



**PROJECT DEVELOPMENT FACILITY
REQUEST FOR CONCEPT APPROVAL**

AGENCY'S PROJECT ID:
GEFSEC PROJECT ID: 2706
COUNTRY: Cape Verde, Comoros, Maldives, Mauritius, Sao Tome and Principe, Seychelles
PROJECT TITLE: Atlantic and Indian Ocean SIDS Integrated Water Resource and Wastewater Management
GEF AGENCY: UNEP/UNDP
OTHER EXECUTING AGENCY(IES): UNOPS, Nairobi and Abidjan Conventions Secretariats.
DURATION: 5 years
GEF FOCAL AREA: International Waters, with relevance to Land Degradation, Biological Diversity, Climate Change
GEF OPERATIONAL PROGRAM: OP 9
GEF STRATEGIC PRIORITY: PRIMARILY IW 3,
ESTIMATED STARTING DATE: 2005
ESTIMATED WP ENTRY DATE: 2007
PIPELINE ENTRY DATE: February 2005

FINANCING PLAN (US\$)	
GEF ALLOCATION	
Project (<i>estimated</i>)	12,000,000
PDF B (<i>estimated</i>)	700,000
Project Co-financing (<i>estimated minimum</i>)	To be identified during PDF B
Estimated Total GEF Financing	12,700,000

This Concept Paper has been prepared in accordance with GEF policies and procedures and meets the standards of the GEF Project Review Criteria for approval.

Ahmed Djoghlaif
IA/ExA Coordinator
Date: (Month, Day, Year)

Vladimir Mamaev
Project Contact Person
Tel. and email: Vladimir.mamaev@unep.org

A - SUMMARY

Within the last two decades or more, the special needs of Small Island Developing States (SIDS) have been recognized through various international discussions and conferences. SIDS have some specific issues in relation to sustainable development and environment that are not appropriate, or of such a high priority, to larger countries on the continental landmasses. These include a limited resource base (human and natural); a limited land area for development; a limited set of economic options; consequent intense competition between development priorities, the environment and associated biodiversity; and vulnerability to extreme events in the face of restricted movement and limited settlement options.

Water resource management and water quality are now critical issues to nearly all SIDS throughout the world. This Concept proposes to address the concerns related to water resources within the Atlantic and Indian Ocean insular SIDS (6 in total) within the context of GEF's eligibility criteria and Operational Strategy. Each of the 6 SIDS' economic activities (along with the linkages to human welfare and environmental sustainability) is highly dependent on the sustainable management of water resources and efficient water usage. This is a reflection of the fact that the primary economic sectors for the SIDS are either one or a combination of tourism, agriculture and/or fisheries.

The present baseline is one of inadequately coordinated sectoral management and inappropriate development of water resources. Generally, the countries are aware of the long-term implications of this currently inadequate situation which has resulted in poor wastewater treatment policy and facilities, the pollution of limited surface and ground water, and downstream effects on the environment and the human condition. Most countries have made some attempts to address these concerns, although this may be as limited as drawing up plans that cannot be implemented in the face of inadequate resources.

The constraints to effective water resource management can be summarised generally as an absence of effective strategy and policy; the absence of workable and intersectoral legislative and institutional mechanisms, inadequate financial sustainability; absence of a strategy to deal with extreme or chronic events that threaten the resources (e.g. flooding, drought, saltwater intrusion); lack of access to or awareness of appropriate and cost-effective technologies and methodologies; inadequate capacity at the institutional and individual level; an imbalance between long-term planning for development and that for resource and environmental sustainability; short-term strategies for the prioritisation of water needs (tourism and agriculture); and inadequate information to support sustainable policy-making and management strategies. If these constraints and barriers are not addressed, the long-term implications will be a deterioration in water quality, access and availability (along with reduced environmental quality); a failure of coastal and watershed ecosystem functions (including associated biodiversity and natural habitat losses); overall land degradation; increased LBS pollution to the IW environment; and an overall deterioration in human welfare within the SIDS.

This Concept Paper proposes the development of a Full GEF Project in partnership between UNEP and UNDP to address these constraints, barriers and associated implications through development

of Integrated Water Resource Management (IWRM) mechanisms and Water Use Efficiency strategies, a process of policy and legislative reforms, institutional and human resource capacity building; adoption of an integrated and participatory management approach; the development of more effective, appropriate technologies and methodologies; the adoption of strategies to deal with extreme and chronic events; and the adoption of more appropriate resource valuation and pricing policies. As part of the achievement of its Objectives, the Project will identify and implement a series of IWRM demonstrations within each of the SIDS that will provide real, on-the-ground solutions to common problems, and which can be transferred and replicated throughout the 6 SIDS, and ideally throughout other SIDS on a global basis, as appropriate.

The specific outcomes from the Full Project would be:

- A significant and measurable reduction in the spiralling level of deforestation and land degradation, resulting in reduced impacts on the quality and sustainability of island water resources.
- An improvement in water resource management by increasing the availability and quality of potable water, removing sources of pollution, and improving and maintaining effective environmental flow throughout the watersheds and into critical coastal areas.
- A significant, measurable reduction in LBS discharges into watersheds and coastal waters
- A noticeable improvement in the human condition vis-à-vis access to clean water, potential reduction in poverty, greater economic stability in the long-term
- A more sustainable strategy for ecosystem management (through an intersectoral approach) as it relates to water resources, thereby reversing losses in critical habitats and important species.
- Integrated water resource management policy, legislative and institutional frameworks adopted in each country as a contribution toward meeting the WSSD targets for IWRM and the NEPAD Environmental Action Plan
- A resultant improvement in the sustainability of a healthy environmental flow (watershed to coast) supporting better ecosystem management.

Comment [AH1]: This is an 'output', needs to be articulated as a tangible Outcome, e.g. Integrated water resource management policy, legislative and institutional frameworks adopted in each country

B - COUNTRY OWNERSHIP

1. COUNTRY ELIGIBILITY

All of the countries are eligible under para. 9(b) of the GEF Instrument. Furthermore, The GEF Strategic Business Plan of 2003 identifies two key programme gaps. One of these is the need for addressing water scarcity and the competing uses of water resources. In relation to this particular gap, the GEF STAP has further stressed that it is implicit in addressing water scarcity and competing water uses in basins to emphasise an integrated consideration of surface water and groundwater. This same Business Plan has identified that the expansion of GEF foundational/capacity building work to addressing transboundary concerns of other waterbodies will necessarily focus on the African continent during FY 03-06. With water scarcity and competing water uses being identified as one of Africa's key concerns, GEF recognized that a different crosscutting foundational/capacity building is necessary that takes into account other focal areas such as land degradation/ desertification, biodiversity, and (where appropriate) climate change into consideration. Consequently, in the demand for limited resources, GEF has agreed that LDCs, SIDS, and World Bank IDA nations would receive priority as would projects addressing the key programme gap related to scarcity and competing uses of freshwater.

On the basis of these conditions and requirements this proposal targets the last 6 remaining insular SIDS on a global basis that are not being addressed so far by GEF assistance in relation to water scarcity and competing uses. Conveniently these fall within the Atlantic and Indian Ocean areas adjacent to Africa (or within the same oceanic area in the case of the Maldives).

2. COUNTRY OWNERSHIP

The Concept has evolved from a combination of discussions between the GEF Implementing Agencies and the participating countries regarding their needs and priorities for water resource management, and in relation to the guidelines given by GEF Strategic Business Plan of 2003. The Concept is consistent with country priorities as articulated in: National Assessments of the Barbados Programme of Action + 10, the Mauritius SIDS Strategy, the UNEP Global International Waters Assessment causal chain process as applied to these participating SIDS, national status reports to the WSSD, National Development Plans and National Biodiversity Strategic Action Plans, and the Programme of Interventions as defined through the Environment Action Plan of NEPAD. A least half of the participating countries are implementing National Environmental Action Plans, and all of the countries are members of regional Commissions or Conferences that have formally recognised and prioritised the need for integrated water resource management. Participating governments have also endorsed the relevant conventions in support of the maintenance of essential ecological processes and ensuring sustainable utilisation of natural resources.

C – PROGRAM AND POLICY CONFORMITY

1. PROGRAM DESIGNATION AND CONFORMITY

The Concept Proposal conforms to Operational Programme 9 of the GEF Operational Strategy for International Waters, the SIDS Component. The component brings benefits to multiple focal areas plus additional integrated approaches to the use of better land and water resource management practices on an area-wide basis. Both the project development process and the Full Project implementation will ensure adequate stakeholder and community consultation and involvement.

The Concept is also consistent with the GEF IW Strategic Priorities - i.e. Strategic Priority IW-3: Undertake innovative demonstrations for reducing contaminants and addressing water scarcity issues with a focus on engaging the private sector and testing public-private partnerships. It also provide an integrated approach that is relevant for GEF.

2. PROJECT DESIGN

C.2.1. BACKGROUND AND PROBLEM STATEMENT

The ability of Small Island Developing States (SIDS) to manage their resources and ecosystems in a sustainable manner while sustaining their livelihoods is crucial to their social and economic well being, and is clearly directly related to GEF's mandate for protection and sustainable management of biodiversity and international waters. Most SIDS share similar problems with regard to water management and conservation, land-based sources of pollution, and issues of environmental flow relating to habitat and ecosystem protection.

The concept of Environmental Flow is one that has been developed fairly recently and is now generally accepted as a tool for understanding the relationship between watersheds and their associated biological resources. Environmental flow describes the freshwater regime provided

within a river, wetland or coastal zone to maintain ecosystems and their benefits where there are competing water uses and where flows are regulated. Environmental flows provide critical contributions to river and coastal ecosystem health, economic development and poverty alleviation. They ensure the continued availability of the many benefits that healthy river and groundwater systems bring to society.

Within the last two decades or more, the special needs of Small Island Developing States (SIDS) have been recognized through various formal statements and commitments at a number of globally significant conferences and high-level international meetings. These include the United Nations Conference on Environment and Development (Rio de Janeiro – 1992) and a Conference of SIDS in Barbados in 1993 which adopted the Barbados Programme of Action ([BPoA](#)), the Mauritius SIDS Strategy in 2005.

In 2002, at the World Summit on Sustainable Development (WSSD), in Johannesburg South Africa, SIDS were once again high on the agenda and the World Summit issued a number of statements related to SIDS that identified priorities, and requested that global resources be targeted to address these priorities. The requirements adopted by WSSD which are most pertinent to this Concept proposal include (i) the need to accelerate the implementation of the Barbados Programme of Action (ii) provide support for development and implementation of freshwater programmes and work on marine and coastal biodiversity (iii) implementation of the GPA (Global Programme of Action for the Protection of the Marine Environment from Land-based Activities) in SIDS to control and prevent waste and pollution, (iv) provide support to develop capacity to reduce and manage waste and pollution and for maintaining and managing systems to deliver water and sanitation services, and (v) IWRM WSSD targets. In particular, WSSD identified GEF resources as being a primary source of funding to the above initiatives.

In response to these requirements GEF developed related policies under its Operational Strategy that would drive its pipeline development with regard to SIDS issues and concerns. Two primary reasons initiated this policy decision: integrated freshwater basin-coastal area management is essential for a sustainable future for these island states; and this approach can produce benefits in other GEF focal areas, especially biodiversity and land degradation as part of the integration approach.

The SIDS also have specific needs and requirements related to the development of their economies. These are related to small population sizes and human resources, small GDPs, limited land area and limited natural resources.

Although the participating islands within this Concept proposal differ in size and level of development, they share common environmental features that can have a profound influence on their development. In particular SIDS share problems related to high levels of pollution (both land-based and potentially marine), resultant contamination of already scarce water supplies, over-exploitation and poor management of water supplies and recharge sources, increasing pressure on limited agricultural production, and rapidly disappearing unique biodiversity (particularly endemic species). All of these concerns, and many other closely related issues, threaten the participating SIDS on either side of the African continent and out into the Indian Ocean. This area of the world is the only area where poverty is expected to rise in the 21st Century. Such poverty is directly and inevitably linked to water resources and the environment, both through cause and effect.

Table 1 (below) provides a summary of the major concerns and issues arising from various national reports produced by the participating SIDS. From this table it can be extrapolated that the primary concerns related to coastal and watershed management and development issues shared by all of the participating SIDS are:

Comment [AH2]: for these SIDS? Clarify.

- Increasing demand for water (potable and irrigation)
- Inadequate capture and storage of water resources
- Pollution of surface and groundwater
- Saltwater inundation
- Inadequate access to clean drinking water
- Fall in agricultural production due to lack of irrigation water and reduced soil fertility
- Deforestation and soil erosion
- Pollution and destruction of habitats (coastal and watershed)
- Absence of effective wastewater treatment and handling facilities
- Health problems related to unsanitary drinking water and poor waste treatment

GEF is already providing assistance on relevant issues to a large number of SIDS within the Caribbean and the South Pacific. The inclusion of these six participating countries from the Atlantic coast of Africa and from the Indian Ocean region into the GEF work programme will effectively ensure that all GEF-eligible insular global SIDS are receiving a substantial level of assistance to address their more pressing issues related to sustainable development within the context of the GEF Operational Strategies.

TABLE 1: SUMMARY OF PRIORITY COASTAL AND WATERSHED CONCERNS**(X = National Environmental and Sustainable Development Priorities)**

COUNTRIES	Cape Verde	Comoros	Mauritius	Sao Tome & Principe	Seychelles	Maldives
Human Development Index	0.717	0.53	0.785	0.645	0.853	0.752
Principal Economic Activities	??Aid	Agriculture	Tourism & Sugar	Cocoa,Coffee tourism	Tourism, fisheries	Tourism
ISSUES						
Climate change and sea-level	X	X			X	X
Cyclones		X	X			X
Drought			X			
Reduced rainfall	X	X		X		
Increasing demand for drinking water	X	X	X	X	X	X
Poor access to potable water	X	X		X		X
Inadequate water distribution infrastructure	X	X	X	X		X
Pollution of surface and groundwater	X	X	X	X	X	X
Unsanitary water supply	X	X				X
Over-abstraction	X					X
Saltwater intrusion	X	X				X
Lack of water recycling	X				X	
Inadequate capture and storage of surface water	X	X			X	X
Inadequate supplies of groundwater	X	X			X	X
Lack of watershed management plans	X	X				
Inadequate irrigation for crops	X					
Increased agricultural demand		X				
Overgrazing	X		X			
Deforestation		X	X	X		
Forest fires					X	
Fall in agricultural production		X				
Crop disease		X				
Excessive use of Agro-chemicals		X	X			
Loss of soil fertility	X	X				
Soil erosion and siltation	X	X	X	X	X	
Use of agricultural land for development	X			X		
Absence of wastewater & sewage handling facilities	X	X	X	X	X	X
Poor or absent wastewater treatment	X	X	X		X	X
Uncontrolled or poorly managed waste disposal	X		X		X	X
Health problems (unsanitary drinking water and inadequate waste treatment)	X	X				X
Development in sensitive environment areas			X	X	X	
Sand extraction on coast	X			X	X	
Coastal & watershed habitat destruction	X		X	X	X	
Construction in flood-plains	X					
Flooding and landslides	X		X		X	
Transboundary marine pollution		X	X			
Inefficient management of water resources & waste handling			X			X
Lack of Information on ecosystem		X	X	X		X
Lack of information on hydrogeology & recharge		X				X
Inadequate human and institutional capacities		X	X	X	X	
Inadequate public awareness		X	X	X	X	

C.2.2. BASELINE SCENARIO AND JUSTIFICATION FOR GEF ASSISTANCE

In reviewing the activities of the participating SIDS it is apparent that the countries are aware of the long-term implications of inadequate water resources management and the need for better water use efficiency, inadequate wastewater treatment, unmitigated pollution of ground and surface waters, and the associated effects on the human condition, and on the overall ecosystem functions of their watersheds and adjacent coastlines. To a greater or lesser degree (depending on financial and human resources, and other capacity limitations) they are attempting to address these issues.

Only Cape Verde is party to any of the Regional Water Partnerships (in this case the West African Water Partnership) that are networked through the Global Water Partnership. None of the other participating SIDS are party to the WAWP or to the East or Southern African Partnerships. None of the SIDS appear to be receiving any donor support directly related to IWRM planning or water use efficiency issues.

UNDP is currently implementing and executing a global project entitled 'LDC and SIDS Targeted Portfolio Approach for Capacity Development and Mainstreaming of Sustainable Land Management'. This reflects the fact that GEF has become a financial mechanism of the UNCCD, and Land degradation is a new Focal Area of the GEF. Country Parties can now access GEF resources through the Operational Program 15 for Sustainable Land Management (SLM) as a means to maintaining and improving ecosystem integrity in the context of sustainable development, and through improvements in national awareness and capacity. The primary goal of this global project is to develop capacities and mainstream for effective mitigation of land degradation through sustainable land management in selected LDC and SIDS. In this process, the Targeted Umbrella Project would assist 40-50 LDC and SIDS that have not yet completed their National Action Programmes to Combat Desertification, and also otherwise show weakness in capacities for SLM, to develop individual, institutional and systemic capacity for sustainable land management. 5 of the 6 SIDS covered by this current Concept proposal (not Cape Verde) are eligible for assistance under this global project, and Seychelles, Comoros and Mauritius are already participating. The global project will expressly look at the issue of deforestation and associated land management and such activities should yield benefits in terms of catchment management. The PDF development process will take particular and specific measures to ensure that areas of overlap are avoided or captured as complementary activities of mutual advantage to both projects.

Most of the countries have made attempts to address the sustainable development commitments that arise from their accession to various MEAs and, more precisely, have attempted to at least recognise their national problems vis-à-vis water resource management within the watershed landscape, and to begin to define potential solutions. Nearly all of the islands have developed fairly detailed action plans and strategies in relation to sustainable development issues and/or biodiversity management and conservation issues. Some have gone further and produced specific plans and strategies to address water use management, wastewater and sewage management, drainage management etc. and may also have identified or adopted authorities or other dedicated bodies to take responsibility for these issues.

However, there are a number of constraints that are preventing the effective implementation of such strategies and the functioning of the responsible agencies. Some countries have their plans in place and may even have some limited donor aid to assist in implementation. What they lack is

intersectoral coordination and supportive policy and legislation. Policy and finances are inevitably prioritised towards development (almost to the exclusion of any other sector) to resolve serious issues of poverty and international debt. Most of the countries are poorly advanced and may have no such strategies and plans, or again may have limited approaches defined but with no reality of accessing funding to implement such approaches or strategies. One or two participating SIDS have a good track record of policy formulation and have a wealth of strategies to address institutional reform, improvements in education and awareness, requirements of integrated environmental monitoring and data analysis, etc. But the necessary legislative framework is frequently absent, the capital financing is not forthcoming and there is no identified mechanism for sustainability of the process. In relation to services such as water distribution and wastewater treatment there are no realistic pricing structures, while current policy and attitudes actually promote excessive water-use through subsidising of irrigation for agriculture. Lack of effective revenues from such services constrains sustainability and improvements. Public awareness and education on such issues as water conservation and sanitation are very poor. There are no real measures in place in any of the participating countries to address severe events such as droughts or flooding.

Although the macro-economic framework in the countries focuses on sustainable development, there are fundamental inconsistencies at the policy level. Stress on natural resources and the environment from economic activities is caused in many cases by market failure and policy failure. Policies being implemented to encourage sectoral growth frequently encourage the wasteful use of environmental resources. For example, water for irrigation is often heavily subsidised; electricity tariffs decline for the industrial sector as consumption rises; leasehold prices for coastal land is often well below the market rate. In each of these cases, policies effectively subsidise actions which are detrimental to the sustainability of natural resources and to the conservation of the environment.

In many cases, sustainable natural resources management has failed at the implementation and compliance stages because enforcement is poor. A further fundamental constraint is poor information on the environment. There are few consistent measurements of environmental quality, no time series data, little actual analysis or drawing of conclusions from the data which is collected, fragmented management of information, and no final incorporation of the findings into policy development and legislative reform. Finally, there is inadequate information within the country regarding available and appropriate techniques, lessons and best practices in water and wastewater management. This is further exacerbated by a general dearth of applicable, cost-effective and appropriate methodologies and technologies that are relevant and suitable to the small island situation.

From the above detailed list of Baseline situations and actions the following summarised list of constraints and barriers can be described.

- Absence of any integrated strategy or policy toward water and wastewater management and the protection of associated ecosystem functions (especially relevant to the poorer islands)
- Absence of legislative, institutional and/or long-term financial sustainability to implement and maintain water and wastewater management and protection of ecosystem functions (particularly relevant to the more developed islands with more stable economies)
- Inadequate training and capacity (human and institutional) to address priority issues
- Absence of strategies for the capture of data to guide policy and management for watershed and water resource management
- Lack of an awareness of the need to develop cost-effective and sustainable provision of water and wastewater services (including tariffs, incentives and penalties)

- No access to more realistic, cost-effective and practicable technologies and methodologies for mitigating the priority issues defined above
- No long-term strategy to address the repercussions of extreme events (droughts and flooding) and to act on chronic impacts such as saltwater intrusion

Effectively the above bullet-points can be summarised as the **lack of an intersectoral and integrated approach to watershed and coastal management and associated IWRM and Water Use Efficiency needs.**

Clearly the business-as usual scenario is not a good one for any of the SIDS, but particularly for the poorer countries. Without any incremental intervention and assistance, the baseline can be expected to remain ineffective and the situation with respect to natural resources management and efficient, sustainable water use will predictably deteriorate. Some of the more developed SIDS with some stability in their economies may be able to address localised concerns or possibly resolve one or two issues related to improved sanitation and better water supply, but these improvements will be short-lived and insufficient. The least-developed countries will fail to realise their full developmental potential as infrastructure remains weak or collapses, as agricultural production fails, and as the human condition gets worse in the face of impoverishment, poor sanitation and reduced access to clean water. Overall, the holistic and integrated scenario will not change in the long-term and serious environmental degradation linked to a drastic deterioration in human health and quality of life must be considered as a very real end result.

The long-term implications of this baseline scenario as it relates to GEF's mandate, and indeed to the welfare of the countries, can be summarised as follows:

- Deterioration in the availability and quality of freshwater resources
- Loss of water resources through loss of surface and ground storage and recharge areas
- A general failure in coastal and watershed ecosystem functions along with the loss of associated natural habitats and biodiversity
- Increased LBS pollution into the watershed and coastal environment
- General deterioration of human condition (increased poverty, reduced health and well-being, failed economies, political instability)

The above baseline description provides a more generalised description of the situation for the participating countries. The various SIDS are quite different in a number of ways. Some are volcanic and rugged, while others are limestone-based and flat. Some islands are relatively well-developed with a relatively thriving economy while others are desperately poor. Clearly the islands vary in natural as well as socio-economic conditions. During the PDF process, specific efforts would be made to design a Project that avoided generalities applicable generically to all SIDS and addressed the issues and concerns according to the specific needs and capacity of each island. Annex 2 provides a summary of the status of IWRM and WUE for each participating island and Annex 3 gives a more detailed overview of the baseline issues for each country which includes details of their natural environment, social structure, economic status and capacity/development in relation to IWRM and WUE. Inevitably, the more developed SIDS will be used as models and lessons for the less-developed countries during the Project.

C.2.3. Alternate Scenario

Many of the issues of water resource management (in relation to both human needs and the biodiversity issues associated with environmental flow) in the SIDS involve the same or similar problems that face developing countries in general, and include inadequate management frameworks and resources, both at the level of human capacity and financial constraints. However, there are parameters which are specific to SIDS, and which consequently demand focussed and immediate attention. These include the highly limited freshwater resource base, the patterns and priorities of development on a limited land area, intense competition between development priorities (agriculture, tourism, urbanisation) and the environment, and vulnerability to extreme events such as floods and droughts under conditions of restricted movement and limited settlement opportunities. To date, most SIDS have been using a sectoral approach to the management of their resources, employing tools, guidelines and technologies that are designed for and applicable to large countries and continental landmasses. The small size, insularity, vulnerability, limited economic potential, complex geology, and single-ecosystem nature of SIDS demands different and more focused approaches as well as more realistic and applicable technologies.

In the case of this particular Concept proposal and the intended participating SIDS, each country's economic activity is highly dependent on the reliable quality and sustainable availability of freshwater resources, and a related healthy watershed and coastal environment. Each of these SIDS is dependent on a mix of tourism, agriculture, and/or fisheries.

The proposed alternative scenario aims to address the thematic areas of critical concern through reforms in policy and legislation; improvements to institutional and human resources capacity; development of more effective and coordinated intersectoral management approaches; identification of more appropriate (to small island) technologies and strategies; adoption of 'extreme-event' strategies; adoption of cost-effective and sustainable service pricing and tariffs; and better information collection and handling to inform policy makers and guide legislative development. GEF assistance would be focused on the production and implementation of an IWRM plan consistent with the WSSD targets in order to establish a regional framework for the needed reforms and investments. A substantial proportion of the proposed GEF funding for this Concept would also be aimed at the development and implementation of on-the-ground demonstrations to remove barriers and alleviate problems preventing effective integrated water resources management and efficient water use within the individuals participating SIDS, and to the transfer and replication of lessons and practices resulting from those demonstrations. Full details of the activities and intended outcomes to achieve the alternative scenario would be developed during the PDF B, and articulated clearly through the logical framework process for presentation in the Project Brief.

The intended overall outcomes of a proposed Full Project will be improved and sustainable integrated water resources management, water supply protection and water use efficiency. This in turn will be articulated through more specific improvements by way of:

- Explicit protection of specific surface water and ground water supplies and recharge areas against day-to-day threats such as pollution and over-exploitation/over-abstraction, including threats from inappropriate land development.
- General protection measures within the watershed aimed at the reduction of pollution and LBS discharges into freshwater and coastal waters
- Improvements in maintenance of freshwater quality along with efficient storage, distribution and use.

- Addressing and resolving long-term threats such as sea level rise and storm surges (and associated inundation and contamination of water resources), and other effects related to regional changes in climate (droughts and flooding) and other extreme events
- A sustainable strategy for ecosystem management vis-à-vis application of the concept of environmental flow (using an intersectoral approach);
- Collaboration of UNEP and UNDP, taking in consideration the comparative advantages of both agencies and incorporation of the outcomes of the project through regular agencies programmes.

The overall objective of the proposed project will be to assist the 6 participating Small Island Developing States of the Atlantic and Indian Oceans to improve their integrated water resources management, water supply protection and water use efficiency in support of sustainable development in response to the Mauritius SIDS Strategy (2005). The project will set out to strengthen institutional capacity at the national and regional level; provide assistance to countries in understanding the linkages between, and the requirement for integrating management of freshwater resource, watershed and coastal zone environmental problems; and will meet national priorities within the regional context.

The Project would also strive to ensure linkages between the water sector and related issues such as energy and economic stability. A number of the islands have a geothermal potential that may be unexploited and UNEP/ADB are exploring possibilities for marketing wind power through a separate GEF project. The very high cost of electricity in SIDS is often what drives them to unsustainable practices in areas such as agriculture and tourism, and that eventually and inevitably impact water resources and the overall environment. Consideration will be given this close linkage of issues during the development of the demonstration projects with the possibility of mini- hydro and geothermal schemes being developed.

In order to achieve this objective, the Full Project would need to deliver a sustainable Integrated Water Resource Management and Water Use Efficiency plan, and demonstrate how this can be adopted and implemented within each country, consistent with GEF integrated approach in OP9.

Proposed Full Project Components (N.B. Some of these could be executed through the EU Water Initiative Partner Project as co-financing to the present proposal)

A. Capacity Building and Reforms for IWRM and WUE:

- A.1. National Reviews of policy, legislation and institutional arrangements followed by recommendations of necessary reforms.
- A.2. Establish a National Interministerial Committee in each country (based on the NICs established during the PDF B) to ensure broad multi-sectoral participation in IWRM and Water Use Efficiency planning processes (taking into account institutional and capacity constraints, and the obvious economy of using existing multi-sectoral committees already established under other related national/regional initiatives).
- A.3. Development and implementation of national Integrated Water Resource Management and Water Use Efficiency strategies. These strategies would include the identification of long-term sustainability measures for water resource use and management, and protection of ecosystem functions and environmental flow (e.g. tariffs, 'beneficiary-pays' and 'polluter-pays' policies, incentives and penalties

- A.4. A Programme of cross-sectoral sensitisation and awareness of IWRM and WUE strategies and requirements (to include high-level policy makers).
- A.5. A Programme of training and capacity building to support the implementation of IWRM and WUE plans throughout the relevant government and private sector agencies (or incorporate such plans into national development planning).

Comment [AH3]: Is the point of the capacity building really to 'sustain the plans' or to build capacity to IMPLEMENT them?

Expected Component A Outcomes: A model IWRM and WUE strategy as guidance to each country. IWRM/WUE plans adopted and under sustainable implementation in each participating country by end of project lifecycle. Improved and effective capacity to implement IWRM/WUE plans. Improved awareness of the importance of these plans across all sectors and within all levels of society.

B. Development and Use of Monitoring and Evaluation Methodologies for IWRM and WUE:

- B.1. Development of standardised methodology and reporting for information and data pertinent to IWRM, WUE and Environmental Flow monitoring (linked to and coordinated with HYCOS).
- B.2. Development of national IW-related indicators of process, stress reduction, and environmental status, along with an associated monitoring and evaluation mechanism to assess the short-term and long-term effectiveness of IWRM and WUE strategies
- B.3. Development of rational, simplified data analysis approaches (capturing information from B.1 and B.2) to support the policy development and legislative reform processes.
- B.4. Identification of best practices and lessons from other SIDS in IWRM and WUE, particularly in relation to the selection of more suitable and applicable technologies and water resource management/use methodologies.
- B.5. Networking and sharing of lessons, practices and technologies within project and throughout the GEF SIDS regional grouping (Caribbean, Pacific, Atlantic/Indian Ocean).

Expected Component B Outcomes: An active and sustainable programme within each country for information capture, monitoring and evaluation related to implementation of reforms and investments in IWRM and WUE plans. Information being actively used within each country by policy-makers, and within the legislative process. On-going networking and sharing of lessons and practices articulated as improvements in technology and water management methods within the countries.

C. Targeted Demonstrations in IWRM and WUE:

- C.1. Implementation of national/regional demonstrations as selected and adopted during the PDF phase. These demonstrations would provide concrete examples of on-the-ground approaches to integrated water resource management, water supply protection, water use efficiency, and sustainability of water-related ecosystem functions and environmental flow. They would also assist in developing guidelines for policy, legislative and institutional reforms in support of IWRM and WUE.
- C.2. Replication/Transfer of demonstration strategies to appropriate hotspots and relevant circumstances throughout the participating countries (N.B. Lessons and Practices will also be made available to other SIDS through B.5 above)

Expected Component C Outcomes: Effective demonstrations of IWRM and WUE barrier removal. Successful and sustainable transfer of lessons and practices from these demonstrations within and between countries.

D. Project Management and Coordination:

- D.1. Implementation of day-to-day management processes (staff selection and hiring, allocation of responsibilities, disbursement of funds, procurement of equipment, etc).
- D.2. Project monitoring and evaluation (standard reporting requirements, independent evaluations, specific evaluations as required, post-project objective evaluation, etc.)
- D.3. Regional and national coordination (Steering Committee meetings, national Intersectoral Committee meetings, training workshops, dissemination of information, websites and newsletters, etc.)
- D.4. Long-term objective sustainability (identification and development of strategy for national and regional project objectives beyond project lifetime, development of partnerships, etc)

Expected Component D Outcomes: Effective project management and delivery reflected through the evaluation and reporting process. Concrete evidence of a participatory project management and steering process including all relevant stakeholders where possible and appropriate. Strong evidence in MTE and Terminal Evaluations for long-term sustainability of project objectives.

The actual components, activities and specific outcomes of the overall Full Project would be developed in detail during the PDF B. Furthermore, some of the identified project activities above may also be captured and implemented during the actual PDF B phase (e.g. A1, A2, B1, B2 and B3). Some of the proposed activities for the PDF-B phase are listed on page 22. However, the preceding structure provides an accurate indication of what the overall project would attempt to objectively address.

The Demonstration Projects

One important focus of the proposed project will be the development of Demonstration Projects (during the PDF phase) and their implementation at selected hotspots (also identified during the diagnostic analysis of each island in the PDF phase) through the Full project. These hotspots will represent critical national areas threatened by sewage pollution and water supply contamination, water shortages; water supply recharge area protection, vulnerability to extreme events; saltwater intrusion in groundwater; habitat alteration and environmental flow concerns; soil erosion and coastal sedimentation; sensitive biodiversity areas; areas of vulnerability to sea-level inundation and droughts, etc.

The Demonstration Projects will target critical and common areas of concern so as to provide lessons and best practices in IWRM and WUE for transfer and replication both within the current Project proposal's system boundary, and across to other global SIDS in collaboration with IW:LEARN. The Demonstration Projects will address specific issues at a more localised level and resolve them using technologies and practices appropriate to the scale, capacity and financial constraints appertaining to the country and the target area. During the PDF process, each country would be required to confirm their current status regarding specific project issues (water resource management, water supply protection, wastewater management, groundwater management, land

degradation, agricultural practices, development policies, etc.). Countries would also be asked to identify their specific priority 'hotspots' that need urgent attention in relation to project objectives. Using this information, the countries would be requested to develop Demonstration Projects for submission to the PDF Steering Committee. The final Demonstration Project for inclusion in the Full Project would be selected through a fair and transparent participatory selection process during the PDF B phase. Each selected demonstration project would be fully developed including components, outputs/outcomes, activities, work plan, budget and replication strategy. Part of the criteria for selection would be ensuring non-duplication with other national and regional donor activities except where complementary actions can benefit both initiatives and be adequately captured and administered/managed/coordinated.

3. SUSTAINABILITY (INCLUDING FINANCIAL SUSTAINABILITY)

One of the challenges for the Full Project will be the identification of sustainable mechanisms for maintaining the objectives in the longer term. With this in mind the Full Project would focus on building sustainability through the transfer of benefits realised through better watershed and water resource management back into the management process, and to create a better recognition of the value of a reliable and high-quality resource as a marketable asset. More specifically, the Full Project would assist the countries to implement strategies for recovering the costs of storage and distribution of water resources, to embrace a polluter-pays and beneficiary-pays approach to improved and sustainable water quality, and to market wastewater treatment as a service. Inevitably this will require an effective programme of public awareness and sensitisation of policy-makers, and will require legislative reforms as well as institutional capacity building. The Full Project will identify Partners-in-Sustainability (government, private sector, civil, NGOs, etc) by convincing government agencies and their policy level executives of the importance of a long-term package of cost recovery and maintenance, by engaging the private sector into attractive packages of cost-effective servicing, and by positioning and empowering communities to effect their own management strategies for water and wastewater. NGO stakeholders will also be invited to assist in the sustainability process by offering their services to support the long-term aims and objectives of the project beyond its initial lifetime. To this effect, the Full Project would contain a clearly defined Stakeholder Involvement Plan as guidance.

The project sustainability will also be achieved through the establishment of the National Interministerial Committees in each country and by adoption of the reforms and investments as outcomes of the project. The incorporation of project outcomes in the regular programme of work of both implementing agencies will also ensure the sustainability of the proposed project.

Once the benefits of a strategy of WRM and WUE have been demonstrated (at both local and national levels) then the concept of sustainability should be much easier to promote. The Full Project itself will concentrate some of its resources into building a sustainability package for each of the SIDS within the context of IWRM and WUE which can then be adopted by the national stakeholders.

4. REPLICABILITY

A major component of the proposed Full Project will be the demonstration of pertinent, applicable and cost-effective methodologies, technologies and reforms (within the SIDS context) coupled with

a process of capture of best practices and most effective strategies, so as to promote transfer and replication of lessons learned throughout the participatory SIDS and beyond. Policy, legal and institutional reform practices that prove to be effective will be shared through a networking process and directly through GEF activities in-country, as well as through regional workshops. Partnerships for transfer and replication (embracing in particular the potential within the private sector and the NGO community) will be also be evolved. During the PDF-B a full scale replication strategy for the demonstration projects will be developed in cooperation with IW:LEARN

The actual potential for transfer and replication is significant. At the global level, most SIDS share the common problems based around the need to improve water resource management and watershed protection. In addition, there may also be valuable opportunities to transfer and replicate practices and lessons from other GEF and non-GEF SIDS projects around the world. Specifically, the project would identify the most appropriate measures and strategy to implement strong networking and information sharing between the GEF regional grouping of SIDS initiatives currently in various stages of development and implementation. These include:

- The Caribbean SIDS Integrated Watershed and Coastal Area Management project, which has been approved by GEF Council and is due for final signature and implementation in early 2005.
- The Pacific Island Country SIDS Sustainable Integrated Water Resource Management project, which is currently in its PDF A phase to develop a PDF B Concept for implementation in 2005.
- The current Water Resource Use and Management PDF B for the Atlantic and Indian Ocean SIDS.

This networking and sharing of information, lessons and best practices would either be linked into existing knowledge-sharing mechanism such as IW:LEARN, SIDSNet, or through the regional SIDS organisations, identified during the PDF-B. Consistent with the learning strategy of GEF, the project will establish a web site linked to the IW:LEARN central metadatabase module.

5. STAKEHOLDER INVOLVEMENT/INTENDED BENEFICIARIES

The primary stakeholders for the project will be the 6 governments of the SIDS (particularly those institutions dealing with Water Resource Management and Wastewater Management) and the people in the community dependent on access to clean water and requiring more sanitary conditions related to waste handling and treatment on a day-to-day basis. In this respect, the entire population of each of the SIDS will be a beneficiary. However, there will be large-scale global benefits expected also through the demonstration of IWRM and WUE methodologies that are applicable to all SIDS, through the securing of sustainable clean water resources for the islands thereby negating further interventions in this area, and through the development of a sustainable environmental flow strategy to support the conservation and management of unique island biological resources, along with the associated benefits to island economies and potential social improvements.

However, key commercial and public sectors will also benefit considerably from the project, particularly those which are already dependent on clean and easily available water. These include tourism, agriculture, food-processing and other selected industries.

The private sector should also benefit as opportunities arise for the development and implementation of activities and initiatives within the water resource management and wastewater treatment sector. In particular, more cost-effective and pragmatic approaches to related issues

within the small-island context will require the evolution of customised technologies and specific sales and services that can be developed and fine-tuned by the private sector as investment and business opportunities. In this regard, the project would aim to develop a high level of involvement and collaboration with the private sector at the earliest stages of project development and implementation. For example, Component C – Targeted Demonstrations in IWRM and WUE should provide some excellent opportunities for engaging the private sector into project aims and objectives, bearing in mind that this sector would inevitably be directly involved in such activities as waste treatment and other commercial enterprises directly related to IWRM and WUE.

The NGO community should have a significant stakeholder role in promoting awareness of water management and use issues and concerns, especially in demo projects areas and in presenting the linkages both to human welfare and to sustainable resource, ecosystem and environmental management. The importance of the NGO community will not be overlooked by the project and capacity building of NGOs will be given serious attention during Full Project activities to support the Project's objectives.

At the grass-roots level, the Project will focus on community involvement for watershed and resource management, and will also look at the capacity building requirements at this level. The communities will benefit from any improvements in resource management and the sustainable maintenance of water quality, both with regard to their living environment as well as their health and welfare. The Full Project will contain a Public Involvement Plan to ensure adequate participation and long-term involvement of civil society. The plan will be developed during the PDF-B.

As part of the standard requirements and criteria of the Implementing Agencies, young people, women, minority groups and those below the poverty line will be given particular attention in the development of deliverables and activities under the Full Project.

D – FINANCING

1) FINANCING PLAN

Financing for the Full Project will be elaborated and defined through the PDF B process but GEF funding requests are expected to be in the order an initial \$700,000 for a detailed PDF process followed by a request for a further \$12 million in GEF assistance to the Full Project. The actual distribution of funding across the project components would need to be elaborated through the detailed PDF process between UNEP and UNDP. However, the intention at the Concept stage would be to ensure that at least 50% of the GEF funding during the Full Project goes toward supporting very specific and concrete deliverables within the demonstration projects.

2) CO-FINANCING

Potential sources of co-funding for the Project will be identified through the PDF stage. Co-funding contributions and assistance would be expected to evolve out of discussions with the participating governments, regional development banks, other international donor agencies, UNDP Country Offices, NGOs, and the private sector. The African and Asian Development Banks would be targeted for discussion, as would the Middle East Development Banks. Negotiations would also

take place with SIDA, NORAD, DFID, USAID and other international development agencies which have a history of support to this region.

One particular avenue of co-funding which is already being explored with some measure of anticipation relates to the European Union's Africa/Caribbean/Pacific Water Facility. In this respect, the Lead IA (UNEP) has submitted a proposal to EU for co-funding directly related to supporting this current GEF Concept proposal. The precise role and complementary functions of the two projects has still to be elaborated but, if successful, the EU proposal would almost certainly concentrate on developing IWRM and WUE model strategies and initial capacity building, while the GEF Full Project would then build on such developments by moving the countries into an implementation phase (with associated monitoring and evaluation). The proposed co-funding from this single partnership alone that would then be directly available to the GEF project activities would be \$5 million Euros (or approximately US\$6.5 million at the current exchange rate of 1.3:1).

Those NGOs with subject interests in both the thematic and geographical area would be invited to identify appropriate activities which they would consider for co-funding and participatory support. The private sector would also be engaged in dialogue regarding the investment potential in the water resource and wastewater management arena (this would be particularly pertinent to the co-funding of the Demonstration projects). Governments themselves would inevitably incur some financial commitments through the Full Project and this would be clarified and expanded. Full co-funding contributions will be elaborated through the PDF process and confirmed through endorsement letters.

E - INSTITUTIONAL COORDINATION AND SUPPORT

The Project will be developed jointly through UNEP and UNDP with UNEP acting as the Lead Implementing Agency and each agency will act according to their comparative advantages. Recognising the comparative advantages of both agencies, namely the country presence of UNDP and the linkages between project activities and UNDP's country assistance strategies; and the relationship between project activities and UNEP's Regional Seas Programme and International Environmental Conventions, the project will take advantage of the opportunities for synergy and complementarity.

The PDF process will identify the linkages to other national and regional initiatives (both GEF and non-GEF). At the present the more obvious initiatives (Under implementation or pending approval) with which both the PDF and Full Project phases would seek coordination would include:

Global

- UN Programme for Implementation of the Mauritius SIDS Strategy.
- LDC and SIDS Targeted Portfolio Approach for Capacity Development and Mainstreaming of Sustainable Land Management' (UNDP-GEF)

Regional

- Addressing Land-based Activities in the Western Indian Ocean - WIO-LaB (UNEP)
- Toward an Ecosystem Approach for Sustaining the Agulhas and Somali Current Large Marine Ecosystems (GEF)
- Protection of the Canary Current Large Marine Ecosystem (GEF)

- Western Indian Ocean Marine Highway Development and Coastal and Marine Contamination Prevention Project (GEF)
- Southwest Indian Ocean Fisheries Project (GEF)
- Preparation of a Transboundary Diagnostic Analysis and Preliminary Framework Strategic Action Programme for the Bay of Bengal Large Marine Ecosystem (GEF)
- Combating Living Resource Depletion and Coastal Area Degradation in the Guinea Current LME through Ecosystem-based Regional Actions (GEF)
- Reduction of Environmental Impact from Coastal Tourism through Introduction of Policy Changes and Strengthening Public-Private Partnerships (GEF)

National

- Island Biodiversity and Participatory Conservation in the Federal Islamic Republic of Comoros
- Comoros Marine Biodiversity Conservation
- Maldives Atoll Ecosystem-based Conservation of Globally Significant Biological Diversity in the Maldives' Baa Atoll.
- Mauritius Marine Protected Areas
- Capacity Building for Sustainable Land Management in Mauritius (including Rodrigues)
- Integrated Ecosystem Management in Seychelles
- Seychelles Marine Ecosystem Management Project
- Cape Verde Integrated Participatory Ecosystem Management In and Around Protected Areas

The main areas for potential overlap lie in the arenas of water management and conservation, as well as environmental flow relating to habitat and ecosystem protection. The PDF development process will explore in detail the potential overlaps, synergies, and options for complementarity, and ensure that the activities and outcomes from the current Concept proposal are of mutual benefit to all initiatives while avoiding unnecessary duplication. Existing or planned initiatives in the aforementioned areas in fact represent excellent opportunities for capture and exchange of lessons and benefits, and demonstrations of working mechanisms within the IWRM and WUE context. They also represent further opportunities for cost-sharing and potential co-funding.

One particularly valuable initiative which the PDF B process will carefully explore and make use of in developing the Full Project are the National Capacity Self Assessments. The NCSA process is, for example, well advanced in the Seychelles and the national report should be available to the PDF process which will greatly assist in identifying gaps and needs in national capacity such as key institutional constraints.

A coordination mechanism between all existing activities in the islands and the proposed GEF project will be established during the PDF-B.

Implementing Agency Non-GEF Core Initiatives:

Further to the aforementioned GEF initiatives being undertaken in the countries and region that relate to SIDS, the Implementing Agencies are also providing direct support to the SIDS in the project region.

The proposed project is fully in concert with UNEP's broad strategy for SIDS. The role of UNEP, as the UN agency responsible for the environment, is described in the SIDS Programme of Action (SIDS/POA) thus: "UNEP, taking into account development perspectives, should continue to provide policy guidance and coordination in the field of environment, including in the implementation of the SIDS/POA". UNEP has perspectives that can efficiently address the sustainable development needs of SIDS. Its Regional Seas Programme has direct links with all SIDS. UNEP can build an effective and productive work programme for SIDS. UNEP has and is working on a number of activities and initiatives in the region that support the objectives of the current Concept proposal and which will be elaborated further through the PDF B and as part of the Full Project Document.

At the national level within the participating countries, UNDP is targeting the conservation of biodiversity through integrated participatory community management; a joint programme of action for conservation and sustainable development; capacity reinforcement and legislative reforms: improvements to intersectoral management of the environment; sensitisation and awareness on environmental issues; the search for alternative solutions to specific environmental problems; sanitation and rainwater harvesting; etc.

On a global level, UNDP supports the Global Water Partnership which responds to the need for participatory institutional mechanisms that are related to water management, and the need for a new coordinating organisation. This is a working partnership among government agencies, public institutions, private companies, professional organisations, multilateral development agencies and others committed to certain principles which address water management issues. The mission of the GWP is to support countries in the sustainable management of their water resources.

Also at the global level, UNDP partnered with the World Bank in 1979 to create the Water and Sanitation Programme (WSP). This has grown into an international partnership of the world's leading development agencies concerned with alleviating the effects of poverty through giving the poor sustained access to water and sanitation services

Comment [AH4]: Pretty much history and no longer influential to my knowledge.

The PDF process will undertake further detailed analysis and stakeholder/partnership dialogue in order to identify ALL related initiatives within the participating countries. The PDF B will design a full project that is crafted to work closely with these related initiatives, and to develop close and mutually supportive partnerships, wherever possible capturing and embracing pre-developed policies and intentions. To this effect the PDF will negotiate improvement and amendments in initiatives that would result in mutually beneficially delivery and outcomes, and will place a strong emphasis on coordination and complementary development, particularly between the GEF partners (implementing agencies) working in the countries and pursuing pertinent core programmes.

National Frameworks and Policies in a Broader Context

Further to the above list of more specific GEF interventions and assistance, the countries targeted under the current Concept are receiving the usual assistance from GEF to meet Convention-reporting commitments. This includes funding for the preparation of National Biodiversity Strategy, Action Plans and Country Reports to the CBD COP, assistance with the elaboration of their National Communications on Biodiversity for the Conference of Parties, enabling the countries to prepare their First National Communications to the UNFCCC, etc.

Comoros, Mauritius and Seychelles have all developed and are implementing National Environmental Action Plans (NEAPs), which provide the framework for environmental management in the context of a country's overall economic and social development. However, there are no Master Water Plans and/or Strategies.

Most of the countries are members of the Indian Ocean Commission (COI), the African Ministerial Conference on the Environment (AMCEN), and the African Conference on Water. All these bodies have accorded integrated water resources high priority.

Participating Governments of African SIDS endorsed the Nairobi and Abidjan Conventions and related Protocols. The Conventions broadly aimed at maintaining essential ecological processes and life support systems, preserving genetic diversity, and ensuring sustainable utilization of harvested natural resources.

Annex 2 shows the status of each of the participating countries with respect to their development of policies and reform activities toward IWRM and WUE.

Finally, it is important to note that the PDF B process and the Full Project implementation will aim to build close linkages and strong ties to other GEF SIDS initiatives already developed or under development. In particular, the project would coordinate closely with the approved Caribbean SIDS IWCAM (Integrated Watershed and Coastal Area Management) project as well as the project currently under development (PDF A stage) for Sustainable Integrated Water Resource Management in the Pacific Island Countries.

3) IMPLEMENTATION/EXECUTION ARRANGEMENTS

The project will be jointly implemented by UNEP and UNDP. Both agencies have comparative advantages which will benefit the project objectives. UNDP has a strong country presence and linkages between the project activities and the UNDP country assistance strategies. UNEP offers a strong relationship with its Regional Seas Programme and International Environmental Conventions. The project is designed to take advantage of the opportunities offered by both organisations to achieve good synergies and complementarity with other projects being undertaken in the region.

UNEP will serve as the lead Implementing Agency. In addition, the PDF-B will be co-executed by UNOPS and Secretariats of Nairobi and Abidjan Conventions.

A Project Steering Committee will be established during the PDF-B, consisting of one representative from each participating country, representatives of the implementing agencies, representatives of the executing agencies, and other invited stakeholders. This PSC will be headed by an elected Chairman from one of the participating countries. The Secretariats of Nairobi and Abidjan Conventions will act as the secretariat for the PSC. It is expected that approximately three meetings will be held during the life of the PDF phase and probably 4-5 during the Full Project.

National Intersectoral Committees would be established in each country during the PDF phase through the National Focal Points and these would be further guided by national technical

specialists and agencies in-country. These would continue into the Full Project implementation phase.

High quality technical and financial implementation would be ensured through the supervision and monitoring activities of the two Implementing Agencies (UNDP and UNEP). In this context, the proximity of UNEP Headquarters in Nairobi, the presence of UNDP country offices and a sub-regional offices in Pretoria, Nairobi and Dakar, and the advantage of the Abidjan and Nairobi Convention secretariats would all be captured and built into the management process.

4) MONITORING AND EVALUATION.

A Steering Committee for the project will be established to provide overall decision-making at the policy level. The SC will be comprised of National Focal Points (appointed by the participating governments), the Implementing Agencies, and any confirmed co-funding partners in the Project.

A full Monitoring and Evaluation plan for the project will be developed during PDF-B

5) SUMMARY OF PDF B ACTIVITIES AND OUTCOMES

The participating countries have requested GEF assistance at the PDF level to develop the above Concept into a Full Regional IW project. This request for GEF assistance was confirmed at the SIDS +10 conference in Mauritius in January 2005. However, the circumstances of some of these islands vis-à-vis water resources, management and use efficiency are not clearly known and some of the islands have had little experience of working with either UNEP/UNDP or GEF. In order to elaborate the Concept into a Project Brief, the following Activities and Outcomes would need to be completed under the PDF B phase:

- Establish a PDF B Steering Committee consisting of the participating countries, the IAs and the EAs and any co-funding agencies (e.g. the parallel EU Water Initiative project).
- Establish National Intersectoral Committees (NICs) for each country to coordinate PDF activities with government agencies, NGOs, private sector etc.
- Conduct a water and land-related diagnostic analysis for each island, focusing on individual hydrological units and aquifers to a) confirm the priority thematic issues and concerns in relation to IWRM and WUE, and b) identify national hotspots for these thematic issues that could be addressed through demonstrations in IWRM and improved Water Use Efficiency. Overseeing this diagnostic analysis would be a priority function for the NICs. Specific comparative advantages of each implementing agency UNEP and UNDP will be taken in consideration during the diagnostic analysis, especially the UNDP countries presence and UNEP capacity in undertaking assessment studies.
- Develop and select appropriate Demonstration Projects for each island that capture the primary concerns and address the priority hotspot areas (using the process described above under the description of the **Demonstration Projects**). Specific selection criteria would be developed and endorsed by the Steering Committee during the early stages of the PDF B using the proven process established as effective under the GEF Integrated Watershed and Coastal Area Management project for the Caribbean SIDS. Many of the priorities have already been identified by the countries (see **Table 1** above) but these should now be re-confirmed.

- Develop networking and coordination with other SIDS initiatives (globally) such as IWCAM (Caribbean) and PICS IWRM (Pacific). Also develop coordination with other regional and national initiatives (GEF and non-GEF) to avoid overlap build synergies and ensure complementarity of efforts and financing.
- Identify co-financing options and negotiate with potential co-financiers in order to confirm endorsements of funding support prior to submission of a Project Brief.
- Identify suitable national counterpart institutions for the Full Project process and develop necessary capacity during PDF B stage, as well as identifying capacity and institutional strengthening needs for Full Project phase (making use of information available from the National Capacity Self-Assessment reports).
- Explore linkages between IWRM/WUE and other related sectors such as energy. This is particularly relevant in view of the potential for geothermal power on certain islands as well as existing plans by GEF/UNEP/ADB to assist in the development of a wind energy market on certain islands off the coast of Africa.
- Elaborate an effective project replication strategy for implementation during the Project lifetime and beyond. This would be developed in cooperation with IW:LEARN as discussed above under **Replication**. A replication strategy will also be included as part of each demonstration project.
- Implement a stakeholder involvement plan for the PDF B to ensure full and transparent input by all pertinent stakeholders during the PDF process.
- Develop a Public Involvement/Participation plan (in cooperation with stakeholders and for submission with the Project Brief) to ensure the adequate participation and long-term involvement of civil society in the Full Project.
- Elaborate an effective Monitoring and Evaluation plan for the project which includes measurable and pragmatic indicators (with due consideration given to Process, Stress Reduction and Environmental Status indicators)
- Finalise the Project Components, Activities and Outcomes associated with a Logical Framework for adoption by all Project stakeholders.

ANNEX 1: LIST OF ABBREVIATIONS AND ACRONYMS

ADB	African Development Bank
BPoA	Barbados Plan of Action
CBD	Convention for Biological Diversity
CoP	Conference of Parties
DFID	Department for International Development (United Kingdom)
EA	Executing Agency (of GEF)
EEZ	Exclusive Economic Zone
EU	European Union
FAO	Food and Agricultural Organisation (United Nations)
FEM	Fonds pour l'Environment Mondiale (French GEF)
GDP	Gross Domestic Product
GEF	Global Environment Facility
GWP	Global Water Partnership
HYCOS	Hydrological Cycle Observing Systems
IA	Implementing Agency
ICM	Integrated Coastal Management
IFC	International Finance Cooperation (World Bank)
IPCC	Intergovernmental Panel on Climate Change
IUCN	World Conservation Union (formally the International Union for the Conservation of Nature and Natural Resources)
IWRM	Integrated Water Resource Management
LBS	Land-Based Sources (of Pollution)
LDC	Least-Developed Countries
LME	Large Marine Ecosystem
MEA	Multinational Environmental Agreements
NEAP	National Environmental Assessment Plan
NEPAD	New Partnership for African Development
NGO	Non-Governmental Organisation
NORAD	Norwegian Agency for Development Cooperation
OP	Operational Programme (of GEF)
PDF	Project Development Facility (of GEF)
POPS	Persistent Organic Pollutants
SIDA	Swedish International Development Agency
SIDS	Small Island Developing States
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNOPS	United Nations Office for Project Services
WHO	World Health Organisation
WSP	Water and Sanitation Programme
WSSD	World Summit on Sustainable Development
WUE	Water Use Efficiency

ANNEX 2: SUMMARY OF STATUS OF PARTICIPATING COUNTRIES IN RELATION TO IWRM AND WUE POLICY AND REFORM

Country	National status regarding implementation of IWRM and WUE	Constraints
Cape Verde	Party to the West African Water Partnership (March 2002, Bamako, Mali). WAWP participants agree to implement platform for effective IWRM and water policies. Further agree to synergy of action with African Ministerial Conference on Water (AMCOW), Intergovernmental Water Association (IGWA) and the New Partnership for Africa's Development (NEPAD) and other Conventions. Cape Verde also participates in the AOC-HYCOS (Hydrological Cycle Observation System for West and Central Africa)	Government accepts need for reforms related to IWRM and WUE within its various development planning documents. Constrained by lack of revenue and urgent need for capacity building
Comoros	There is little information relating to existing policy on IWRM and WUE and there appears to be no planning or strategy development in this direction as yet. The government recognises a need for improving knowledge regarding the hydrogeological status of the islands, and the water recharge processes.	Severe shortage of revenues for sectoral improvements and government reforms continue to constrain the development of more modern management and use practices
Maldives	The Second National Environmental Action Plan identified the need for IWRM and captures the general concepts of WUE. Government priorities are focussed on specific water resource and sanitation problems, especially as they relate to tourism which is the major source of national economic stability. There are no obvious current plans to capture IWRM and WUE concepts within policy and institutional reforms.	Desperate urgency to resolve water resource shortages (especially after 26th December Tsunami inundation) plus urgent piecemeal responses to sanitation problems but no resources or capacity to develop IWRM and WUE strategies as a prelude to reforms.
Mauritius	The Central Water Authority is developing a live model of its distribution network through the implementation of a telemetry/telecontrol system so as to achieve better management of production and distribution, and a higher level of operational reliability with a reduction in operational cost. The World Bank is undertaking a study on the best option for a public-private partnership for potable water supply and the possible integration of the management of wastewater treatment and disposal with that of potable water. The National Drainage Committee commissioned a study of the land drainage system to identify the locations of flood prone areas, the causes of flooding and to propose an action plan for proper flood control. The Water Resources Unit has implemented a number of projects related to integrated water resources management to assess the fresh water resources more accurately and to harness optimum amount of water resources. This includes construction or upgrading of hydraulic structures (e.g. flow-measuring stations). Reservoirs were surveyed and safety analysis of seven storage dams was carried out in 1997 to accurately determine storage capacities and minimise seepage losses. An integrated water resources plan has been prepared which includes the construction of a few storage dams, run-of-river diversion schemes, groundwater development and emphasis on water demand management and more efficient use of water in all sectors.	lack of sufficient qualified professionals in the field of water management and engineering, and a scarcity of capital for projects (thus the need to resort to loans) which has led to a debt servicing that represents 30 % of earnings of the Central Water Authority.
Sao Tome & Principe	Sao Tome & Principe has developed an Action Plan that proposed A. To provide sanitary human waste handling facilities, a management plan for liquid waste disposal areas and wetlands, and improve surface and river water drainage in all towns by 2005; B. A Programme to improve the quantity and quality of drinking water to 100% of the population by the year 2008.	Despite laudable intent there is little in the way of capacity or funding for the realisation of such Action Plan proposals
Seychelles	Seychelles has a strong and effective history of conservation and environment protection activities. However, there are no apparent attempt so far to develop IWRM or WUE programmes, strategies or plans	It may be that there is an absence of understanding of IWRM and WUE within the policy level, or that these issues are not considered to be a national priority

ANNEX 3: CURRENT BASELINE SITUATION FOR EACH PARTICIPATING COUNTRY

The current situation and expected scenario in the absence of any incremental steps can be considered for each of the SIDS.

CAPE VERDE: The country is characterised by a lack of natural resources. The islands need to import between 80-90% of their consumer goods and food supplies. National economy is strongly dependent on public development aid and emigrant remittances. Any attempts at development are hopelessly dependent on the country's capacity to participate in the world economy. Much of the rural community is now moving into urban areas, with negative implications in terms of housing, sanitation, and access to drinking water. A significant percentage of the population does not have access to regular water supplies, a situation which is particularly prominent in rural communities, and there is an urgent need for more reliable, clean water supplies and distribution infrastructure.

Agricultural production is poor throughout the country. The trend towards diminishing rainfall and consequent drought is hindering agricultural production, much of which is already struggling due to the arid nature of the land coupled with the saltiness of the soil resulting from excessive abstraction of water and inundation by brackish and salt-waters (the government considers elevated sea levels to be exacerbating this problem).

The current situation with regard to wastewater disposal and treatment is even more precarious. 61% of the population does not even have access to the bare minimum of services for disposal of human wastes and resort to 'nature'. The remaining population use pit latrines or septic systems, except for 9% which have access to public sewage mains. Such wastewater collection and treatment is confined to certain areas within the country's two main urban centres of Praiai and Mindelo.

Cape Verde has attempted to redress some aspects of environmental degradation but with little success, and lack of public awareness has been cited as one major constraint. Reforestation attempts have failed apparently due to unfavourable climatic conditions and poor soils. The government is keen to develop tourism and strengthen the economy but is also aware of the inadequate infrastructure to support such development, and the lack of committed finances and investment to rectify the situation in the immediate future.

Relevant donor activities within Cape Verde include:

1. An EU funded Project Natura 2000 addressing environmental conservation and sustainable resource utilisation, including resource and habitat mapping and species protection.
2. An on-going GEF-funded project on Integrated Participatory Ecosystem Management in and around Protected Areas.
3. A past project on Management of the Coastal Zones of Cabo Verde (coastal zoning and management).
4. The creation of a Cabo Verde Biosphere Reserve.

Also, the government of Cape Verde has developed a National Strategy and Action Plan on biodiversity, a national Forest Action Plan, a Programme of Action to Fight Desertification and a project for the Creation of a Protected Areas network. All this is part of the national effort to meet commitments to ratified MEAs.

Cape Verde has ratified the International Conventions on Desertification, Conservation of Biodiversity, and Climate Changes.

COMOROS: The Comoros Islands are considered to be a least developed country with a GDP of US\$315 per capita. The country lies at 141 out of 174 within the UN human development table (i.e. near the bottom) with an Index of 0.411. The standard of living appears to be deteriorating and greater than 50% of Comorans are now living below the poverty line. The principal economic activity (>40%) is agriculture (both for domestic consumption and export).

Human pressures on the environment are significant. Nearly all cultivatable land (70-90%) is under crop production already. Inevitably there is growing pressure on the few remaining large forest spaces for clearance for agriculture. Worryingly this is resulting in agricultural practices pushing further up into unstable slopes, with the inevitable consequences of soil erosion and landslip. Currently 50% of arable lands are degraded and deforestation continues at 4.3% per annum (with only 7% of the surface cover now being forest).

The government adopted an agricultural policy in 1994 and have reviewed this again in 2001. This has led to a set of recommendations for implementation aimed at reducing the dependence imported food crops, and to grow more domestic crops for home consumption. The policy aims to double production within 20 years so as to attain food safety and to meet the demands of population growth. In achieving this the government intends to adopt a more sustainable approach towards both agriculture and forestry so as to better manage soil fertility and reduce current high dependence on, and usage of, artificial fertilisers. One obvious concern would be the inevitable increase in demand for water for irrigation purposes were crop production to be doubled. There are further plans to develop more efficient use of wood and to encourage community-based reforestation and improved forest management. The government recognises the now serious concerns with poor land-use, inappropriate agricultural practices and deforestation.

Water problems exist in terms of both quality and quantity. Soil erosion leading to high levels of suspended sediments, and pollution by domestic animal and human faeces are primary quality concerns. Water availability is insufficient to meet the needs of the population. The risk of pollution to groundwater sources is very high due to the porosity of the ground, saltwater intrusion, and an almost total lack of waste management and water resource protection. There is an attempt to develop an emergency plan for management of wastes within the capital and studies are underway to define options.

The government recognises that human and institutional capacities are insufficient, and present barriers to sustainable development. They also see limits to access to more practicable, pertinent and ecological friendly technologies as another major barrier, as is access to financial resources for implementing alternative technologies. Public awareness of the pressing environmental issues (such as climate change) is very poor and these concerns are seen to be very distant from the everyday lives of the people and communities.

Other specified government priorities include poverty reduction, a National Strategy and Plan for Conservation of Biodiversity, the creation of protected areas, laws for forest protection and sustainable management, drafting of policy and land reforms, and associated institutional and public sector reforms.

There is a coastal zone management strategy that has been adopted by the government through an Indian Ocean Commission project. This focuses on integrated management of the coastal zone, management of coastal development and construction, development of ecotourism, reduction and control of fishing pressure in the coastal zone, construction of sea-walls and coastal defences, and the management of beaches. There are also efforts to implement biodiversity conservation and sustainable development practices through capacity reinforcement at all levels; development of legal, financial and institutional reforms and frameworks; development of intersectoral technical skills; creation of a marine national park; implementation of community support and management funds; and monitoring of important species and habitats. Generally, the government recognises the need to reform its environmental laws and to bring them in line with commitments to signed and ratified MEAs.

The government has plans to target development of tourism and the exploitation of marine resources as a means to improve its economic stability. Tourism development is currently restricted by lack of investment in the required supportive infrastructure. Distant and geographic isolation also make Comoros an expensive tourist destination. However, the government is talking to potential partners (e.g. IUCN and FEM) regarding the possibilities for ecotourism, especially involving local communities.

Comoros has ratified the UNFCCC (October 1994) but has not yet ratified the Kyoto Protocol due to some delays created in negotiations with the French National Assembly (although there is political will to ratify). The country has also ratified the Convention on the Law of the Sea in 1982 and the Nairobi Convention in 1994, the Convention on Desertification in 1998, and the POPs Convention in 1998, as well as the Convention on Biological Diversity. There is no official legal documentation supporting the delimitation of the EEZ although territorial waters are set at 12 miles.

THE MALDIVES:

The Maldives are heavily dependent on their natural environment as a source of revenue and income. The mainstays of the economy are the traditional tuna fishery and the more recent development of tourism, especially as related to watersports. However, as tourism develops, the population growth (temporary tourist and permanent resident) in certain areas is putting unsustainable pressure on the environment and on such infrastructure-related resources as freshwater and the handling of wastewater. Groundwater resources are being depleted faster than they can recharge and the islands are becoming increasingly more dependent on desalination. Agricultural production is low and the main threat from agriculture is vegetation clearance and habitat destruction.

Freshwater is a very scarce resource within the Maldives and is one of the primary concerns for the government as far as management and conservation of the freshwater resources is concerned. Increased extraction, which is exceeding natural recharge through rainfall has dramatically depleted the freshwater lens in Malé and other densely populated islands. The water table of most of the groundwater aquifers is less than 1.2m below ground level. The traditional sanitary wastewater practices have led to the pollution of groundwater due to the close proximity of the aquifers to ground surface. Unregulated construction of septic tanks and application of agrochemicals have led to biological and chemical pollution of aquifers. The level of faecal contamination is higher on the more densely populated islands, with the highest level of bacterial contamination of the groundwater aquifer found in the capital, Malé. However, the controlling factor is not the size of

the population of the island, but the house plot size in combination with the presence of cesspits and their interaction with the groundwater aquifer. On the basis of World Health Organisation drinking water guidelines there are few groundwater sources in the Maldives fit for potable use without disinfection. The microbiological quality of well water in many growth centres of the Maldives is usually above 50 coliforms per 100ml which renders the water even unfit for bathing under WHO recreational or bathing water quality guidelines. Improper sewage disposal facilities are the major cause of poor groundwater quality in these islands.

Rainwater collection is encouraged in resort islands by the Ministry of Tourism to reduce the need for desalination. Although, many households in Malé and in other islands of the Maldives use low flush toilets and other water saving devices, water-conservation is not part of the national lifestyle.

Sewage treatment has historically been poor with designated backyard areas or the 'bush' or 'beach' being the traditionally accepted method of disposal. The proximity of the freshwater lenses to the surface have led to high incidence of sickness and diarrhoea. This has improved somewhat with the introduction of both rainwater tanks, and a more comprehensive sewage-handling scheme in the large communities and towns. However. Although sanitation has improved, there are some critical design and maintenance concerns that urgently need to be addresses and the problem has not really been resolved in the long-term.

Being a low-lying island the Maldives is probably more well-know for its vulnerability to climate change and associated sea-level rise. Inundation is a very real threat to these islands. In the shorter term, and sea-level rise (no matter how small) will tend to aggravate the existing problems caused by saltwater intrusion into the freshwater lenses, and by the effects of extreme weather events such as storms which will be more likely to breach sea defences, to erode the coastline, and to wash over the islands.

Proper management methods of the coastal zone are now gradually being introduced in the Maldives, and some research and consultations are now carried out in the construction and design of seawalls and coastal structures, as well as in the reclamation of land. The country still needs to increase its capacity in such research and design. With the prediction by the IPCC of possible increase in extreme events of weather, there is a growing need for enhancing the local capacity in predicting such events as well as for preparedness to face them.

The government has given priority to the development of environmental policies, laws and institutions to deal with the major environmental issues facing the country, including several measures for the protection of important habitats and threatened species. There are 25 protected areas that have been created under the law on marine protection and preservation of the environment. The Environmental Protection and Preservation Act of Maldives (Act 4/93) was enacted in 1993. This act established a framework upon which regulations and policies can be developed to protect and preserve the natural environment and resources for the benefit of present and future generations. The Act contains important provisions on environmental advice, environmental policy formulation, biodiversity conservation, environmental impact assessment, waste disposal and hazardous wastes. A programme for strengthening of national environmental legislation began in 1996. The Second National Environment Action Plan of Maldives was adopted in 1999 to address the pressing environmental challenges. This Plan identifies the need to take an integrated approach to the management of the environment and to work towards the goal of sustainable development. The aim of NEAP II is to protect and preserve the environment of the

Maldives, and to sustainably manage its resources for the collective benefit and enjoyment of present and future generations. The NEAP identifies climate change and sea level rise; coastal zone management; biological diversity conservation; integrated reef resources management; integrated water resources management; management of solid wastes and sewage; pollution control and managing hazardous wastes; sustainable tourism development; land resources management and sustainable agriculture; human settlements and urbanization and sustainable fisheries management as the key issues to be addressed.

Since the first National Environment Action Plan, the Maldives has achieved considerable progress in environmental protection and management. The greatest progress has been made in establishing the regulatory and institutional framework for environmental protection through the enactment of the *Environment Protection and Preservation Act* in April 1993. NEAP-II, released by the Ministry of Home Affairs, Housing and Environment in 1999, is the comprehensive framework that will be used for the next six years to ensure environmental protection and sustainable development in the Maldives. Also of note is the fact that Environmental policy in the Maldives has gradually moved from a sector-based approach to one which is more integrated. All relevant Government Ministries today have an environment unit. The environmental impacts of each and every major developmental project are assessed carefully.

As the Maldives is very vulnerable to the predicted climate change and sea level rise, attention is being given by the government to adaptation measures. Various programmes have been designed and implemented in areas such as coastal protection, freshwater management and coral reef protection. The Government has taken very important measures to protect the coral reefs by reducing import duty on construction materials and prohibiting use of coral for government buildings and tourist resorts and by banning of coral mining from reefs.

In summary, the priority environmental issues as identified within the 2002 – State of the Environment report are climate change and sea level rise; freshwater resources; management of solid waste and sewage; air pollution; and biological diversity conservation. Although these five issues have been identified as being the priority issues, a number of other socio-economic development issues that affect the environment are also addressed in this report. As in any other country, the pressures of population growth, urbanisation and housing, water and energy use, transport, fisheries, agriculture and tourism, and their effects on the environment are critically evaluated in this report. The government is making valiant efforts in an attempt to address all of these pressing issues but is severely constrained by limited resources (human and financial), lack of information and expertise, and lack of access to suitable solutions.

REPUBLIC OF MAURITIUS: Mauritius is one of the most densely populated agricultural islands in the world with a density of 591 inhabitants per square kilometres. Built up areas are estimated to cover about 16 % of the land in Mauritius and this percentage is increasing every year. Around 1 million square metres (1000 ha) of residential space are granted each year for development purposes. Mauritius being a high quality tourist destination, the demand for hotel development along those parts of the coastline hitherto untouched is quite high. Unfortunately, policy formulation for the optimisation of land use and for the control over land development is effected by too many organisations and agencies acting through a diverse set of legislation.

Sugar is an important export commodity for Mauritius, but the country is vulnerable in this area with the imminent expiry of trade agreements and the possibility of trade quotas being spread

thinner and allocated to LDCs. Threats from the development of other sources of sugar and sweeteners (both geographical and chemical) further weaken the country's future situation in this area of export, with an inevitable expectation of falling prices. Sugar currently accounts for between 2-3% of GDP and 1/5th of the export market. Textiles and clothing are another important export which are also threatened by the expiry or shifting of trade agreements.

The tourism industry is vital to the economy of the country and need to avoid over-capacity and resultant pressures on environment and infrastructure is recognized by the government to be necessary to protect the reputation of this sector. Government policy is therefore to encourage quality not quantity. The country has set itself the objective of acquiring a "Green Destination" status by 2020 and consequently all issues pertaining to the environment are now being scrutinized. The country has to work hard in that direction as it faces strong competition from neighbouring islands.

Land degradation is one of the major environmental problems of Mauritius. During the last three decades, the country has suffered from deforestation to such an extent that today there are very little remnants of native vegetation, and only 1.5% of the original native vegetation covers remains. The mountainous topography has exacerbated the problems with very severe soil erosion leaving huge gullies on the mountain slopes. The problem is further compounded by long periods of droughts which render the implementation of reforestation programmes difficult. Acute problems of overgrazing in Rodrigues have led to severe land degradation. A cattle de-stocking programme has been carried out and reforestation projects are under way to protect the lands and the coasts. Mauritius has not yet submitted its national report on desertification.

Land is a scarce resource in Mauritius. Encroachment on environmentally sensitive areas such as catchment areas, wetlands and coastal ecosystems, mountains, parks and forested areas has become very difficult to control. Distinctive Mauritian flora and fauna have been displaced by exotic species introduced during development. The resource base of the island over the last decade shows major decreases in environmental quality from increased sediment, pesticide loading, eutrophication from fertilisers and sewage, coastal development and industrial effluent discharge.

Demand for drinking water is constantly increasing and there are a number of factors that need to be addressed to further improve the management of water resources and achieve the goal of integrated, cost-effective and sustainable water resources management. Major constraints are lack of sufficient qualified professionals in the field of water management and engineering, and a scarcity of capital for projects (thus the need to resort to loans) which has led to a debt servicing that represents 30 % of earnings of the Central Water Authority.

A master plan study for the potable water distribution network is planned for development by the Central Water Authority (CWA). The objective of the plan is to equip the CWA with a live model of its distribution network from source to mains supply points through the implementation of a telemetry/telecontrol system. This should realize a better management of production and distribution, and a higher level of operational reliability with a reduction in operational cost. This is supported by a recording system that will depict the actions required to be taken by CWA on a five year term basis in order to meet its greatest challenge which is to cater for a sustained and uninterrupted supply of water to the population and all other sectors of the Mauritian economy up to 2025.

To further strengthen management and investment capacity in the potable water sector, the government has commissioned the International Finance Corporation (IFC) of the World Bank to carry out a study on the best option for a public-private partnership for potable water supply and the possible integration of the management of wastewater treatment and disposal with that of potable water. Unaccounted for water (losses in the system and failures in the distribution network) is a major issue that is being attended to through an ambitious reduction project; other associated micro projects have also been established to modernize the potable water sector. Measures to enhance water quality have been implemented.

The following constraints were identified in the National Environment Action Plan:

- Inefficient pricing. Subsidies to the agricultural sector may be appropriate to support government goals for the sector, but the present low cost of irrigation water contradicts the goal of the Irrigation Authority to improve irrigation efficiency.
- Insufficient demand management. Traditionally, water resource management in Mauritius has focused on ensuring supply to meet projected demand levels and has taken little account of the costs of meting these services and supply levels. Although measures are underway to reduce water loss in the supply network, further measures are required.
- Low awareness. Awareness of critical groups such as agrochemical users and industrialists of the impact of pollutants on water resources and the health of employees and the wider public is low.
- In addition, occasional droughts present a serious challenge for the provision of water to agriculture, industries and for domestic uses. Inadequate and insufficient water storage facilities, outdated infrastructure and the large amount of water which is lost in leakage are serious constraints for the development of this sector.

A National Master Plan for Waste Water Management provides a comprehensive national assessment of sewerage needs, sets standards of future provision, and outlines plans for increased connections to the network along with the provision of more treatment plants. The present challenge of the Government of Mauritius is to provide proper public sewerage coverage mainly in urban areas to about 50 % of the population by 2010. The current implementation progress is estimated 22 %, with the whole capital works programme on average 3 to 4 years behind schedule. The main constraints relate to institutional and financial issues and although the actions set forth in the Master Plan dated 1994 and the policy paper dated 1997 are still relevant, a serious review is required as the country still undergoes rapid changes and development.

Under the National Drainage Committee, a study was commissioned by the Government of Mauritius to carry out a systematic study of the whole land drainage system in the country in order to identify the locations of flood prone areas, the causes of flooding and to propose an action plan for proper flood control. Subsequently a new item has been introduced in the 2003-2004 budget for a National Water Drainage Programme, which will be implemented by the National Land Drainage Committee set up under the Ministry of Local Government & Rodrigues.

The government prepared a National Physical Development Plan in 1993 which was approved in 1994. this was meant to provide a framework for the physical development of Mauritius up to 2010 and to address the need for sustainable development within a limited land area. High quality land is scarce in the country and is eagerly sought by a diverse group of competing users. Lack of rational legislation, compliance, and institutional coordination and capacity has limited the effectiveness of

the NPDP. In view of the implementation problems encountered, the plan was further reviewed in 1991 and reformatted as the National Development Strategy. This proposed A. Institutional strengthening within the Government's Central and Local Planning Services, B. Statutory approval for the new National Development Strategy, C Streamlining of development permit procedures, D. creation of a new Planning and Development Commission made up of key Government and private sector representatives to advise the Cabinet of Ministers on strategic land-use, development trends and related issues.

Mauritius has already produced a draft National Biodiversity Strategy Plan (NBSAP): which includes a Reforestation and National Tree Planting Programme, establishment of a Biodiversity and Tree Seed Centre, the training of officers, *ex-situ* and *in-situ* conservation of plant genetic resources, and the establishment of a wetland reserve and a migratory bird sanctuary.

Lack of information has fundamentally undermined environmental management in Mauritius. Although environmental data and information exist in numerous forms and locations, they are poorly organised and difficult to access; there are few consistent measurements of environmental quality and little time series data. In addition, analysis of data which are collected is inadequate. Similarly, there are still insufficient data available to guide spatial development and to protect environmentally sensitive areas from incompatible land use. A set of projects on the development of information systems for sustainable development, namely the Environmental Information System, and the Land Information System, are under implementation. The computerised land information system will therefore be set up in order to manage the limited resources of Mauritius more efficiently, and a new Land Information Act is under preparation. Increased emphasis is also being put on training at all levels especially in information and communication technology (ICT) and on environmental protection. Education will therefore provide more opportunities for the personal development of the younger citizens.

Current government policy is to closely link tourism and environmental issues. A series of incentives for the development of the tourism industry through the Development Incentives Act and the Hotel Management Act have also been granted by Government. Two Tourism Master Plans-one for the island of Mauritius and one for Rodrigues have been prepared and the Association des Hoteliers et Restaurateurs de l' Ile Maurice (AHRIM) has developed a Tourism Environment Charter which was partly financed by the National Environment Fund and the UNDP.

However, there are clear conflicts of interest between certain economic activities associated with development, and the maintenance and conservation of the environment coupled with sustainable resource use. Policies that are being implemented to encourage sectoral growth also encourage wasteful or improper use of environmental resources (e.g. subsidisation of water resources for irrigation).

The risk that pressure for greater economic competitiveness and external economic and political pressures might hamper national sustainable development has prompted Government to take effective and coordinated action, targeted at clearly defined priorities through the formulation of Action plans, Policy Papers etc. In fact, Mauritius has a good track record of policy formulation capacities as evidenced by the preparation of national development plans, sectoral papers, and commissioned reports. Much has also been achieved in the last ten years in terms of establishing necessary legal framework for sustainable development in Mauritius.

In December 1982, Mauritius ratified the UNCLOS, which entered into force on the 16th November 1994. On 10 June 1992 Mauritius became the first country to ratify the Convention on Biological Diversity on 17 August 1992. The CBD entered into force on 4th September 1992. Mauritius signed the Stockholm Convention on Persistent Organic Pollutants in May 2001, and ratified the Cartagena Protocol on Biosafety on 11th April 2002.

SAO TOME AND PRINCIPE: This small poor island economy has become increasingly dependent on cocoa and coffee and less on its original sugar crop since it gained its independence in 1975. But cocoa and coffee production has declined in recent years as a result of reduced rainfall and mismanagement. The country imports all fuel requirement, most manufactured goods, consumer goods, and a substantial amount of its food needs. It had become unable to service its external debt and depends on concessional aid and debt rescheduling. More recently, the country has had some success in implementing structural reforms which has been rewarded by more assistance from international donors. There is significant potential for development of tourism. Sao Tome is also optimistic about the development of petroleum resources after the recent discovery of oil in the Gulf of Guinea, which could have a significant impact on this small country's economy. Agriculture constitutes nearly 20% of the GDP, with Industry at nearly 18% and the rest falling under Services. 54% of the population fall below the poverty line. Agricultural products are cocoa, coconuts, palm kernels, copra, cinnamon, pepper, coffee, bananas, papayas, beans, poultry and fish. Industries undertake light construction and fish processing, and produce textiles, soap, beer, and timber.

The country submitted a report to UNCED in 1992 which identified two priority areas for intervention with regard to environment and sustainable development issues. These were 1. To develop and implement an effective set of legislation on environmental and developmental issues, and 2. to develop a national plan for the same issues with the aim of integrating environmental concerns into the strategies and policies of development, along with the rational use of resources. The international community has responded by assisting the country to address some of its needs as defined above, particularly in reforming and drafting environmentally-related legislation (in particular through a joint project funded by UNEP and the Dutch Government). The urgent need now is to ensure effective implementation of policies and compliance with legislation.

In 1997, the country produced a National Plan for the Environment and Sustainable Development (PNEDD) to adopt a strategy for the rational use of natural resources and for environmental protection. This includes a policy of intersectoral and integrated resource and environmental management, and encourages a more participatory and decentralized managerial approach which includes community input. It also defines the capacity and needs of the various sectors dealing with sustainable development and environmental issues and creates the framework for a national coordination body for environment and sustainable development.

PNEDD examined the state of the environment at the national level, the relationship to socio-economic development and issues, and the potential reforms and solutions necessary to address the causes. It describes the physical and geographical context for the country and the linkages to the major problems. It describes the flora and fauna and the high level of endemism. It identifies the problems associated with deforestation and poorly managed timber extraction which has led to reductions in biodiversity, loss of habitat and threats to certain species. Sand extraction from the beaches for the construction industry (and the consequent destruction of coastal habitats) is

identified as another major issue. This is further leading to coastal erosion and threatens the road infrastructure. The report notes the continuing lack of effect legislation related to the control of development. The report also recognize the direct relationship between social issues such as the level of poverty, and environmental degradation.

The principal national problems related to the environment and sustainable development that have been identified through consultation at the stakeholder and community level include:

- Lack of access to clean water
- Pollution of rivers and watershed by chemical used for agriculture and to combat malaria.
- Lack of waste handling
- Loss of habitats and biodiversity
- Increases in coastal erosion and habitat destruction
- Uncontrolled and unplanned urban development
- Soil and land erosion in the interior
- Lack of resources to implement effective socio-economic reforms
- Degradation of the educational system
- Weak and ineffective development of the potential tourism sector
- Absence of political stability

The report proposes programmes and actions to address the aforementioned issues and concerns. These recommendations were developed through a participatory process through the organization of several local and national consultations and seminars. An action plan was developed for 1998-2008. This Action Plan proposed the following programmes, objectives, and indicators of achievement:

1. A Judicial and Institutional Programme aiming to create of an institutional framework which supports the implementation of the actions of the plan; elaborate and adopt the normative and financial instruments necessary for the correct implementation of the plan; develop capacity to undertake reforms; promote the awareness and open discussion on the environmental legislation; and collect data and information.
2. A Programme of Support to the Promotion of Woman and the Family aiming to raise the economic, social and cultural level of women in order to improve their participation in the process of development of the country.
3. A Programme on Biological Diversity and Fragile Ecosystems and Renewable Resources targeting the promotion of genetic knowledge and a better understanding of soil and land erosion; adoption of a National System of Protected Areas; implementation of measures for the safeguarding of threatened species: conservation of forest areas through sustainable extraction and management; halting the degradation of coastal areas through a rational management process; and the adoption of a national GIS system.
4. A Programme for the Management of Toxic Residues to reduce the use of the pesticides and other chemicals in agriculture; and to encourage elimination of hospital residues and other kinds of chemical pollution;

5. A Programme for Drinking Water with to improve the quantity and quality of the water for consumption to 100% of the population by the year 2008.

6. A Programme for Dealing with Waste Handling and Treatment to improve collections, transport and treatment of solid wastes in the urban and sub-urban areas by 2005; to provide sanitary human waste handling facilities; to development a management plan for liquid waste disposal areas and wetlands: and to develop and improve drainage in relation to surface and river water run-off in all towns.

7. An Infrastructure Programme with the following objectives to promote production and productivity in the economic sectors; to encourage the rational and sustainable use of natural resources; to promote the rehabilitation and the construction of new economic and social infrastructures, including access roads in rural zones;

Currently Sao Tome has not produced a National Assessment of the Barbados Programme of Action + 10 Review.

SEYCHELLES: The country's very small economy is dependent on tourism and fisheries, which provide most of the country's total foreign exchange earnings. The fisheries sector is as important as tourism. The export of canned tuna, and fresh and frozen fish constitutes about 83 percent of the value of Seychelles' exports of goods or about 10 percent of total foreign exchange earnings. Investment in education, health, housing and other social services has significantly promoted social development. In 2002 the country had an average life expectancy of 70.1 years, an infant mortality rate of 17.6 per 1000 live births and an adult literacy rate of 91.5 percent. Enrolment in the six years of primary education and the four compulsory years of secondary education is at 100 percent. The UNDP Human Development Report 2002 places Seychelles in 47th position with a Human Development Index of 0.811.

Within the parameters of SIDS status the following are the primary economic constraints for Seychelles:

- A very small population of 81,177 and a land mass of just 455 square km severely limits Seychelles internal market size and economies of scale, which, in turn, reduces the prevalence of domestic competition and makes labour and utility costs internationally non-competitive;
- Physical isolation from major markets in EU countries for tourism receipts and processed tuna exports is a serious constraint for Seychelles. Geographical isolation increases the cost of imports and exports and acts as a 'hidden tariff' on all Seychelles trade.
- Like many SIDS, Seychelles benefits from the natural resources of its physical beauty and fisheries. However it has an un-diversified natural resource base of economically exploitable factors; this narrows the structure of the domestic economy and limits the range of exports of goods and services to two commodities;
- Linked to its very small population, Seychelles suffers from very high per capita costs in terms of physical and human infrastructure (including human resources);

- Ecological fragility makes Seychelles highly vulnerable to external changes in the global environment. For example, the 1998 warming of the Indian Ocean as a result of El Nino, caused between 50 to 90 percent mass bleaching of coral reefs in the Seychelles.
- All SIDS have a heavy dependence on international trade, and have no way of influencing international markets; Seychelles is no exception. Structural openness to world trade makes Seychelles highly vulnerable to external shocks and, combined with a limited cultivatable land mass, has limited food security. For example, Seychelles imports roughly 90 percent of what it consumes.

As with most SIDS, urbanization is imposing additional stress on an already weakened infrastructure. A 1997 UNDP report asserted that urbanisation on Mahé is expected to continue increasing because a large part of the island is unsuitable for human settlement. By 2025, the population living in urban areas in Seychelles will be around 74 percent. Such high rates of change strain the capacity of Governments in such sectors as housing and domestic infrastructure, potable water and sanitation services, and solid waste disposal. For example, even though the population growth rate is relatively stable, there is a high demand for housing. With over 47 percent of the island (mainly the medium-to-high altitude forests) under conservation, protection and management, and a number of other areas (at least 10 percent of the total land area) declared as sensitive areas, the conflicts arising from land use and development are numerous.

In order to meet the demand for housing construction the government has embarked on a number of land reclamation projects and is also revising its housing strategy. As the movement of population on the island of Mahé is mainly towards the East Coast, major reclamation works have taken place there due to scarcity of land to build on and to avoid encroachment into the forests. The net effect of internal migration will be significant over the period of implementation of the housing project. Coastal population density on the East Coast of Mahé is expected to grow from 161 persons per square km in 1995 to 203 persons per square km in 2015. A series of major land reclamation projects have added a combined total of 629 hectares, representing just over 4 percent of the total land area of Mahé, which is around 15,470 hectares, of which the coastal plateau is only 108 hectares. In addition to these large-scale reclamation projects, there have been many small private reclamation works (usually for housing development) that have had an impact of coastal ecosystems. The current reclamation project will generate land area for a total of 3,000 housing units, catering for more than 13,000 of the population.

Despite abundant rainfall, Seychelles suffers from a scarcity of water resources which often results in serious water shortages that affect domestic and commercial consumers. A number of factors constrain the development of increased storage capacity. These are mainly the high *per capita* costs of large-scale infrastructure development of dams and reservoirs, the very low retention capacity of the soil and a high run-off resulting from the steep topography of the populated islands. Consequently there is a reliance on surface water from perennial streams which have very small catchment areas. Safe yield of existing water resources is below demand and the deficit is expected to widen with the continuously increasing demand that has accompanied Seychelles rapid economic development. The tourism industry is a very intensive consumer of water. As a percentage of total water use on the main islands it consumes 10 percent on Mahé, 30 percent on Praslin and 25 percent on La Digue. Pollution of watercourses and catchments continues as a result of development activities in the uphill areas and the malfunctioning of some individual sanitation systems. While almost all households are served with sanitation services, less than 50 percent are connected to centralised systems. (At present, only the Victoria area is served by a centralized sewerage system.)

About 20 percent of households still use pit latrines, which are often a key source of pollution to ground and sea waters. The sanitation system is designed to handle domestic sewerage, and hence requires enterprises to pre-treat effluent discharges. Proper sewage disposal systems are essential to prevent pollution of surface and ground water, especially in the coastal areas where hotels are developed and tourists go swimming and diving. While water pollution is not a serious problem throughout the whole of the country, it is a threat in the relatively congested Beau Vallon area and pollution levels in the Port Victoria area need to be seriously addressed. The sanitation system is operating at below efficiency levels due to inadequate institutional capacity in the absence of a proper organisational structure, limited human resources in terms of untrained personnel, and the lack of sufficient equipment and financial resources.

The sewerage treatment system is being expanded and a new sewerage system is being implemented for the Beau Vallon area. Once these projects are completed any hotel or other substantial development in the Greater Victoria and the North West Bay (Beau Vallon) sewerage areas must connect to the public sewer systems.

The operation and maintenance of the water and sanitation systems are relatively expensive given the high *per capita* costs associated with capital investments and importation of appropriate technologies and equipment. Full cost-recovery remains unlikely, with Government financing all operational budget deficits. Government remains the sole significant investor in the water and sanitation sector, subjecting this sector to greater competition for funding with other social projects.

To improve the management of waste and the provision of water and sanitation services, Seychelles has embarked upon a wide-range of projects and initiatives (see Annex 2 for further details)

The first Environment Management Plan of Seychelles (EMPS 1990-2000) and various other sectoral plans, demonstrate that Seychelles has pursued a consistent approach to the promotion of sustainable development. The level of national investment in capacity building, information sharing, environment management, protected area management and infrastructure to handle pollution and waste has progressively increased. The results have had a positive impact on the social and economic welfare of the country. This investment has resulted in a number of success stories in the areas of conservation, waste management and protected areas.

Planning is formulated at all levels of Government, but to varying degrees of scope and consistency. Most ministries work within consolidated strategic and management plans aimed at mainstreaming environmental issues, although, Government does handle a number of priority actions outside normal planned activities. Notably, the Environmental Management Plan of the Seychelles 2000-2010 is sufficiently integrated to enable the consideration of environmental issues both within and across sectors such as agriculture, health, tourism and so on. This national integrated approach is reflected, for example, in the Education Strategy and Plan 2000-2005 which incorporates sustainable development issues and their relevance to education. In addition, some NGOs also have strategic and management plans which guide their activities. The development of national plans of action and management plans is usually done through a process of multi-sectoral stakeholder consultation both in the form of workshops and evaluations of subsequent draft plans. The strategic process is mainly driven by Government policy and the need to respond to international conventions and emerging issues such as climate change and HIV/AIDS. Although Agenda 21 and the Barbados Plan of Action are not widely known in the domestic context, their principles are often included by virtue of national recognition of the fundamental importance of the environment. However,

implementation of plans can be problematic due to limited capacity on the ground to convert them into measurable actions.

In the non-governmental sector at least five very active NGOs currently function within the environment-conservation area, and about fifty NGOs focus on service provision and social and rights-based issues. Seychelles has institutionalised a diverse portfolio of environment-related laws and regulations. However, many need to be updated to reflect current priorities and address certain shortcomings. Enforcement capacity is a serious issue at all levels and presents one of the most challenging obstacles in implementing Agenda 21 and the BPoA in Seychelles.

Examples of the visible impacts made by the country in the context of sustainable development and environmental management include:

- The development of the Ministry of Environment as the prime body for the management of the environment and its complex interactions;
- The increased role of NGOs in the management of protected areas, environmental education and awareness and in advancing conservation knowledge in Seychelles;
- The committed and consistent Government budget allocation for environmental matters;
- The enactment and implementation of key regulations such as the Environmental Impact Assessment process;
- The improvement in the management of the marine protected areas, including reducing the risk of extinction of critically endangered species;
- Human resource capacity for environmental management has consistently increased, with Government sponsoring two students a year for graduate studies in environmental sciences and related disciplines;
- Knowledge development and sharing is on the increase, ensuring a better dissemination of information and breaking the traditional practice of information hoarding and removing barriers for effective communication and exchange;
- A number of activities are now better coordinated through the various multi-sectoral bodies, which provide more opportunities for the exchange of experience and also guidance in the implementation of Government policy.

Despite substantial investment by Government and the private sector in the management of waste and the provision of water and sanitation services, a number of major constraints and challenges still remain:

- Unsatisfactory facilities and equipment for optimum sustainable waste and sanitation management and monitoring.
- Lack of financing for both small-scale and capital-intensive projects which denote a very high per capita cost in Seychelles.
- A paucity of qualified technical staff for effective monitoring and management of waste, water and sanitation services.
- Water resources available on the main island are in the form of surface and groundwater sources, and the major source of land-based water pollution in Seychelles is faecal contamination, particularly to the many rivers of Mahé and Praslin. This is largely attributed to diffuse pollution caused by inefficient and inappropriate sewerage treatment which has become an environmental and human health concern.

- Negative economies of scale for most recycling initiatives and progressive initiatives (e.g. replacing plastic bags with biodegradable ones) rendering such endeavours non-viable in most areas.
- Inadequate sensitisation of polluters in the minimisation of waste generation and the taking of responsibility for their actions, and inadequate collaboration and cooperation from major polluters and importers of derived-demand waste generating products.
- Illegal dumping in rivers and marshes which leads to adverse environmental consequences.
- Ineffective coordination between responsible agencies and the lack of a clear allocation of responsibilities.
- Inadequate enforcement abilities and legal mechanisms. This includes the combating of vandalism of facilities and insufficient policy support for the 'polluter-pays' principle.

Seychelles is party to a number of international conventions. The major sustainable development related conventions to which Seychelles is party to include: the Convention on International Trade in Endangered Species of Wild Fauna and Flora, CITES (acceded to 1977); the Convention on Biological Diversity, CBD (ratified 1992); the Nairobi Convention (signed 1985, ratified 1994); the UN Convention on Rights of the Child (acceded to 1990); the UN Conventions on both Economic, Social and Cultural Rights as well as Civil and Political Rights (acceded to 1992); the Basel Convention on the Trans-boundary Movement of Hazardous Wastes (acceded to 1993); the MARPOL Convention (signed 1977, ratified 1984); the Montreal Protocol and its amendments (ratified 1993); the United Nations Law of the Sea (signed 1982, ratified 1991); the United Nations Convention on Desertification (signed 1994, ratified 1997); the United Nations Framework Convention on Climate Change (ratified 1992); the Kyoto Protocol (signed 1998); the Rome Statute of the ICC (signed 2000); and the International Convention for the Regulation of Whaling (signed 1979). In June 2002 Seychelles ratified the Stockholm Convention on Persistent Organic Pollutants (POPS) and will soon deposit instruments to ratify the Kyoto Protocol under the UNFCCC; the Beijing Amendment under the Montreal Protocol, and the Cartagena Protocol on Biosafety under the CBD.

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