisition Issues
- Enforcement
- Unprotected Media

The NBSAP recognises both the gaps and strengths in protected area management in Seychelles and proposes various actions to improve the situation ranging from the purchase of land to increase protected areas to involving private enterprise in management.

Table 9. Protected Areas with Management Plans

<b><i>NAME</i></b>	<b><i>STATUS OF PLAN</i></b>	<b><i>IMPLEMENTATION</i></b>
<b>Ste. Anne Marine National Park</b>	New plan in 1995	Ongoing
<b>Curieuse Marine National Park</b>	New Plan in 1995	Ongoing
<b>Baie Ternay Marine National Park</b>	New Plan in 1995	Ongoing (phased)
<b>Port Launay Marine National Park</b>	New Plan in 1995	Ongoing (phased)
<b>Morne Seychellois National Park</b>	New Plan being written	Awaiting plan
<b>Praslin National Park</b>	Plan outdated.	Awaiting Project Proposal
<b>Cousin island Special Reserve</b>	Being updated	Ongoing
<b>Arde island Special Reserve</b>	Being updated	Ongoing
<b>Aldabra Special Reserve.</b>	New Plan in 1996: being revised	Awaiting new Plan
<b>La Veuve Special Reserve</b>	Plan written in 1995	Ongoing

Table 10. Current Conservation Values of Protected Areas

<i>NAME</i>	<i>CONSERVATION VALUES</i>
<b>Ste. Anne Marine National Park</b>	Waters and reefs around the six islands 5 km. from Port Victoria. Coral reefs & associated ecosystems
<b>Curieuse Marine National Park</b>	Granitic island & sea area up to Anse Boudin, Praslin. Coco-de-mer forest rare plants; wetlands & coral reefs; introduced giant tortoises.
<b>Baie Ternay Marine National Park</b>	Sea area NorthWest part of Mahé. Mudflats, coral reef.
<b>Port Launay Marine National Park</b>	Sea area Northwest part of Mahé. Coral reefs
<b>Silhouette Marine National Park</b>	Sea area around granitic island. Boulder and coral reef
<b>Morne Seychellois National Park</b>	West and central massif of Mahé, from sea level to 905 m. Endemic birds, plants, amphibians, insects and invertebrates; coastal to mist forests,
<b>Praslin National Park</b>	Central highlands of Praslin from 20 to 360 m. Coco-de-mer forest; Palms ; Seychelles Black parrot
<b>Cousin island Special Reserve</b>	Granitic island west of Praslin includes 400 mt from HWM Seychelles Brush Warbler & endemic land birds; sea birds; hawksbill turtles; coral reefs
<b>Aride island Special Reserve</b>	Granitic island 9 km N.N.E of Praslin Largest colonies of Lesser Noddy and Roseate tern; sea birds; turtles, Wright's Gardenia
<b>Aldabra Special Reserve</b>	Coral atoll including marine area. Giant Tortoises; land and sea birds; turtles; flora, mangals & reefs. World Heritage Site
<b>La Veuve Special Reserve</b>	Western plateau of La Digue island. Wetland and coastal forest habitat for Paradise Flycatcher
<b>Ile Cocos , Ile la Fouche &amp; Ilot Platte</b>	Small islets near La Digue. Coral reefs and marine life
<b>African Banks and Surrounding Reefs</b>	Sand cay 285 km from Mahé, part of which is submerged. Small colonies of Sooty Terns, Brown Noddy ; marine life, turtles
<b>Ile Seche</b>	Granitic islet 2 km East of Ste Anne. Few seabirds at present
<b>Vache Marine</b>	Small granitic islet 1.5 km off W. coast of Mahé. Few seabirds at present
<b>Les Mamelles</b>	Granitic islet 18 km from Victoria. Some Bridled & Fairy Tern & Brown Noddy
<b>Ile aux Fou or Booby</b>	Granitic islet near Praslin. A few bridled and Fairy terns, Brown and Lesser Noddy
<b>Boudeuse</b>	Reef platform in the Amirantes group. Medium size colonies of Masked Booby; turtles
<b>Etoile</b>	Reef platform in the Amirantes group. Some Masked Booby and Sooty Terns
<b>Praslin (Vallee de Mai)</b>	Inside the Praslin National park. Coco de mer forest, palms, invertebrates. World Heritage site.
<b>North East Point and Anse Nord d'Est Shell Reserve</b>	Inner reef area on North-East coast of Mahé. Marine molluscs
<b>South East Island to Point au Sel Shell Reserve</b>	Inner reef area on South- East coast of Mahé. Marine molluscs
<b>Pointe Zanguilles to Anse Boudin Shell Reserve</b>	Inner reef area on North coast of Praslin. Marine molluscs
<b>La Passe to Cap Bayard River Shell Reserve</b>	Inner reef area on North coast of Mahé. Marine Molluscs
<b>Mahé, N.E.Point to S.Point fisheries protected area</b>	Unknown
<b>Praslin, Roche Corbijieux to Anse Marie Louise fisheries protected area</b>	Unknown
<b>Western La Digue, N.Point to S.Point fisheries protected area</b>	Unknown

### *Institutional Issues*

Conservation was initiated as a national activity in the 1960's with the creation of the Nature Conservancy board. Today there are various institutions, Government as well as NGOs involved in biodiversity management

Table 11. Biodiversity conservation-related institutions

<i>Name</i>	<i>Type of Institution</i>	<i>Relevant Activities</i>
<b>Ministry of Environment</b>	Government	Environmental, including biodiversity management
<b>Marine Parks Authority</b>	Parastatal	Management of marine parks.
<b>Seychelles Fishing Authority</b>	Parastatal	Fisheries management and research.
<b>Seychelles Bureau of Standards</b>	Government	National Standards, Research and Monitoring.
<b>Seychelles Island Foundation</b>	Quasi-NGO (QUANGO)	Management of Vallee de Mai and Aldabra.
<b>Nature Protection Trust</b>	Local NGO	Biodiversity research, awareness and management
<b>Marine Conservation Society</b>	Local NGO	Marine research and conservation
<b>WildLife Clubs of Seychelles</b>	Local NGO	Biodiversity education, awareness and public action
<b>Royal Society for Nature Conservation</b>	International NGO	Management of Aride Special Reserve
<b>BirdLife International</b>	International NGO	Management of Cousin Special Reserve & support of other biodiversity activities

Country-driven biodiversity conservation and management in Seychelles continues to be hampered by the scarcity of human, scientific and financial resources, as well as the geographical isolation of the Seychelles. Tremendous efforts have been made in the past decade in the areas of education and training, but it appears that there remain gaps in government institutions to be filled by local experts. Typically, there is a high turnover of staff thus creating such problems as poor institutional memory, repetition and confusion. This leads to the realisation that a paucity of experts in Seychelles may not really be the cause of the problem. Experts are available but effectiveness is diluted because they may be scattered in different institutions. Furthermore, it is commonplace that management responsibilities for biodiversity issues and resources are either the responsibility of more than one entity or fall within a “grey area” of management. As a result, inadequate or inappropriate institutional arrangements remain the major constraint to effective management. The NBSAP recognises this constraint and has attempted to improve the situation by providing different institutions with the opportunity to ‘buy into’ the process and implement biodiversity type projects, as well as to twine institutions together for project implementation.

### Legislation

There are at least a hundred pieces of legislation that could be of relevance to biodiversity.

The principal legal Acts are listed below.

Table 12. Principal Biodiversity-related Legislation

1. Wild Animals and Birds Protection Act (1961)
2. National Parks and Nature Conservancy Act (1968 as amended, last amendment 1982)
3. Birds Eggs Act (1933, as amended, last amended 1961) (Reserves Provision)
4. Fisheries Act (1986) (Reserves provisions)
5. Forest Reserves Act (1955, as amended 1959)
6. Crown Land and River Reserves Act (1903 as amended, last 1965) (Reserves Provisions)
7. Coast Reserves and Foreshore Leases Act (1907) (Reserves Provisions)
8. State Lands and River Reserves Act
9. Protected Areas Act (1967)
10. Wild Animals and Birds Protection Act (1961)
11. Birds Eggs Act (1933, last amended 1961)
12. Fisheries Act (1986)
13. Breadfruit and other Trees (Protection) Act (1917)
14. Coco-de-Mer (management) Decree (1978)
15. Coco-de-Mer (Management) Decree (Declaration

The Seychelles' general legislation concerning biodiversity conservation and sustainable use is extremely fragmented. Each aspects of biodiversity may be dealt with in a variety of acts, regulations, orders and decrees. As a consequence, institutional responsibilities may overlap or conflict, and technologies and regulatory approaches may vary. Consistency is also an issue of high importance

Certain aspects of biodiversity legislation in the Seychelles are missing. These aspects include biodiversity planning, general species protection, control of alien species including introduction on islands where the species in question do not occur, and most importantly access to genetic resources (bioprospecting).

Another general remark may be made concerning the legislative approach in existing biodiversity legislation. It appears to follow the "command and control" model establishing (strict) prohibitions making their violation an offence and priority for (more or less appropriate) fines and penalties. This may lead to implementation gaps and also a rigid application of the law.

### *Value of Biodiversity*

The aim of the economic assessment of Seychelles biodiversity, a part of the Biodiversity Assessment, is to provide an estimate of the magnitude and distribution of the economic benefits associated with the biological resources of the Seychelles, and of the economic costs of biodiversity loss. This is a first effort to compile environmental and economic data for the Seychelles and a preliminary attempt to gauge the economic costs and benefits associated with biodiversity. A degree of caution should always be exercised in interpreting and using the results of environmental economic analysis. Because so many of the benefits associated with biodiversity have no price, or are undervalued in the market, and because available data are in most cases poor, economic valuation of biodiversity can only ever be partial. Quantified values inevitably omit a wide range of biodiversity benefits, most notably non-use and option values.

In order to generate information and recommendations which are consistent with other aspects of the Seychelles biodiversity assessment, and are useful for developing a national biodiversity strategy and action plan, the economic assessment of biodiversity followed eight iterative steps, outlined below.

Table 13. Iterative steps followed in the economic assessment

<b>1</b>	Identify available biodiversity economics information and data	
<b>2</b>	Assess the structure and composition of the economy, including major macroeconomic and sectoral economic strategies	<b>Economic root causes of biodiversity loss</b>
<b>3</b>	Assess the dependencies and impacts of economic activities and policies on national biodiversity	
<b>4</b>	Assess the benefits associated with biodiversity conservation for major economic sectors, their magnitude and distribution	<b>Economic costs and benefits of biodiversity</b>
<b>5</b>	Assess the costs associated with biodiversity loss for major economic sectors, their magnitude and distribution	
<b>6</b>	Assess the costs, cost-bearers and finance requirements associated with biodiversity conservation	
<b>7</b>	Assess the potential for using economic instruments to provide incentives and financing for biodiversity conservation	<b>Economic measures for biodiversity conservation</b>
<b>8</b>	Identify future needs for economic data, analysis and assessment of biodiversity	

A range of economic benefits is associated with Seychelles biodiversity, some of which can be at least partially valued. The total economic value of Seychelles biodiversity includes:

- **direct use values** from goods such as fish, birds' eggs, timber, wild meat, fibres, shells, coral and sand which are consumed in their original state or used as raw materials for other production processes such as animal feeds, dried marine products, tuna canning, button-making and construction. Through tourism and scientific research activities, biodiversity also supports non-extractive industries. These direct uses have an economic value which is to some extent revealed through market expenditures and sales;
- **ecological services** which include watershed catchment protection, beach protection, soil erosion control and provision of sink for wastes and residues. Although these services have no market price, their economic benefits can be quantified by looking at the costs of replacing them with artificial alternatives, which represents the expenditure saved by their existence and can be used as a partial proxy of their economic value;
- **option and existence values** which are the premium placed on maintaining biodiversity for possible future uses, and the intrinsic significance that biodiversity holds regardless of its use – typically requires a large volume of data on people's perceptions of value and stated willingness to pay for goods and services. These data are not available for the Seychelles, and so it is impossible to present any quantified estimates of these values. Both option and existence benefits are however likely to be significant components of the total economic value of biodiversity.

A range of activities is to a greater or lesser extent supported by the presence of biodiversity. The economic assessment examined the gross value of all the major economic activities in the Seychelles economy, which have some link to biodiversity.

Many components of the economic value of biodiversity are omitted due to data constraints, so estimates should be taken as minimum values. All values are gross values unless otherwise stated they do not take account of the physical costs incurred in biodiversity-related production and consumption or the biodiversity costs that are associated with activities. In order to highlight the full range of biodiversity benefits, some values in the

economic assessment are disaggregated. To avoid double counting these values are not repeated, they are netted out of other revenues and earnings.

The total quantifiable annual value of economic activities supported by the presence of Seychelles biodiversity has been calculated to be nearly R 1.5 billion. Although tourism and fisheries account for the major proportion of this value – 98% of the total – because they are the most commercialised activities, the absolute value of ecological services, forests, protected areas and other plant and animal products is high at R 25 million. The economic benefits associated with fisheries and tourism also depend on the continued existence of these other sectors.

#### *Major Threats to Biodiversity*

Beginning with the first colonisation of Seychelles many habitats were destroyed or damaged and several species obliterated. Presently threats are of a different magnitude and characteristic compared to the colonial era. Rapid affluence and development mean that the effects of infrastructure are far more important than in previous times. In addition new technology and communication means lead to greater access to remote areas and their biodiversity. The table below summarises the major threats to biodiversity that were identified in the Biodiversity Assessment.

Table 14. Major threats to biodiversity

<b>Taxa/ Habitat</b>	<b>Threats</b>					
	<i>Habitat Alteration</i>	<i>Alien species</i>	<i>Range restrictions</i>	<i>Exploitation</i>	<i>Pollution/ siltation</i>	<i>Disease</i>
<b>Plants</b>	****	****	***	**		*
<b>Invertebrates</b>	****	***	*	*		*
<b>Vertebrates</b>	**	**	****	***		*
<b>Wetlands</b>	****	****			***	
<b>Reefs</b>	*	*		*	*	*

Key: \*\*\*\*=major threat; \*\*\*=significant threat; \*\*=threat; \*= Unquantified threats

## 5. Strategy and Action Plan

### *Status of Development and Implementation*

The Seychelles NBSAP is completed and will be approved by the Cabinet by December 1997. The NBSAP is at the centre of the Seychelles effort to fulfil the Convention's obligation, including the integration of sectoral and cross-sectoral plans; programmes and policies called for in article 6(b). The NBSAP primarily relates to the next 5 years. Its primary function is to make specific recommendations for national action on conserving biological diversity and sustainably using its components. These recommendations are detailed as projects containing objectives, timetables, and budgets in the Action Plan. Institutions including Ministries, parastatals and NGOs have been invited to submit their projects, in an effort to address sectoral as well as cross-sectoral aspects of conservation and sustainable use.

By providing organisations with this opportunity to 'buy into' the process, the Strategy addresses practical questions such as: which organisations (Government, NGO, etc.) will take up which activities, over what time frame, by what means, and with what resources. In this manner, the NBSAP also avoids the common pitfall of over-stretching institutional resources by allowing organisations to address only issues, which they believe they have the capacity to handle effectively.

The NBSAP is an effective tool for determining priorities, especially because the Seychelles has limited resources at its disposal. To do this the NBSAP follows the recommendations of the manual "National Biodiversity Planning" by: identifying components of biodiversity; identifying areas for action to be taken by existing organisations; identifying Needs and Gaps; identifying pragmatic and cost-effective projects; and assigning tasks and priorities.

The NBSAP requires Government funding commitments as well as concessionary financing from external donors. Though the NBSAP Secretariat there will be a coordination mechanism for donors. The NBSAP supports the use of the official financing mechanism of the Convention - the Global Environment Facility (GEF) - as well as sustainable financing sources such as the Dutch Trust Fund and the Seychelles Environment Trust Fund.

### *Steps in the NBSAP Process*

Certain steps were undertaken for the production of the NBSAP based on documentation produced by the United Nations Environment Programme to ensure an orderly and sustainable process.

#### Program Co-ordination and Planning

IUCN provided technical assistance in the form of a national Program Co-ordinator to run the project. Because of time constraints, access to data sources for the Biodiversity Assessment, and the necessity of securing participation from local stakeholders, it was felt that an experienced national was best suited to ensure project success. The Program Co-ordinator led the NBSAP process with the assistance and support of the organisations and persons described below as well of the Ministry of Environment.

#### Establishing institutional arrangements and links with other sectors and planning team.

The Ministry of Environment established a Task Force to guide the Biodiversity Assessment and the NBSAP process. The Task Force consisted of 11 members from 5 organisations. The Task Force guided the Program Co-ordinator and provided advice when needed.

#### Consultation and participation

Two National Workshops were planned. During the first Workshop held on May 20<sup>th</sup>, 30 participants representing 23 organisations identified a preliminary set of priority action for the Seychelles under the Convention framework. The purpose of the second Workshop on October 24<sup>th</sup> was to validate the NBSAP and prioritise the actions. The Workshops were very successful and full participation was provided by all organisations and experts involved. Meetings and discussions with stakeholders were believed to be important to the process of bringing key organisations into the NBSAP. The Program Co-ordinator met with 30 organisations during the project life.

#### Stock taking and Assessment

Since the Task Force was found to be too small in its representation, 23 experts were brought in to contribute information and text for the various sections of the Biodiversity Assessment. To a large extent, local experts were used.

### NBSAP Editorial Direction

The Program Co-ordinator, and two other individuals from the Ministry of Industry and the Ministry of Foreign Affairs respectively, edited the NBSAP. This ensured further sectoral expertise and interests to be incorporated in the document.

### Review by International organisations

Both the Biodiversity Assessment and the NBSAP have been sent to IUCN and UNEP for review. Reviewers' comments and corrections have already been incorporated into the Assessment.

### Approval by the Cabinet

After validation by partner organisations and other concerned and affected parties, the Minister for Environment has now presented the NBSAP to the Cabinet of Ministers for approval.

### *Constraints in Implementing the NBSAP*

Certain constraints were encountered during the initiation and implementation of the NBSAP process in Seychelles. Primarily, these concerned the time allocated to the project and the workload of personnel, which prevented full involvement in the process. A table summarising the status and constraints is presented overleaf.



### *Other relevant Strategies and Policy Documents*

The Seychelles has formulated several strategies and policy documents that are of relevance to biodiversity conservation and which were examined in the context of the NBSAP process. The more important of these documents are found below.

Table 16. National Policy documents of relevance to biodiversity

National Development Plan
Environmental Management Plan for Seychelles, 1990 – 2000 (EMPS)
Seychelles Strategy for Sustainable Development
Public Sector Investment Programmes (PSIP)
Environment Guidelines (12 volumes)
The Sensitive Areas Atlas
National Land Use Plan
National Oil Spill Contingency Plan
National Long Term Perspective Study (Ongoing)
Ozone Depleting Substances Phase Out Plan
<b>Sector Plans of relevance include:</b> Forestry Sector Master Plan Forest Fire Contingency Plan Marine Parks Management Plans Fisheries Sector Plan (not including management) Habitat 11 National Report Tourism Master Plan (Ongoing)

### *Action Plan*

The various ministries, departments, parastatals and non-governmental organisations of Seychelles have proposed projects for this NBSAP. Looking at the problems and needs for their respective sub-sectors, the gaps in biodiversity management and the requirements of the Convention, they have formulated projects that might satisfy those needs or provide the appropriate solution.

When all the proposed projects of the sub-sector are added up they give what has been called a “list of projects”. This list is presented in the subsequent pages. At the end of the project

list appears the grand total USD12,257,000 i.e. USD12.3m. This would be the cost of implementing all the projects in the project list. The investment programme is drawn up for a period of 5 years. Translating the grand total to a yearly spending one comes up with USD2.4m or SR12.3m of annual expenditure. The proposed investment of SR12.3m needs to be examined in the context of the country's economic ability to sustain it. Referring to the 1997-1999 Public Sector Investment Programme of Seychelles (PSIP), the proposed yearly expenditure on capital investment comes to about SR 200m. Comparing the two investment programme the NBSAP project list represents about 6% of the total investment of the Seychelles economy.

The project list presented on the following pages includes further information and details on each project. For analytic reasons, the each total project cost has been divided into:

- (1) total foreign and local expenditures, and
- (2) into categories:
  - 1 Civil and other Works
  - 2 Equipment, supplies and materials
  - 3 Consultancy services
  - 4 Training
  - 5 Operating costs

Categorised investment costs have been computed on the basis of the following assumptions:

- (1) Civil works: includes other activities, i.e. forestry activities, land purchase, etc.
- (2) Equipment: includes the purchase of equipment, material, books, documentation, supplies, etc.
- (3) Consultancy Services: includes local and overseas consultancy services and all their associated costs. It should be noted, however, that preference was given to local services wherever possible in order to support local capacity building and minimise costs.
- (4) Training: all costs associated with training activities.
- (5) Operating costs: all costs associated with the actual "running" of projects, e.g. fuel, office costs, transportation costs, etc.

The Table presented below summarises the different categories based on the Policy Goals of the NBSAP with their respective total investment costs.

Table 17. Project categories		
		Total cost in USD '000
<b>I.</b>	General measures for Conservation and Sustainable Use	2625
<b>II.</b>	Identification and Monitoring	672
<b>III.</b>	In-Situ Conservation	2350
<b>IV.</b>	Ex-Situ Conservation	190
<b>V.</b>	Sustainable use of Biological Diversity	2015
<b>VI.</b>	Incentive Measures	55
<b>VII.</b>	Research and Training	410
<b>VIII.</b>	Public Education and Awareness	250
<b>IX.</b>	Impact Assessment and Minimising Adverse Impacts	3650
<b>X.</b>	Access to Genetic Resources	40
	Total Investment Programme	12257

To assist the Government of Seychelles, partners in the NBSAP, and donors in implementation, it was found necessary to prioritise the projects. A priority ranking system to be included in the NBSAP was proposed at the 2<sup>nd</sup> National Workshop:

Code 0: Designates projects for which funding has already been secured.

Code 1: Designates projects that intend solving very urgent problems to do with Biodiversity conservation and sustainable use, or because their completion is a pre-requisite for the success of other projects.

Code 2: Designates projects that may not be as urgent as Code 1 projects, but propose addressing issues of high Biodiversity significance and global priority.

Code 3: Designates projects, although bearing an intrinsic priority intend to address longer-term issues than Code 2 projects.

Code 4: Designates projects that should be included in the NBSAP but which could be phased.

The projects making up the Action Plan are found overleaf as prioritised by the participants of the 2<sup>nd</sup> National Workshop in October 1997.

Table 18. Proposed Priorities for projects

1	2	3	15
		Total cost in USD '000	Priority rating
<b>Total Code 0 rating</b>		<b>2,362</b>	
I.1.	Implementation of Turtle Management Plans for Seychelles	170	0
II.2.	Conservation of endangered Seychelles Scops Owl	105	0
II.3.	Saving the Seychelles Grey White-Eye	122	0
III.1.	Management of Praslin National Park, Fond Ferdinand and Curieuse island	230	0
III.2.	Restoration and Preservation of World Heritage Sites	450	0
III.6.	Forest Conservation in La Reserve/Brulee, Mt. Sebert, Bernica & Mt. Cauvin on Mahé	170	0
III.7.	Acquisition of woodland and wetland habitats for the extension of the Veuve Special Reserve on La Digue	300	0
III.11.	Control of Freshwater Aquatic Weeds in Seychelles	90	0
V.2.	Establishment and Implementation of a critical marine protected area	210	0
V.3	Pilot project on nature trails in the District of Cascade	40	0
VII.3.	Sustainable Management of Bats	200	0
VII.4	Seychelles Whale Shark Programme - Telemetric Tracking Proposal	115	0
VIII.1.	Resources and Training for environmental education	160	0
		<b>Total cost in USD '000</b>	<b>Priority rating</b>
<b>Total Code 1 rating</b>		<b>2,305</b>	
I.3	Establishment of a Supporting Mechanism to implement the NBSAP	275	1
I.5	Introduction of Standard Operational Procedures for sustainable use of Marine National Parks	445	1
II.1.	Establishment of Key Biodiversity Indicators	60	1
II.4.	Data Management System for Biodiversity Management	40	1
III.5.	Mapping and Monitoring of River Reserves	280	1
III.8.	Curieuse National Park Habitat Assessment	50	1
V.1.	Integrated Management of Water Catchments on Mahé, Praslin and La Digue	1,000	1
V.4.	Establishment of Medical Plant Gardens at Local Level	40	1
VI.1.	Introduction of Environmental Economics	55	1
IX.4.	Assessment of lowland habitats	60	1
		<b>Total Code 2 rating</b>	<b>3,404</b>
I.4	Establishment and support of environmental NGO center	180	2
III.4.	Establishment of Important Bird Areas	550	2
III.10.	Eradication of mice and rats on Curieuse	100	2
IV.1.	Developing different ecological habitats model within the Botanical Gardens	2,000	2
VII.1.	Augmenting ecology monitoring and management skills	300	2
VIII.2.	Improving the management and effectiveness of Wildlife Clubs of Seychelles	124	2
IX.5.	Seychelles Soil Analysis and Conservation	35	2
XI.II.	Protection of Coral Reefs from anchor damage	115	2
		<b>Total Code 3 rating</b>	<b>6,270</b>
I.2.	Action Plan and Implementation Projects for globally threatened birds	2,000	3
III.3.	Forest Conservation on Silhouette Island	550	3
VII.2.	Sustainable Management of the Coco de Mer	100	3
IX.1.	Control Impact of Wastewater on Praslin Island	3,500	3
IX.2.	Identification of River Pollution Impact on Biological Diversity	30	3
IX.3.	Reduction of Persistent Organic Pollutants through use on indigenous organic materials as fertilizers	30	3
X.1.	Conservation of Genetic Diversity of Plant Species used in Agriculture	40	3
VIII.4.	Evaluation of bio-technological development and application	20	3
		<b>Total Code 4 rating</b>	<b>180</b>
III.9.	Rehabilitation of Coral Reefs	180	4

## 6. Collaboration and Partnership

### *Progress*

Unlike any other environment process in the history of Seychelles, the NBSAP attracted a wide cross section of participants from Government, NGO and private sectors. The tables below summarise information on participation in the Biodiversity assessment, the two National Workshops, the Task Force, and other stakeholders and partners in the NBSAP.

Table 19. Expert Contribution to the Biodiversity Assessment

<i>Institutions</i>	<i>Numbers</i>
<b>Government</b>	7
<b>Parastatal</b>	1
<b>NGO</b>	3
<b>Private</b>	4
<b>International</b>	5

Table 20. Participation in the two National Workshops

<i>Institutions</i>	<i>Numbers</i>
<b>Government</b>	7
<b>Parastatal</b>	5
<b>NGO</b>	4
<b>Private</b>	4
<b>International</b>	3

Table 21. NBSAP Task Force Members

<i>Name</i>	<i>Institution</i>
<b><i>Mr. John Collie</i></b>	MPA
<b><i>Mr Lindsay Chong Seng</i></b>	MTT
<b><i>Mr. David Boulle</i></b>	SFA
<b><i>Mr. Nicholas Vernier</i></b>	COI
<b><i>Mr. John Nevill</i></b>	MoE
<b><i>Mr. Michel Vielle</i></b>	MoE
<b><i>Mr. Louis Barbe</i></b>	MoE
<b><i>Ms. Lena Desaubin</i></b>	MoE
<b><i>Mr. W. Tilly</i></b>	MoE
<b><i>Mr. S. Barra</i></b>	MoE
<b><i>Mr. J. Fourmi</i></b>	MoE

### Stakeholders Meetings

Throughout the NBSAP process, the Program Co-ordinator held individual meetings with senior representatives of key organisations found in the Table below for the purpose of explaining the purpose and objectives of the program and for discussing potential input into the Action Plan:

Table 22. Stakeholders meetings from April to October, 1997

<i>Names of Organisations</i>
BirdLife International
Seychelles Fishing Authority (SFA)
Water Division, PUC
Planning Division, Ministry of Foreign Affairs
Office of the Attorney General
Ministry of Industry
Ministry of Foreign Affairs
Seychelles Bureau of Standards (SBS)
Ministry of Agriculture and Marine Resources (MAMR)
Marine Parks Authority (MPA)
Seychelles Island Foundation (SIF)
Royal Society for Nature Conservation (RSNC)
Nature Protection Trust of Seychelles (NPTS)
Wild Life Clubs of Seychelles
Marine Conservation Society
Tourism Division, Ministry of Tourism and Transport
Forestry Division, MoE; EAPC Division, MoE.

### *Partners in the NBSAP*

The partners in the Action Plan are those organisations, which have responded to the gaps identified in the NBSAP as well as the requirements of the Convention by submitting relevant projects. The Partners consist of three Government Ministries, four Government Parastatals, and five NGOs.

Table 23. Partners in the NBSAP

Ministry of Education and Culture Mont Fleuri Mahe Seychelles	Seychelles Islands Foundation P.O. Box 853, Independence House Victoria Mahe Seychelles
Ministry of Environment Botanical Garden Mont Fleuri Mahe Seychelles	WildLife Clubs of Seychelles P.O. Box 699 Victoria Mahe Seychelles
Ministry of Agriculture and Marine Resources Independence House Victoria Mahe Seychelles	Nature Protection Trust of Seychelles P.O. Box 207 Victoria Mahe Seychelles
Seychelles Fishing Authority Fishing Port P.O. Box 449 Victoria Mahe Seychelles	BirdLife Seychelles P.O.Box 1310 Victoria Mahe Seychelles
Marine Parks Authority P.O. Box 1240 Victoria Mahe Seychelles	Marine Conservation Society of Seychelles P.O. Box 384 Victoria Mahe Seychelles
Seychelles Bureau of Standards P.O. Box 953 Victoria Mahe Seychelles	Public Utilities Co. P.O. Box 34 Victoria Mahe Seychelles

### *Levels of Involvement*

The NBSAP has involved all prominent stakeholders to the greatest extent possible. Although the Seychelles is a small island state, two-way communications between institutions is always cited as a key constraint. In the NSAP great efforts were made to establish open two-way communication. The NSAP, in its 5-year time frame, cannot do everything and therefore it focuses on priority actions. Key stakeholders have arrived at these actions through a participatory process of assessing needs and issues.

The NBSAP clearly focuses on sustainable use and development. The vision of the NBSAP concentrates on the recognition that ecosystems cannot be sustainable if the human population in and around them is not sustainable. The NBSAP is strategic in its approach,

because although at its central core is a suite of time dependent projects, it has been a processes of reflection and action by nationals; the written action plan is part of a national consensus building process. An effort was made through the Biodiversity Assessment to understand the problems and issues before reaching conclusions about the solutions in the Action Plan.

#### *Collaboration and Ownership*

Through the workshops meetings, the Biodiversity Assessment and Action Plan development process, key stakeholders now have a clear understanding of sustainable development goals and a clear understanding of the problems of unsustainable use of resources. The Strategy Process has been completely country driven and owned; the IUCN program Coordinator is a national and all other key participants are also Seychellois. Relevant stakeholders within the country have identified actions to be included as priority projects in the Plan. The demands of external agencies have had little influence on the NBSAP as regards project priorities.

The participation of key players throughout the NBSAP is sustained through sector-owned projects. For it to be an ongoing process beyond its 5-year life, the NBSAP identifies discrete projects for training and capacity building, and also has a high degree of capacity building/training and demonstration inherent in all its other projects.

#### *Maintaining cooperation and commitment*

Through the Biodiversity Assessment process which involved technical experts from sectors such as fisheries, agriculture, industry and economic planning, and through the Action Plan projects there is political and institutional commitment from key institutions. There is also a strong cross-sectoral linkage between certain key sectors such as marine parks, education and NGOs. A strategy engine, the NBSAP Secretariat is proposed as a project and will be the continuing link between the partners in the NBSAP.

Many of the projects in the Action Plan are action –oriented demonstration activities, as stressed by all the participants in the process. Success will be demonstrated as key projects secure funding and are implemented early in the process. These projects will be also utilized as partnership-building activities.

### *Collaboration with International organisations*

Several international organisations have collaborated in the NBSAP process. In particular IUCN through a Program Co-ordinator, a senior facilitator for the 1st National Workshop and technical advice and backstopping has played a major role in assisting the Government of Seychelles in the implementation of the NBSAP process. BirdLife International and its UK partner RSPB has participated in the Biodiversity Assessment, in the national Workshops and in providing projects for the Action Plan. A regional organisation, the Commission de L’Ocean Indien, through its national project co-ordination was represented on the Task Force.

### *Progress in raising awareness*

The NBSAP has been discussed with various organisations involved in awareness and education including Seychelles WilldLife Clubs, the Ministry of Education and Culture, and the Education unit of the Ministry of Environment. The National Workshops have been covered in the local newspapers and on television and radio.

## 7. Resource availability

The following tables show the investment program required, the projects that will be implemented by NGOs and those that have already secured grant financing.

Table 24. Investment Summary

1	2	3	8	9	10	11	12	13	14
	Total cost in USD '000	Total Foreign Cost in USD '000	Total Local Cost in '000	Yr. 1		2	3	4	5
I.	General measures for Conservation and Sustainable Use	2625	1964	3155	810	1078	274	0	463
II.	Identification and Monitoring	672	478	975	0	169	346	62	95
III.	In-Situ Conservation	2350	1796	2755	380	605	850	105	410
IV.	Ex-Situ Conservation	190	148	210	0	128	62	0	0
V.	Sustainable use of Biological Diversity	1970	1529	2205	80	396	1242.5	30	220
VI.	Incentive Measures	55	55	5	250				55
VII.	Research and Training	410	117	1469	0	80	20	285	25
VIII.	Public Education and Awareness	250	188	310	15	36	103	67	29
IX.	Impact Assessment and Minimising Adverse Impacts	3650	2916	3680	2900	535	180	10	25
X.	Access to Genetic Resources	40							
	Total Investment Programme	12212	9081	14659	4185	3001	3061	544	1251

Table 25. NGO Implementation Programme

Projects implemented by Non-Governmental Organisations

1	2	3	4	5	6	7
		Total cost in USD '000	Implementing agency	Funding agency	Duration in years	Starting Date
I.2.	Establishment and support of environmental NGO centre	180	NBSAP Secretariat	not yet identified	5	1998
I.4.	Action Plan and Implementation Projects for globally threatened birds	2,000	BirdLife/MOE	not yet identified	5	1998
II.2.	Seychelles Whale Shark Programme - Telemetric Tracking Proposal	115	Shark Research Institute Seychelles	GEF(through IBRD)	1	1998
III.4.	Restoration and Preservation of World Heritage Sites	450	SIF	Dutch Trust Fund and GEF(through IBRD)	3	1998
III.6.	Establishment of Important Bird Areas (IBA) in Seychelles	550	BirdLife/MOE	not yet identified	5	1998
III.7.	Forest Conservation on Silhouette Island	550	MOE/NPTS	not yet identified	2	2000
IV.2.	Rehabilitation of Coral Reefs	180	SFA	not yet identified	4	1999
VII.4.	Augmenting ecology monitoring and management skills	275	BirdLife/MOE/MOEC	not yet identified	5	1998
VIII.1.	Resources and Training for environmental education	160	MOEC, MOE	Dutch Trust Fund	3	1998
VIII.3.	Improving the management and effectiveness of Wildlife Clubs of Seychelles	30	NBSAP Secretariat	not yet identified	1	1998
<b>Total Cost</b>		<b>4,490</b>				

Table 26. Grant Financing Programme

Projects with Grant Financing (secured)

1	2	3	4	5	6	7
		Total cost in USD '000	Implementing agency	Funding agency	Duration in years	Starting Date
I.3.	Implementation of Turtle Management Plans for Seychelles	170	MOE	GEF(through IBRD)	1	1998
II.1.	Conservation of endangered Seychelles Scops Owl	105	MOE	GEF(through IBRD)	2	1998
II.2.	Seychelles Whale Shark Programme - Telemetric Tracking Proposal	115	Shark Research Institute Seychelles	GEF(through IBRD)	1	1998
II.3.	Saving the Seychelles Grey White-Eye	122	MOE	Dutch Trust Fund	2	1998
III.1.	Management of Praslin National Park, Fond Ferdinand and Curieuse island	230	MOE	Dutch Trust Fund	2	1999
III.2.	Forest Conservation in La Reserve/Brulee, Mt. Sebert, Bernica & Mt. Cauvin on Mahe	170	MOE	Dutch Trust Fund	2	1998
III.3.	Eradication of mice and rats on Curieuse	100	MOE	Dutch Trust Fund	2	1998
III.4.	Restoration and Preservation of World Heritage Sites	450	SIF	Dutch Trust Fund and GEF(through IBRD)	3	1998
III.5.	Acquisition of woodland and wetland habitats for the extension of the Veuve Special Reserve on La Digue	300	MOE	Dutch Trust Fund, Private Donations	1	1998
IX.2.	Control of Freshwater Aquatic Weeds in Seychelles	90	MOE	GEF(through IBRD)	2	1998
V.1.	Sustainable Management of Bats	200	MOE	GEF(through IBRD)	2	1998
V.2.	Establishment and Implementation of a critical marine protected area	210	MPA	GEF(through IBRD)	3	1998
VIII.1.	Resources and Training for environmental education	160	MOEC, MOE	Dutch Trust Fund	3	1998
VIII.2.	Pilot project on nature trails in the District of Cascade	40	MFA, MOE	Dutch Trust Fund	1	1998
<b>Total Cost</b>		<b>2,462</b>				

## **8. Monitoring**

For purposes of monitoring of the Action Plan Projects, the NBSAP proposes a project in the Action Plan for the creation of an NBSAP Secretariat. The role of the Secretariat will be to support the implementation of the NBSAP, to reinforce the capacity of implementing agencies to execute the projects, to assist in securing financing, to develop monitoring criteria for tracking project effectiveness and to assist in updating the NBSAP.

The background to the NBSAP is the Biodiversity Assessment, involving biodiversity resource inventory data, assessment of key linkages between people and ecosystems and economic linkages. The NBSAP recommends modest research to fill in gaps identified in the Assessment and instead concentrates on action-oriented projects. The NBSAP participants were aware of the temptation of being lost in data – heavy research and warned against it early on in the process. As regards monitoring, the Secretariat will develop a methodology early in the development – phase and use it to measure progress.

**Annex 1. List of Acronyms used**

COI: Commission de L'Océan Indien

EAPC: Environment Assessment and Pollution Control

EU: European Union

FAO: Food and Agriculture Organisation

GEF: Global Environment Facility

GOS: Government of Seychelles

IUCN: World Conservation Union

MAMR: Ministry of Agriculture and Marine Resources

MCS: Marine Conservation Society

MoFA: Ministry of Foreign Affairs

MoE: Ministry of Environment

MoEC: Ministry of Education and Culture

MoI: Ministry of Industry

MLGYS: Ministry of Local Government, Youth and Sports

MPA: Marine Parks Authority

MTT: Ministry of Tourism and Transport

ODA: Overseas Development Agency

PDA: Professional Divers Association

PUC: Public Utilities Co.

RSPB: Royal Society for Bird Protection

SBS: Seychelles Bureau of Standards

SCCI: Seychelles Chamber of Commerce and Industry

SFA: Seychelles Fishing Authority

SIF: Seychelles Islands Foundation

UNDP: United Nations Development Programme

UNEP: United Nations Environment Programme

(DoE: former Division of Environment; MFAPE: former Ministry of Foreign Affairs, Planning and Environment)