

**Issue Based Modules for Coherent Implementation of
Biodiversity Conventions:
Climate Change and Biodiversity**

Discussion Paper No. 1

**Recommendations for coherent implementation of national legislation,
policy and programmes**

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Abbreviations

AEIN	African Environment Information Network
CBD	Convention on Biological Diversity
CDM	Clean Development Mechanism
CMS	Convention on Migratory Species
COPs	Conference of Parties
EES	Environmental Engineering Section
EIA	Environmental Impact Assessment
EMPS	Environmental Management Plan of Seychelles
EP (IA) Regulations	Environment Impact (Impact Assessment) Regulations
EPA	Environment Protection Act
GEF	Global Environment Facility
GIS	Geographical Information Systems
IAS	Invasive Alien Species
ICU	International Conventions Unit
ICZM	Integrated Coastal Zone Management
IMPASP	Integrated Marine Protected Area Systems Plan
KP	Kyoto Protocol
MEAs	Multilateral Environmental Agreements
MENR	Ministry of Environment and Natural Resources
MSP	Medium Sized Project
NAP	National Action Plan
NAPA	National Adaptation Programmes of Action
NBSAP	Seychelles National Biodiversity and Action Plan
NCCC	National Climate Change Committee
NCSA	National Capacity Self Assessment
NGOs	Non Governmental Organisations
NPNC	National Parks and Nature Conservancy Act
PIU	Project Implementation Unit
PUC	Public Utilities Corporation
Ramsar	Ramsar Convention on Wetlands
SEA	Strategic Impact Assessment
SIDS	Small Islands Developing States
SINC	Seychelles Initial National Communication
SLM	Sustainable Land Management
SNCRN	Seychelles National Coral Reef Network
SST	Sea Surface Temperature
TCPA	Town and Country Planning Act
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
WHC	World Heritage Convention

Introduction

A desk study was undertaken where all national legislation, programmes, policies, projects etc. relating to Climate Change and Biodiversity in the country was collected, analysed and compared to what is expected from Seychelles through the various Multilateral Environmental Agreements (MEAs) that Seychelles is party to. The aim of the study is to identify the strengths and weaknesses of the national implementation of the MEAs and policies on the topic of Climate Change and Biodiversity and to provide the way forward towards a more coherent approach on the issue of biodiversity and climate change in the country.

The study was done on the basis of the UNEP Issue-Based Module on Biodiversity and Climate Change (www.svs-uneplibmdb.net) which includes obligations and commitments coming from relevant regional and global agreements such as the Ramsar Convention on Wetlands (Ramsar), the World Heritage Convention (WHC), the Convention on Migratory Species (CMS), the Convention on Biological Diversity (CBD), the UN Convention to Combat Desertification (UNCCD) and the UN Framework Convention on Climate Change (UNFCCC).

This document follows on from the desk study by highlighting the way forward towards a more coherent approach in implementing the obligations under these MEAs. This document is therefore structured according to the sections of the Issue-Based Module:

1. Assessments
2. Legislative Measures and National Policies
3. Management – Mitigation
4. Management – Adaptation
5. Economic Instruments
6. Provision of Resources
7. Communication, Education and Public Awareness
8. Cooperation

Limited manpower and the large amount of requests coming from different fora have been identified as the main barriers to the implementation of MEAs in Seychelles. There is therefore, the need to improve efficiency in use of human resources. This can be achieved when experts are better informed of activities that are of direct relevance or of interest to their work. The entire objective is to get better and more coherent implementation of the agreements whilst not increasing the workload of the individual experts by providing better understanding of the overall picture.

1. Assessment

Several assessments with regards to biodiversity and/or climate change are required under a number of MEAs and are often relevant to experts from other MEAs. For example the vulnerability assessment of the country to climate change under the UNFCCC is directly relevant for the vulnerability assessment of wetlands required under Ramsar. It is therefore necessary to

- support information exchange on ongoing and planned national activities taking place under different MEAs
- consult other experts when developing and implementing assessment activities to increase results (killing several birds with one stone by adjusting parameters).

This could generate more relevant data per activity for several national experts which could lower the total amount of assessments needed to obtain the same data.

This approach could be taken on board when developing new activities but for existing work, the following suggestions were highlighted:

Forests

Forestry features as a thematic area under the Environmental Management Plan of Seychelles 2000-2010 (EMPS). The Seychelles Initial National Communication, 2000 (SINC) proposed management options for the Forestry sector in order to maintain CO₂

removal capacity at the 1990 level. However, there is only limited assessment on how the conservation and sustainable use of forest biological diversity can contribute to the international work on climate change.

The SINC also proposed mitigation measures for the forestry sector. This is not being addressed under the Second National Communication (SNC), which is currently being prepared. There is a need to involve all stakeholders involved in research and monitoring activities.

In monitoring and research on the impacts of climate change on forest biological diversity and investigating the interface between forest components and the atmosphere, change in rain patterns is being linked to increased disease prevalence and to fire occurrence. Historical data on climate could be compared to that of fire and disease occurrence.

Wetlands

A Wetland is defined¹ within the Environment Protection Act, 1994 (EPA), as an area of mangrove, marsh, swamp, fen, peat land or water, which are permanent or temporary submerged (with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction) under fresh, brackish or salt water that is static or flowing including areas of marine water in which at low tide, where the depth does not exceed six meters. This also includes riparian and coastal zones adjacent to the wetlands, and island or bodies of marine water lying within the wetlands, which have a depth of not more than six meters at low tide.

Furthermore, although quite some investment was made in the wetlands, no real assessments of the economic, social, and cultural values of wetlands and the benefits/services they deliver have happened. In particular with regards to climate change, services need to be assessed in terms of flood mitigation, water table maintenance, and biodiversity issues. This can be included under the Seychelles National Biodiversity and Action Plan, 1997 (NBSAP) as a cross cutting activity/activities under

¹ The definition incorporates the definition of the Environmental Protection Act 1994 under Section 3 and modified to the definition adopted by the Ramsar Convention.

the National Wetlands Policy, 2005. Furthermore, it is imperative to reach out to all sectors, e.g. hotels, Non Governmental Organisations (NGOs), Department of Tourism and the agriculture sector, in relation to the management of wetlands and the Ministry of Finance and Economic Planning for the evaluation of values of wetlands taking into account obligations from Conventions.

Ramsar requires that sites on the Ramsar List are used as baseline and reference areas to detect trends in the loss of biological diversity, climate change, and desertification and to inform the Secretariat of changes to the ecological character of any wetland in the Ramsar List. Seychelles joined Ramsar in 2005 and has only one designated site which is not being used as baseline and reference. This needs to be dealt with according to country priority. However, activities such as golf course, hotel and tapping of water by the Public Utilities Corporation (PUC) up river should all be noted and monitored as they are bound to affect salinity, and should be taken into account for future sites. In incorporating and recognizing wetland functions in resource planning, management and economic decision-making for all national projects, programs and activities, the National Wetland Policy has to ensure that those that can alter the ecological character or impact negatively on wetlands have to be subjected to rigorous impact objectives of the CBD.

Assessments of vulnerability of islands, including their wetlands, are required under Ramsar, CBD and UNFCCC. In order to make them more efficient, it is recommended that the assessment of the vulnerability of wetlands in relation to threats posed to them, e.g. climate change, and sea level rise as well as IAS be included under the revision of the NBSAP/EMPS. Vulnerability assessments also need to be extended to marine wetlands as foreseen in the Ramsar definition of wetlands. This activity should be coordinated between all relevant stakeholders. Such assessments can be undertaken under the SNC in relation to the coastal project seeking to implement long term adaptation measures that increase the resilience of the coastal zone sector to the impact of climate change.

Research into the role of wetlands in coastal protection and flood defence need to be promoted. A Geographical Information Systems (GIS) database of areas of distribution of wetlands is currently being updated. Collection of such data can stimulate research

into the role of wetlands in coastal protection and flood defence. The obligation to assess and document wetlands which are of special significance due to coastal protection must be extended to other wetlands other than designated Ramsar sites.

Protected areas

The effectiveness of marine and coastal protected areas and networks in achieving their biodiversity objectives by urgently addressing all threats to them can be achieved by implementing the Integrated Marine Protected Area Systems Plan (IMPASP).

World Heritage Sites and Climate Change

The WHC requires the use of the network of World Heritage properties to start identifying the properties under most serious threats posed by climate change to natural heritage. Although monitoring activities regarding the threat of invasives are currently being undertaken in the Vallée de Mai, this does not take into consideration the climate change aspect. There is the need to include such considerations in monitoring of protected areas in general.

Information

Parties are required to compile detailed inventories of island species, assess their conservation status, including the main threat criteria, and develop the taxonomic expertise necessary to facilitate this. The “Mainstreaming Biodiversity Management into Production Sector Activities” project proposes to “Develop information and knowledge management capacity for biodiversity mainstreaming”. Key knowledge gaps in the biodiversity database will be identified and strategically targeted new inventories will be done to fill these gaps (especially for the Outer Islands). Furthermore outer islands are given priority for new inventories for the biodiversity database. This should be extended to granitic islands as the vast majority of endemic biodiversity lies in the granite islands and it is also there that the granitic islands where the major pressures are.

States are required to promote systematic observation and development of data archives related to the climate system in order to monitor the effects on biological diversity.

There is a need to evaluate the usefulness for Seychelles to extend the scope of the African Environment Information Network (AEIN) project could be extended to address the issue of climate change and the effects on biological diversity as the scenarios are very different in the biodiversity and climate change of the Seychelles.

Data from the Meteorological Office and that from Ministry of Environment and Natural Resources (MENR) need to be incorporated into same database, e.g. to be able to link occurrence of endemic bird species with R. Rattus versus R. Norvegiucus based on rainfall.

Coral bleaching

SEYMEMP identified a few factors that enable coral reef resistance to raised sea temperatures and/or coral bleaching. It also investigated the role of sea currents in that regard.

Under the SNC, a national sea surface temperature (SST) monitoring network is to be established. SST relates to temperature within a metre of the surface. However, most reefs in the Seychelles are found between 5 and 10 metres deep. Data collected could be used if parameters for the monitoring are adjusted. However, costs involved will double or triple for this as its scope will go way beyond SST. Therefore, this should be connected to other obligations under UNFCCC in relation to coral bleaching.

Assessment of the impacts of UNFCCC and Kyoto Protocol (KP)-related activities on biodiversity

Outcome 1 of the Mainstreaming Biodiversity project aims at strengthening the enabling conditions for mainstreaming biodiversity management within and across sectors. There is the need to integrate biodiversity conservation and sustainable use into climate change response activities and as well use Environmental Impact Assessment (EIA)/ Strategic Environmental Assessment (SEA) to evaluate those measures.

Strategic and other forms of environmental impact assessment and risk assessment should therefore be adjusted to be able to evaluate the effect of policy responses to the UNFCCC

and KP implementation on biodiversity. This issue should be addressed within the proposed revision of the Environmental Protection Act and the EP (Impact Assessment) Regulations. It is also crucial to update the 1994 sensitive areas atlas. It is recommended that climate change response activities such as Clean Development Mechanism (CDM) as well as mitigation and adaptation frameworks are included in the revision of the EIA Regulations. This should be extended to all factors/threats having an impact on biodiversity. The voluntary guidelines on biodiversity-inclusive environmental impact assessment are partially being implemented. There is a need to look at the extent the provisions of the EIA Regulations reflect these Guidelines.

Risk assessments should be undertaken for CDM afforestation or reforestation project activities prior to them being implemented, particularly the evaluation of risks associated with the use of potentially invasive alien species and Genetically Modified Organisms (GMOs) for afforestation and reforestation project activities. Under the UNFCCC, registered project participants who have chosen to develop and implement CDM afforestation or reforestation project activities are required to submit documentation on the impacts on biodiversity and natural systems of proposed CDM afforestation or reforestation project activities. Forest experts should be involved in the process.

With Seychelles still being 80% plus “forested”, investigations on how to increase the carbon uptake of forested land while maintaining forest biological biodiversity is necessary. There is scope with the reactivation/subsidisation of traditional production activities.

In undertaking assessments of technology needs for mitigation and adaptation, the SINC identified capacity needs and priorities in the following areas: mitigation options; technology transfer; and vulnerability, impact and adaptation options. This also needs to take into account technology and capacity to understand and respond to interactions between climate change, climate change response activities (mitigation, adaptation, bio fuels, research. etc.) and biodiversity.

Such assessments can be undertaken under the SNC in relation to the coastal project seeking to implement long term adaptation measures that increase the resilience of the coastal zone sector to the impact of climate change.

2. Legislative measures and national policies

Generally there is the need to include considerations for both biodiversity and climate change in all relevant policies to ensure coherence and minimize duplication or overlap.

It is recommended that migratory species are integrated into relevant sectors by coordinating national positions among different conventions and other international fora.

There is also a key need to better use national expertise in preparation for and attendance of Conference of Parties (COPs), etc. Currently this is done just within Government, if done at all. This was identified by the National Capacity Self Assessment 2005 (NCSA) as one of the major constraints to MEA implementation.

The new Island Biodiversity Programme under the CBD has not been incorporated into the NBSAP (which currently is out of date). It is envisaged to be incorporated within the next one. This will be done within the framework of the extended EMPS 2 (as proposed to be undertaken the Capacity Building project, NCSA Phase 2 for implementation of environmental conventions). The Island Biodiversity Programme can be used as a basis with potential to add on other pertinent issues such as those relevant to Ramsar, World Heritage Conventions and climate change.

Wetlands

Seychelles has nothing that is explicitly called an Integrated Coastal Zone Management (ICZM) plan because in practice all development issues are ICZM issues due to the size and topography of the country and therefore are addressed under the existing development governance system. As a consequence information on the vulnerability of wetlands should be made available to all development processes. There are no guidelines for incorporating wetland issues into ICZM. This needs to be developed.

Marshes and Wetland Habitats are considered Ecologically Sensitive Areas under the EP (IA) Regulations, 1996. However, no decision support tools have been developed to

ensure the management of wetlands to prevent, mitigate and adapt to natural disasters. This needs to be addressed.

Multi-hazard analyses that recognise pre-disaster measures for impact prevention and minimization involving wise wetland management should be established for wetlands.

An atlas created under the Oil Spill Contingency Plan identifies vulnerable natural areas (including coastal wetlands) that may be affected by oil pollution. It is recommended that this atlas be utilised to include other threats to these areas including that of climate change. The Sensitivity Area Atlas of shallow marine habitats around Mahé and surrounding islands created in 1996 will be updated to look at effects of coral bleaching and also to be used as a management tool. It is proposed that a GIS layer be included for the marine environment.

Although identified in the NBSAP, climate change has not been identified as one of the six major threats to wetlands. It is therefore recommended that actions developed to implement the National Wetlands Policy should include climate change issues and that climate change specialists are involved in the development of these activities. This can be achieved by using the Ramsar Guidelines. The Policy needs to be science-based and incorporate the CBD rapid assessment resources for Small Islands Developing States (SIDS) wetlands. This can also be referred to when considering the influence of climate change on the ecological features of wetlands in management planning for wetlands

One of the policy objectives of the National Wetlands Policy is to incorporate and recognize wetland functions in resource planning, management and economic decision-making for all national projects, programs and activities. However, this needs to be institutionalised and legalised in the planning decision making processes. The National Climate Change Committee (NCCC) needs to be involved in this process.

Information on climate change and wetlands in COP background papers could be utilised when integrating climate change considerations into national policy. This is not reflected in the National Wetlands Conservation and Management Policy.

Sustainable land management

Biodiversity and climate change consideration as well as climate change activities need to be incorporated within the National Action Plan (NAP). (Outcome 3 of the Sustainable Land Management (SLM) project).

On the other hand, necessary measures to combat desertification need to be included into national development strategies, including on biodiversity and climate change.

The implementation of relevant sectoral and cross-sectoral plans and programmes to conserve dry and sub-humid lands ecosystem goods and services, and to respond to the threats to the biodiversity of dry and sub-humid lands need to be strengthened. Outcome 2 of the SLM project is to mainstream SLM into economic and sectoral development by integrating such principles in relevant national policies and strategies (2.1). This needs addressing the issue of climate change particularly with regards to mitigation and adaptation measures.

Such principles will need to be integrated within the new Forest Policy and when updating the EMPS and in the NBSAP. It should be noted that Seychelles implementation of the CCD has only very recently been initiated and administrative capacity and understanding is still very limited. The Capacity Building Global Environment Facility (GEF) Medium Sized Project (MSP) should address this.

Sustainable land management issues will need to be integrated within UNFCCC National Adaptation Programmes of Action (NAPA). Currently, SLM issues are not being considered in climate change adaptation projects envisaged to be undertaken under the Second National Communications to the UNFCCC. The national adaptation plan needs to focus on the requirements of Seychelles. The SNC and NAPA need to be harmonised with but also incorporated into the EMPS.

Integration of climate change and biodiversity concerns

Climate change objectives need to be more fully integrated in key areas of national sustainable development strategies such as biodiversity. The Barbados Plan of Action + 10 Review: National Assessment recognises natural disasters and natural resources depletion, as key socio-economic challenges. This includes threats to biodiversity caused by indirect and direct effects of global climate change. However, this report is not currently incorporated into any action plans. It is recommended that it is incorporated into the updated EMPS and related national plans for global environmental management.

Both the Fisheries Policy 2005 and the Fisheries Development Plan, currently being developed, need to incorporate climate aspects with regards to fish stocks etc.

The draft Agricultural Development Strategy 2007-2011, currently being prepared, aims to safeguard agricultural land and thereby agricultural biodiversity. In order to do so, it will be important to take into account climate change effects as well as impact of climate change response activities. In both cases, it will be necessary to promote and use adequate technology to adapt and mitigate the effects of climate change while conserving agricultural and other biodiversity in accordance with national biodiversity policies. It is necessary to incorporate climate change activities e.g. bio fuels which could be important for agricultural biodiversity.

The Energy Policy, 1999, needs to be revised to reflect current trends and practices. Furthermore, the objectives of the Policy are not translated into strategies and action plans for implementation. It is recommended that the actions to be developed to implement the Policy should include climate change issues and that climate change specialists be involved in the development of these activities. The conservation and sustainable use of biodiversity needs to be integrated into this document.

Invasive Alien Species (IAS)

One of the targets of the National Plant Conservation Strategy is to manage IAS by reviewing and implementing enhanced measures to reduce the risk of introduction of new alien invasive species, pests and diseases, and managing existing species that could threaten natural ecosystems. This needs to be linked to climate change and the potential risk of invasive alien species to biodiversity and related ecosystem good and services

At the national level, it has been recognised that there is a potential link between climate change and the occurrence of terrestrial and marine IAS. IAS poses the greatest threat to Biodiversity in Seychelles. The “Prevention and control of introduction and spread of IAS” project should address climate change more substantively.

The IAS Committee is currently addressing threats posed by new arrivals of IAS and a memorandum on this issue will be submitted to Cabinet for approval. This should include considerations of the potential effects of global change on the risk of invasive alien species to biodiversity.

At the same time, the potential risk of invasive alien species must be more clearly addressed when measures for adaptation to and mitigation of climate change are being considered.

Risk Management

The National Risk and Disaster Management Secretariat has been established for the management of the risks of natural disasters and extreme events in relation to humans. The Disaster Plan, which has been submitted, does not cover biodiversity issues except for forest fires. In order to ensure coherence and efficiency, it is recommended that it should be extended to cover such issues through cooperation with climate change and biodiversity experts.

Institutional mechanisms have to be put in place for the implementation of adaptation options through ICZM. The Environmental Engineering Section (EES) which deals with Coastal Zone Management issues has been set up within the Department of Environment. However, the institutional mechanisms to deal with ICZM issues, including coastal

adaptation measures, are yet to be put in place. The NCCC and biodiversity experts (including wetland experts) need to be involved in this process to maximize returns.

The potential impacts of climate change on world heritage properties need to be considered within their management planning and early action taken in response to these potential impacts. Through research and monitoring activities currently being undertaken on both World Heritage sites, it can be said that the potential impacts of climate change to these sites have been considered. Response measures to these threats need to be integrated within the management plans of these sites. This can be undertaken when the Management Plans for both the Vallée de Mai and Aldabra are being reviewed.

3. Management – mitigation (actions aimed to reduce Green House Gas (GHG) emissions through avoided emission or sinks and carbon stores)

Future activities of the UNFCCC have to be consistent with and supportive of the conservation and sustainable use of biological diversity to minimise the adverse effects on the quality of the environment of projects or measures undertaken by Parties to the UNFCCC to mitigate climate change. Mitigation measures have been identified which will be included under the SNC. These measures will need to be consistent with and supportive of the conservation and sustainable use of biological diversity. The involvement of biodiversity experts in drawing up and implementing the relevant activities under the SNC is required.

This issue should be addressed within the proposed revision of the EPA and the EP (Impact Assessment) Regulations, 1996 as am. (Outcome 1 of the Mainstreaming Biodiversity project aims at strengthening the enabling conditions for mainstreaming biodiversity management within and across sectors.) Furthermore, it should be addressed by enhanced focus and capacity on the development planning and approval mechanism (Town and Country Planning Act, 1972 (TCPA) and EPA).

In promoting biodiversity conservation and restoration in climate change mitigation measures, mitigation studies need to be undertaken on a sectoral basis, and mitigation options then identified and prioritised in accordance with key development initiatives and policies.

The NCCC, in close collaboration with the Ramsar experts, in preparing the SNC must ensure that national policy responses to the implementation of the UNFCCC and the KP do not lead to serious damage to the ecological character of wetlands.

4. Management - adaptation

SINC

Priority adaptation activities were selected by the SINC and identified based on agreed criteria. Such criteria were identified in the SINC, particularly in synergy with other multilateral environmental agreements. This will need to be taken into account in the preparation of the SNC.

The SINC recommended the following adaptation measures in relation to natural habitats and biodiversity: Provide natural migration corridors; establishment of additional reserves, protected and conservation managed areas; reforestation areas; restoration, re-creation of natural favourable habitats; wetland conservation and restoration; coral reef conservation and restoration; and generic adaptation. These measures have not been fully implemented and biodiversity conservation and restoration need to be reinforced in adaptation measures proposed in the SNC.

The SNC has to ensure that adequate support is sought for the preparation of adaptation activities and plans. This should be done jointly with the CBD focal point. Such development in these areas would contribute towards harmonisation of obligations from the various conventions, including assistance in the areas of financial resources, technology transfer, education and outreach, capacity-building, research and systemic observation, and harmonized reporting

The SNC has identified the Agriculture and Fisheries sectors to which adaptation measures will be applied. These measures will have to be supportive of the conservation and sustainable use of biological diversity. This should be extended to other sectors.

A Coastal Zone sector project is to be undertaken under the SNC to the UNFCCC to implement long term adaptation measures that increase the resilience of the coastal zone sector to the impact of climate change. There is the need to ensure integration of biodiversity concerns into this project.

Wetlands

The management of mangrove ecosystems, including required adaptation measures, to ensure that they respond to impacts caused by climate change and sea-level rise is not currently addressed systematically. This need to be further enhanced.

The adaptive capacity of society to respond to the changes in wetland ecosystems due to climate change needs to be enhanced.

On the other hand, the significance of the role that wetlands play in coastal protection and flood defence needs to be more fully recognised and incorporated in the National Wetlands Policy and institutionalised in development planning processes and mechanisms. This also needs to be mainstreamed and improved and incorporated into the NBSAP and the SINC so as to facilitate access to GEF funding.

The vital role of coastal wetlands in mitigating the impacts of climate change and sea-level rise has been recognised e.g. in mangrove replanting undertaken on Curieuse. However, this recognition needs to be formally integrated in the National Wetlands Policy and actions. This needs to be institutionalised in development planning/ICZM decision making with the proper legal provisions in place.

Wetlands ecosystems need to be managed and restored as part of contingency planning, particularly by the National Disaster and Risk Management Secretariat when drafting the National Disaster Action Plan. This must be undertaken in close collaboration with relevant experts. The National Wetlands Policy does recognise the conservation and wise use of wetlands. However this should be more formally integrated in planning activities and decision-making processes particularly concerning responses to climate change.

In terms of inland waters under the CBD, rapid assessment resources for the design and implementation of biodiversity conservation and sustainable use activities which contribute to adaptation to climate change for SIDS are available. However, these need to be applied in the Seychelles.

Guidance on a set of responses which can be initiated immediately following the onset of natural disaster affecting wetlands can be developed through the National Disaster Plan in close collaboration with the Risk and Disaster Management Secretariat, the Wetlands Unit and the EES Section.

Protected areas

Viable national systems of protected areas that are resilient to climate change need to be created where this is feasible. This needs to be referenced to assessment works being undertaken. The IMPASP can also address this issue.

Forests

The maintenance and restoration of biodiversity in forests need to be promoted in order to enhance their capacity to resist to, and recover from and adapt to climate change. Current forestry policy is focused on biodiversity conservation but not targeted at resilience per se, though there is undoubtedly a strong correlation between the two. Coordinated response strategies and action plans at global, regional and national levels need to be reinforced particularly as implementation of the national forestry policy and terrestrial protected area management under the National Parks and Nature Conservancy Act, 1961 (NPNCA) is weak.

Water and agriculture

Appropriate and integrated plans for water resources and agriculture can be developed and elaborated under the SLM project in particular under Outcome 2 which will seek to mainstream SLM into economic and sectoral development.

It is recommended that the Draft Agricultural Development Strategy 2007-2011, which is currently being prepared, incorporates the CBD programme of work on agricultural biodiversity and the issues of IAS and GMOs in the context of adaptation to climate change.

Both the impact of climate change on agricultural biodiversity as well as the impact of agricultural projects for climate change adaptation on biodiversity needs to be taken into account in the draft Agricultural Development Strategy 2007-2011. The Strategy needs to take into account the CBD decision to promote the mainstreaming of agricultural biodiversity into national plans, programmes and strategies and not be developed in isolation

SLM

In order to integrate sustainable land management issues, coordination is required when drawing up both the NAPA (under UNFCCC) and the NAP (under the SLM Project).

Furthermore, the CBD programme of work on the biological diversity of dry and sub-humid lands needs to be integrated within the NAP developed under the SLM project in order to maintain and enhance resilience of the components of biodiversity to adapt to climate change in dry and sub-humid lands.

Migratory species

Migration routes of migratory species might be affected by climate change or by land use changes due to climate change projects. A network of suitable habitats appropriately disposed in relation to the migration routes of migratory species in CMS agreements needs to be maintained. The EIA Regulations and related sensitive area atlas in theory covers the maintenance of a network of habitats. Most of the information exists but this will need to be reviewed and existing data on the occurrence of migratory species in Seychelles compiled. Subsequently, a priority network for management could be established taking into consideration the possible effects of climate change. In particular more work will be needed on the outer islands. Migratory species will need to be integrated into the NBSAP as well as to other activities to implement the CBD Programmes of Work. It is therefore imperative to assess Seychelles commitments under the CMS and develop a plan of action that should be integrated along with Ramsar etc into the new EMPS.

Equally, cooperation between climate change and biodiversity experts is necessary to ensure integration of the needs of migratory species into climate change response activities, in particular on mitigation and adaptation.

Minimisation of risks

In order to minimize the adverse effects on the quality of the environment of projects or measures undertaken by Parties to the UNFCCC to adapt to climate change, such issues have to be taken into account when designing and implementing adaptation measures. Biodiversity experts need to be involved from the development stage. More attention and expertise is required within the planning/development process (TCPA) and EIA processes to mitigate such impacts.

World Heritage sites

Concern for World Heritage sites needs to be integrated within overall policies and operational mechanisms for adaptation and disaster mitigation, and appropriate risk-sensitive Management Plans developed for these properties. This is currently integrated in the overall national disaster plan, the Fire Contingency Plan for the Vallée de Mai.

5. Economic instruments

Compared to the obligations on other aspects of biodiversity and climate change, there is a rather limited amount of obligations derived from decisions of the MEAs with regards to developing and diffusing environmentally sound technologies through incentives and the creation of an enabling environment.

The general observation is that this lack of obligations relating to the promotion of economic instruments needs to be addressed at international level. Parties, including Seychelles, should raise this issue during the MEA meetings as an area which urgently needs more work, preferable jointly between several MEAs. With regards to the national level, opportunities need to be explored in Seychelles in this area. Under the UNFCCC developed country parties are required to promote and implement facilitative measures to promote the transfer of environmentally sound technologies.

There is the need to identify incentive measures for the agriculture, fisheries and tourism sectors that promote both climate change and biodiversity considerations. The measures put in place need to promote both biodiversity considerations and the particular sector.

6. Provision of resources

This relates to financial and technical support in the area of biodiversity and climate change.

Capacity Building

Capacity building to ensure that climate change mitigation and adaptation projects deliver environmental and social benefits need to be facilitated. In order to pay special attention to building and strengthening institutional capacity and synergies between related instruments to address climate change and biodiversity, including wetlands, capacity building needs to be integrated in all policy documents relevant to biodiversity and climate change issues. All climate, biodiversity and wetlands personnel/experts have to be trained and to be aware about the interlinkages between relevant obligations under the various conventions. There is the need to understand the mutual impacts of their activities and also the funding opportunities available to them.

Furthermore, support is required for capacity-building for the integration of adaptation concerns into sustainable development strategies. Such issues should be integrated into the NCCC, the NBSAP and EMPS as it is currently limited.

A review of the role and mandate of the Seychelles National Coral Reef Network (SNCRN) needs to be undertaken prior to any capacity building exercise. Only then can active working relationships initiatives be fostered between scientists and managers to effectively respond to global change threats to local coral reefs.

Capacity-building that will facilitate implementation of the programme of work under the CBD, in particular where the interface between biodiversity and climate change is most crucial, and that will help to overcome the identified obstacles needs to be developed and implemented.

The strengthening of technology transfer, including through concrete projects and capacity-building in relevant sectors such as agriculture, biodiversity, and forestry has

been identified as areas which requires strengthening by the SINC, particularly the national capacity for both public and private sector to assess, manage, absorb and utilise new technologies, including indigenous technologies. The existing administrative and technical infrastructure needs to be improved. It should also address other relevant sectors such as agriculture, biodiversity, and forestry. This can be addressed under the revision of the EMPS.

Financial support

Seychelles has been effective in utilizing its highly endemic and vulnerable status to attract such funding under the CBD. Also under the UNFCCC, the country, being a SIDS and thus having a favourable status within the UNFCCC, could seek international funding among others for appropriate environmentally-sound technologies to assist with mitigation and adaptation measures which serves both climate change and biodiversity purposes.

This creates an opportunity for Seychelles to tap into in order to obtain appropriate technology as well as financial support e.g. under the Kyoto Protocol CDM mechanism for programmes such as the Seychelles Renewable Energy Programme and for the conservation of energy. There is a need to involve stakeholders in the process for submission of proposals, especially those involved in biodiversity related issues. This is an issue that should be taken up by the Project Implementation Unit (PIU).

Seychelles is eligible for support for the development of national adaptation programmes of action, and this should be done in particular in combination with EMPS/NBSAP.

Adequate and timely financial resources still need to be mobilised for the implementation of the programme of work on protected areas. Special emphasis should be given to those elements of the programme of work requiring early action and in relation to climate change considerations.

The UNDP funded project on Sustainable Land Management under the UNCCD must be linked to biodiversity and climate change. An assessment is required to determine whether the outer islands of Seychelles meet the criteria for of the CBD dry lands thematic area and the UNCCD.

CBD requires the provision of technical and financial support to support the implementation of the programme of work on the biological diversity of dry and sub-humid lands by developing countries. This is particularly pertinent to the outer islands. An assessment is required as to how the UNCCD is relevant to Seychelles.

Promoting sustainability of activities undertaken within the framework for capacity building in developing countries needs to be addressed through the EMPS Steering Committee together with the NCCC.

Furthermore, the country could seek international funding to assist with mitigation measures in appropriate environmentally-sound technologies which are lacking although developing countries are not obligated to implement mitigation options. Under the UNFCCC developed country parties are required to promote and implement facilitative measures to promote the transfer of environmentally sound technologies. This creates an opportunity for Seychelles to tap into in order to provide positive incentives for technology transfer as well as create an enabling environment for technology transfer.

Funding is also available to State Parties in various areas to assist them implement their obligations under the UNFCCC, CBD and UNCCD in relation to climate change and in preparing the NAP (see Annex 1).

7. Communication, education and public awareness

There needs to be a holistic approach for communication, education and public awareness in all fields linking all sectors and obligations. This can be addressed under the next EMPS. Funding can be obtained to promote such activities.

Educational and public awareness programmes need to be developed and implemented with particular emphasis on climate change and its impacts especially on biodiversity as well as adaptive management and mitigation of such impacts. This should target educational institutions, in particular, as well as staff members in environment related fields such as agriculture, fisheries, meteorology, etc. The mechanism to facilitate and promote information exchange especially on mitigation and adaptation should be put in place perhaps through the NCCC in close collaboration with relevant experts.

Support is required for the Education, Information and Communications Section within MENR, being the focal point within the Ministry for all environmental activities relating to education, training and public as in-house capacity is lacking.

Public access to information on climate change and its effects should be facilitated and such information should be disseminated widely. More opportunities should be developed to that effect within the SNC.

8. Cooperation - Partnerships

International cooperation

The cooperation network in systematic observation and development of data archives relating to the climate system needs to be established. An international network needs to be established to monitor and assess the impacts of climate change on forest biological diversity.

Sub regional, regional and international island partnerships need to be established to bring Governments and civil society organizations together to increase political, financial and technical support to accelerate the implementation of the programme of work on island biodiversity.

The collaboration with the Global Coral Reef Monitoring Network to compile information on the status of coral reefs needs to be further strengthened to avoid current problems of lack of balanced and comprehensive submission of data.

Cooperation with other States and international organizations in developing educational and public awareness programmes on conservation and sustainable use of biological diversity needs to be further promoted.

National Cooperation/Partnerships

There are no formal linkages between UNFCCC, Ramsar and CBD implementation within Seychelles that support cooperation between national experts of these conventions. A forum that provides such institutional linkage would greatly enhance coherent and effective implementation of all three conventions without necessarily increasing the workload of the individual experts.

A possibility could be for the 3rd EMPS to be re-designed with the NBSAP as a pull-out and stand alone component in order to develop and strengthen partnerships at all levels and across sectors, including financing for its implementation.

Partnerships for marine and coastal biological diversity: Building capacity to predict, monitor and manage the impacts of coral bleaching and related mortality is an issue that should be tackled jointly between the SNCRN, its regional and international partners and the Department of Environment.

Joint actions between experts working on the different Conventions to identify response measures to coral bleaching have not been undertaken. This is due to the fact that the implementation of the Ramsar Convention has only recently commenced in Seychelles and the section has no specific budget for these activities.

Better coordination is required between the SNCRN and the relevant conventions focal points in relation to activities agreed within these conventions.

Partnerships for island biodiversity: It is vital to increase public involvement and partnerships in biodiversity conservation, including measures to improve financial sustainability of conservation, particularly for island biodiversity. While EMPS has sought to improve communication and cooperation, more effort is needed to establish and to regularize the principles for cooperative working relationships between government and conservation oriented NGOs.

Partnerships for biodiversity of dry and sub-humid lands need to be developed, particularly to promote and develop technical and scientific cooperation in combating desertification and mitigating the effects of drought.

Joint research and development programmes need to be promoted as and where it tallies with national priorities and capacities.

There needs to be more cooperation and promotion in the development and exchange of information between relevant stakeholders.

Conclusion

The conservation and sustainable use of biological diversity as well as considerations with regard to both climate change and climate change response activities need to be integrated into relevant sectoral or cross-sectoral plans, programmes and policies.

At the same time, the different strategies and plans developed under each Convention, need to be designed and implemented in a complementary way and highlight the mutually important elements across these strategies and action plans to increase understanding among experts and enhance cooperation opportunities.

Below are some recommendations for incorporation in the main policy documents.

NBSAP

The NBSAP, 1997 needs to be updated, possibly as part of a review of the EMPS. The NBSAP supports national biodiversity policies and is therefore the right place to integrate all relevant biodiversity issues relevant to Seychelles. The review of the NBSAP should strengthen the coherent and efficient implementation of national obligations under the different MEAs with regards to biodiversity and climate change.

It should therefore not be limited to CBD obligations but equally include all threats to biodiversity including that from climate change and sea level rise as well as IAS. The new Island Biodiversity Programme under the CBD needs to be incorporated within the next NBSAP and can be used as a basis with potential to add on other pertinent issues such as those relevant to UNFCCC, Ramsar, World Heritage Conventions, CMS, etc.

EMPS

The overall goal of the EMPS 2000-2010 is the promotion, coordination and integration of sustainable development programmes that cut across all sectors of society in the Seychelles. However, the document is currently not structured to achieve this. The extended EMPS (2016-2025) should try to incorporate the other necessary factors.

Previous reviews of the EMPS² clearly highlight that international commitments are not cross-referenced or interpreted into the actions set out in the EMPS. This is a major barrier to coherent and effective implementation of international commitments, national reporting, and adaptive management of the EMPS. Although vulnerability and global climate change is one of the cross cutting themes in the EMPS, it does not integrate or cross reference the SINC. The EMPS will be extended to 2015 and this process is envisaged to begin in 2008.

The mandate for the International Conventions Unit (ICU) can be built within the EMPS. This is particularly important in negotiating the Seychelles position by coordinating among national focal points for the UNFCCC, the UNCCD and the CBD with a view to achieve synergies on cross-cutting activities, and seek funding from GEF for activities where appropriate.

SINC

The SINC identified climate change as a threat to biodiversity in the areas of fisheries and agriculture. This need to be further extended in the SNC, currently under preparation, to address threats to biodiversity in general and forests in particular. This needs to be done in close collaboration with biodiversity experts, including CBD and Ramsar specialists. It is recommended that “expert” officers should form part of the NCCC to facilitate this.

Future activities of the UNFCCC have to be consistent with and supportive of the conservation and sustainable use of biological diversity. The SNC proposed only three sectors where adaptation measures are consistent with and supportive of the sustainable use of biological diversity are fisheries, tourism and agriculture. Other sectors, e.g. forestry, need to be considered for both mitigation and adaptation measures.

² Nevill (2004), NCSA (2005) and the UNDP Capacity Development PDF A (2006)

Any mitigation and adaptation measures need to incorporate biodiversity considerations into the design, implementation and monitoring of these measures in order to promote the conservation and sustainable use of biodiversity according to the ecosystem approach. It is recommended that this is incorporated within the framework of the SNC and the NBSAP.

The report of the Ad Hoc Technical Expert Group on Biological Diversity and Climate Change should be utilised by the climate change committee when preparing the SNC and any future activities.

National Wetlands Policy

One of the policy targets of the National Wetland Policy is to incorporate and recognize wetland functions in resource planning, management and economic decision-making for all national projects, programs and activities. This need to be integrated in relevant biodiversity and climate change related policies and projects as well as translated into concrete actions.

Several wetland aspects are directly relevant to the NBSAP, EMPS and SNC. Ecological services provided by wetlands need to be assessed in terms of flood mitigation, water table maintenance, and biodiversity issues. This can be included under the NBSAP as well as the SNC and cross referenced under the National Wetlands Policy. This would allow both biodiversity, climate change and wetland experts to better understand how the different activities fit together.

Also assessments of and activities related to the vulnerability of wetlands in relation to threats posed to them, e.g. climate change, and sea level rise could be included under the revision of the NBSAP/EMPS as well as in the SNC.

Finally, it is recommended that climate change is included as one of the six major threats to wetlands in the National Wetlands Conservation and Management Policy.

References

Agriculture Act, 1966

Agriculture and Fisheries (Incentives) Act, 2005

AIACC Study on the Impact of Climate Change on Tourism in Small Island States (2002)

Draft Agricultural Development Strategy 2007-2011

Environmental Management Plan of Seychelles 2000-2010

Environment Protection (Impact Assessment) Regulations SI 39 of 1996 as amended by SI 36 of 2000

Environmental Protection (Effluent Standards) Regulations, 1995

Environment Protection Act 1994

Environment Trust Fund Order SI 39 of 1994 under the Public Finances (Control and Management) Act, 1974

FAO Code of Conduct for Responsible Fisheries

Fisheries Act, 1987 as amended By Fisheries (Amendment) Acts 3 of 1997 and 2 of 2001.

Forest Reserves Act, 1955

Global Environment Facility PDF-B “Mainstreaming Biodiversity in Production Landscapes and Sectors in Seychelles” (2005): Aumeeruddy, R. “National Sector Study on Fisheries”; Dogley, F. “National Sector Study on Tourism”

Government of Seychelles (2000) “Seychelles Initial National Communication under the UNFCCC”

Government of Seychelles (2004) Final Report: Seychelles Marine Ecosystem Management Project

Land Reclamation Act, 1967

Lighting of Fires (Restriction) Act, 1940

Ministry of Environment (2005) “Seychelles National Wetland Conservation and Management Policy”

Moustache, A.M. “Agriculture, Climate Change and Adaptation Options/Measures in the Seychelles”, Adaptive Strategies for Climate Change and Disasters Management in the Commonwealth, Commonwealth meeting held in Seychelles, Oct 2006.

National Capacity Self-Assessment for the Global Environmental Management (2004)

National Parks and Nature Conservancy Act, 1961

Removal of Sand and Gravel Act, 1982

Republic of Seychelles (1997) “Seychelles Biodiversity Strategy and Action Plan”

Republic of Seychelles (2005) National Fisheries Policy

Republic of Seychelles “National Agriculture Policy 2003-2013”

Road Transport Act

Seychelles Energy Policy, 1999

Trades Tax Act

Transport Policy, 2006

UNEP-GEF WIOLaB Addressing Land Based Activities in the Western Indian Ocean (Carolus, I.) (2006) “Report on the Status of Ratification and Implementation of Relevant International Conventions”

UNEP-GEF WIOLaB Addressing Land Based Activities in the Western Indian Ocean (Carolus, I.) (2006) “Report on the Legal, Regulatory and Institutional Framework in the Seychelles”

Annex 1.

Below is the list of available funding to assist State Parties implement their obligations under the UNFCCC, CBD and UNCCD in relation to climate change and in preparing the NAP (www.svs-unepibmdb.net).

[UNFCCC Article 4.4](#): To assist developing countries that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to these adverse effects.

[CBD Decision VII/5, 5](#) and [CBD Decision VII/5, Annex I](#) (elaborated programme of work on marine and coastal biological diversity): To assist in developing and enhancing capacities of developing coastal States on monitoring, interpretation, and application of data related to the onset of coral bleaching.

[UNFCCC Decision 8/CP.8, 2](#): To assist in developing and enhancing capacities of developing coastal States on monitoring, interpretation, and application of data related to the onset of coral bleaching. Special mention is made of countries in Africa and Small Island Developing States, taking into account their vulnerability to the combined effects of land degradation, climate change and loss of biodiversity.

[UNCCD Article 20.3](#): To mobilize adequate financial resources for the implementation of national action programmes. Funding is being sought locally for the development of the NAP.

[UNCCD Decision 1/COP.6, 11/](#) [CBD Decision VI/3](#): To provide financial and technical support for the implementation of the CCD to vulnerable developing country Parties (An example would be developing rapid response capabilities to implement measures to address coral-reef degradation, mortality and subsequent recovery.

[**CBD Decision VI/3**](#): To support developing country Parties in capacity-enhancing activities to address the impacts of coral bleaching and physical degradation and destruction of coral reefs.

[CBD Decision VII/5, Annex I](#): This refers to the Specific Work Plan on Coral Bleaching.

[CBD Decision VII/15, 18\(a\)](#) and [CBD Decision VII/20, 6\(a\)](#): To provide financial support to developing country Parties for country-driven climate change and ecosystem-related projects.

[CBD Decision VII/15, 18\(a\)](#): This invitation is addressed to sources of funding. The invitation is mirrored, as a request to the financial mechanism and other sources, in [CBD Decision VII/20, 6\(a\)](#).

[CBD Decision VII/15, 18\(b\)](#) and [CBD Decision VII/20, 6\(b\)](#): To provide financial support to developing country Parties for capacity building for increased effectiveness in commitments under the Rio Conventions.

[CBD Decision VII/15, 18\(c\)](#): To provide financial support to developing country Parties for capacity building for synergy-oriented programmes to conserve all ecosystems contributing to poverty eradication.

[UNFCCC Decision 3/CP.7, 1](#) and [UNFCCC Decision 3/CP.7, Annex](#): Financial support is available for Seychelles for technology needs assessment (e.g. biogas usage).