



PROJECT DOCUMENT

SECTION 1: PROJECT IDENTIFICATION

- 1.1 Project title:** Project for Ecosystem Services (ProEcoServ)
- 1.2 Project number:** GFL/
PMS:
- 1.3 Project type:** FSP
- 1.4 Trust Fund:** GEF
- 1.5 Strategic objectives:**
 GEF strategic long-term objective: BD2
 Strategic programme for GEF IV: BD-SP4 BD-SP5
- 1.6 UNEP priority:** Ecosystem management
- 1.7 Geographical scope:** Global multi-country Chile, Trinidad & Tobago,
South Africa/Lesotho, Viet Nam
- 1.8 Mode of execution:** Internal
- 1.9 Project executing organisation:** UNEP-DEPI; (CEAZA, Chile; CSIR, South Africa
and Lesotho; UWI, Trinidad and Tobago; ISPONRE, Viet Nam)
- 1.10 Duration of project:** 48 months
Commencing:
Completion:

1.11 Cost of project

	US\$	%
Cost to the GEF Trust Fund	6,296,637	24.3
Co-financing	19,620,551	75.7
Cash		
CSIR, South Africa	1,000,000	3.9
TCF, Trinidad and Tobago	150,000	0.6
Government of Viet Nam	426,250	1.6
RCFEE, Viet Nam	80,000	0.3
Sub-total	1,656,250	6.4
In-kind		
CONAMA, Chile	92,237	0.4
CONAF, Chile	80,000	0.3
DGA, Chile	80,000	0.3
SAG, Chile	80,000	0.3
Sernatur, Chile	80,000	0.3
CEAZA, Chile	400,000	1.5
UDP, Chile	50,000	0.2
Aquacons., Chile	80,000	0.3
Escondida, Chile	100,000	0.4
SQM, Chile	100,000	0.4
IEB, Chile	274,285	1.1
CSIR, South Africa	800,000	3.1
SANBI, South Africa	70,000	0.3
UWI, Trinidad and Tobago	489,915	1.9
TCF, Trinidad and Tobago	144,500	0.6
The Green Fund (GF), Trinidad and Tobago	10,828,674	41.8
ISPONRE, Vietnam	300,000	1.2
PPG, Vietnam	200,000	0.8
RCFEE, Viet Nam	300,000	1.2

IOG, Vietnam	200,000	0.8
IUCN, Vietnam	300,000	1.2
UNPEI	25,000	0.1
NCP	45,000	0.2
UNU	80,000	0.3
UNEP	2,764,690	10.7
	Sub-total	17,964,301
	Project Total	100.0

1.12 Project summary

The Project for Ecosystem Services (ProEcoServ) builds on the Millennium Ecosystem Assessment (MA), its sub-global assessments (SGA) and the ongoing MA-follow-up process. It focuses on addressing some of the MA's shortcomings as depicted in its evaluation, particularly through a) a focus on national assessments; b) close involvement of national and local stakeholders; and c) tools, models and methods for decision makers and policy implementation to mainstream ecosystem management approaches into development policies.

ProEcoServ aims at piloting the bundling of ecosystem services and the integration of ecosystem services approaches in resource management and decision making to promote innovative solutions that bear potential for scaling-up and replication. The project thus proposes an umbrella approach, under which five pilot countries re-assess their MA sub-global assessments and develop site and policy-specific activities and tools for decision making within a joint programmatic framework.

The overall goal of the project is to better integrate ecosystem assessment, scenario development and economic valuation of ecosystem services into national sustainable development planning. The project will lead to developing capacities of decision makers, users and beneficiaries of ecosystem services to assess trade-offs and development choices that contribute to strengthened biodiversity and ecosystem resilience, and to develop and apply appropriate ecosystem management tools within sectoral planning frameworks and macroeconomic planning models. The project components include:

- a) Development and application of multi-scale and locally valid tools and decision support models in development planning and policy making.
- b) Policy implementation support for the application of ecosystem and ecosystem service management approaches at national and transboundary levels.
- c) Strengthening of science-policy interfaces to reinforce multi-scale linkages from local to international actors, as well as to bridge the gap between research results and policy application in developing countries and the international biodiversity arena.

Within this overall project approach, each individual country will develop its specific set of activities that take into account the particularities of the national institutional and policy framework as well as its ecosystems, e.g. by focusing on a few select regulating ecosystem services in decline - often strongly affected by the overuse of provisioning ecosystem services. Through these activities, the project provides an opportunity to generate targeted national and global benefits at significant levels.

UNEP-DEPI as the implementing agency will ensure the coordination of the overall global project approach, support the countries in the implementation of the national project activities, establish a horizontal knowledge exchange among the project partners and develop and oversee the implementation of a ProEcoServ outreach strategy to particularly inform the international processes and platforms for biodiversity and ecosystem services.

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ACRONYMS AND ABBREVIATIONS

ACS	Association of Caribbean States
ADI	Indigenous Development Area, Chile
ARBCP	Asia Regional Biodiversity Conservation Program
AsgiSA	Accelerated and Shared Growth Initiative for South Africa
BRT	Buccoo Reef Trust
C.A.P.E.	Cape Action Plan for People and the Environment, South Africa
CANARI	Caribbean Natural Resources Institute
CARA	Conservation of Agricultural Resources Act, South Africa
CARICOM	Caribbean Community
CARSEA	Caribbean Sea Ecosystem Assessment
CASEN	National Characterisation Socio-economic Survey, Chile
CBO	Community-based Organisation
CEC	Committee on Environmental Coordination, South Africa
CEHI	Caribbean Environmental Health Institute
CLME	Caribbean Large Marine Ecosystem
CMA	Catchment Management Authorities, South Africa
CONADI	National Indigenous Development Corporation, Chile
CONAF	National Forestry Commission, Chile
CONAMA	National Environment Commission, Chile
CONICYT	National Commission for Science and Technology, Chile
CSIR	Council for Scientific and Industrial Research, South Africa
DARD	Department of Agriculture and Rural Development, Viet Nam
DC	District Council, Lesotho
DEAT	Department of Environmental Affairs and Tourism, South Africa
DFA	Development Facilitation Act, South Africa
DGA	General Water Department, Chile
DNRE	Department of Natural Resources and the Environment of the Tobago House of Assembly
DOF	Department of Finance, Viet Nam
DONRE	Department of Natural Resources and Environment, Viet Nam
DWAF	Department of Water Affairs and Forestry, South Africa
EDM	Eden District Municipality, South Africa
EIA	Environmental Impact Assessment
EIPs	Environmental Implementation Plans, South Africa
EKZNV	Ezemwelo KwaZulu-Natal Wildlife, South Africa
EMA	Environmental Management Authority, Trinidad and Tobago
EMF	Environmental Management Framework
EMP	Environmental Management Plan
ESA	Environmentally Sensitive Area
ESS	Environmentally Sensitive Species
EU	European Union
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GF	The Green Fund, Trinidad and Tobago
GI	Gouritz Initiative, South Africa
GLOBE	Global Legislators Organisation for a Balanced Environment
GoL	Government of Lesotho
GORE	Regional Government, Chile
GOTT	Government of the Republic of Trinidad and Tobago
GOV	Government of Viet Nam
ICRAN	International Coral Reef Action Network
ICRI	International Coral Reef Initiative
ICSU	International Council for Science
IDPs	Integrated Development Plan, South Africa
IERE	Programme for Environment and Resource Education of The Cropper Foundation

IHDP	International Human Dimensions Programme on Global Environmental Change
IMA	Institute of Marine Affairs, Trinidad and Tobago
INE	National Institute for Statistics, Chile
IPBES	International Platform for Biodiversity and Ecosystem Services
IUCN	World Conservation Union
ISPONRE	Institute for Strategy and Policy on Natural Resources and the Environment, Viet Nam
IWCAM	Integrating Watershed and Coastal Area Management for Small Island Developing States
LAPSP	Lesotho Agricultural Support Program
LBT	Lesotho Biodiversity Trust
LFNR	Los Flamencos National Reserve, Chile
LHDA	Lesotho Highlands Development Authority
LHWP	Lesotho Highlands Water Project
LHWRF	Lesotho Highlands Water Revenue Fund
MA	Millennium Ecosystem Assessment
MARD	Ministry of Agriculture and Rural Development, Viet Nam
MDTP	Maloti-Drakensberg Transfrontier Conservation and Development Project, South Africa and Lesotho
MEA COPs	Multilateral Environmental Agreements' Conference of the Parties
MIDEPLAN	Ministry for Planning, Chile
MINTEC	Ministerial Technical Committee, South Africa
MOF	Ministry of Finance, Viet Nam
MPH&E	Ministry of Planning, Housing and the Environment (Government of Trinidad and Tobago)
MPI	Ministry of Planning and Investment, Viet Nam
MRA	Managed Resource Areas, Lesotho
MRC	Mekong River Commission
MWBP	Mekong Wetlands Biodiversity Conservation and Sustainable Use Programme
NBSAP	National Biodiversity Strategy and Action Plan
NDA	Department of Agriculture, South Africa
NEAF	National Environmental Advisory Forum
NEAP	National Environmental Action Plan, Lesotho
NEMA	National Environmental Management Act, South Africa
NEMBA	The National Environmental Management Biodiversity Act, South Africa
NEP	National Environmental Policy, Trinidad and Tobago
NES	National Environment Secretariat, Lesotho
NFSD	National Framework for Sustainable Development, South Africa
NGO	Non-governmental Organisation
NRA	Northern Range Assessment, Trinidad and Tobago
NWA	The National Water Act, South Africa
PASPUNA	Sub Regional Plan for the Sustainability of the Puna, Chile
PES	Payments for ecosystem services
PLADECO	Communal Development Plan, Chile
PPF	Peace Parks Foundation, South Africa
ProEcoServ	Project for Ecosystem Services
QWDT	Quthing Wildlife Development Trust, Lesotho
RCFEE	Research Centre for Forest Ecology and Environment, Viet Nam
RMAs	Range Management Areas, Lesotho
RMD	Rangeland Management Division, Ministry of Agriculture, Lesotho
SAD for TOCO	Stakeholders Against Destruction for Toco
SAfMA	Southern African Millennium Ecosystem Assessment
SANBI	South African National Biodiversity Institute
SANGOCO	South African National NGO Coalition
SDF	Spatial Development Framework, South Africa
SERNATUR	National Tourism Service, Chile
SERPLAC	Regional Planning Secretary, Chile
SGA	Sub-global Assessment (of the Millennium Ecosystem Assessment)
SIDS	Small Island Developing States

SKEP	Succulent Karoo Ecosystem Program, South Africa
SPA	San Pedro De Atacama, Chile
STEP	Subtropical Thicket Ecosystem Program, South Africa
SusWatch	Sustainability Watch, South Africa
T&T	Trinidad and Tobago
TCF	The Cropper Foundation, Trinidad and Tobago
TEEB	The Economics of Ecosystems and Biodiversity
THA	Tobago House of Assembly
TTD	Trinidad and Tobago Dollar
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNEP-DEPI	United Nations Environment Programme, Division of Environmental Policy Implementation
UNESCO	United Nations Education, Scientific and Cultural Organisation
UN-REDD	United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
UNU	United Nations University
USAID	United States Agency for International Development
USD	United States Dollar
UWI	The University of the West Indies
WANI	Water and Nature Initiative
WfW	Working for Water, South Africa
WRI	World Resources Institute
WSSD	World Summit on Sustainable Development

SECTION 2: BACKGROUND AND SITUATION ANALYSIS (BASELINE COURSE OF ACTION)

2.1. Background and context

1. The GEF-supported Millennium Ecosystem Assessment (MA) concluded that more than 60% of the world's ecosystem services are either degraded or used unsustainably. There is increasing evidence that many changes inflicted by human activities are potentially irreversible, particularly with regard to biodiversity, with likely negative impacts on development and human well-being that are disproportionately borne by disenfranchised people at local levels. Particularly affected are regulating ecosystem services, such as air quality regulation, climate regulation at regional and local levels, erosion regulation, water purification and waste absorption, as well as natural hazard regulation. This degradation constitutes a significant barrier to achieving the Millennium Development Goals, if it is not reversed through a set of changes in policies, institutions and practices to conserve or enhance ecosystem services that avoid negative trade-offs and instead provide positive synergies among ecosystem services.

2. Independent evaluations attest the MA's emphasis on ecosystem services to having clarified the environment-development nexus and the linkages between biodiversity conservation and poverty alleviation in particular. The MA is also widely regarded as having been an innovative and technically sound assessment with high probability of impacting future applied research. The evaluations also concluded, however, that the MA's main strength as a scientific assessment compounded its main weakness: there is little evidence so far that the MA has made a significant direct impact on policy formulation and decision-making, especially in developing countries. This has been linked to:

- A generally rather weak focus on sub-global assessments (SGA) within the MA;
- A very limited involvement of national and local stakeholders that ultimately make decisions affecting biodiversity and ecosystem management and act upon these; and
- The lack of tools, models and methods palatable to decision-making and that can be readily applied at implementation levels.

3. There is a range of programmes and projects that have begun to address these weaknesses of the MA outcome, not least many funded through the GEF - e.g. on institutionalising payments for ecosystem services (PES). Many sub-global assessments (SGA) have also been undertaken in the wake of the MA, particularly at sub-national but also at regional levels. A recent survey of SGAs for the CBD Secretariat asserts an increased involvement of and impact on decision makers through ongoing SGAs.¹ However, among the remaining challenges were:

- Lack of data to establish baselines, and to develop tools, models, valuation of ecosystem services or indicators;
- Capacity at local levels to carry out assessments of ecosystem services;
- Weak institutional and governance arrangement to take up the assessment results and recommendations in policy making; and
- Weak market incentives and regulations to support establishment and scaling up of payments for environmental services.

4. ProEcoServ aims to address these challenges through a multi scale approach. While the overall developmental goal of the project is to utilise ecosystem assessment and economic valuation to better integrate ecosystem services into poverty reduction and sustainable development planning, the GEF increment will reduce threats to globally

¹ See: UNEP/CBD/COP/9/INF/30.

important biodiversity through an applied ecosystem services approach at national, transboundary and global levels.

5. Each of the four pilots has distinct features that characterise their ecosystems as well as the approaches taken in the respective SGAs. As both determine the intervention strategy and activities, the context for each of the four pilot countries is presented here individually.

CHILE

6. Chile has been described as a bio-geographical island (Armesto et al. 1995, Smith-Ramirez et al. 2005). It extends along the western shore of South America, bordered by the Pacific Ocean and separated for millions of years from the rest of the continent by the Andes, the Patagonian Steppe, and the Atacama Desert. With a length of 4,300 kilometres Chile stretches 36 latitudinal degrees. These conditions, combined with the altitude ranges from sea level up to 5,000 m, have produced an extraordinary diversity of climates, ecosystems and habitats. In the north of the country, this rich biodiversity meets with the earth's driest desert, the Atacama Desert. The current project is located in the unique landscape of the Antofagasta Region of Chile, where the biodiversity of these drylands is of particular significance because it includes many unique ecosystems. In particular, many species living in dryland habitats have developed unique adaptations to the potentially harsh conditions.

7. Between 2004 and 2005, a sub-global assessment (SGA) was conducted in the San Pedro De Atacama municipality (SPA), located in the Al Loa Province of Chile's second region. The SGA focussed on water, tourism, biodiversity, mining and astronomy, and provided a comprehensive set of recommendations for the management of the ecosystem services associated with these elements. The SGA did not implement any of these recommendations, and indeed preliminary interviews with stakeholders suggest that the results have not been integrated into decision making processes, except in a few cases, discussed in Section 2.6, baseline analysis.

8. San Pedro De Atacama is characterised by multiple users of ecosystem services in an adverse physical environment. Increasing conflicts amongst these various users of ecosystem services in the area often relate directly to access and decision making authority over water, and to the desired future direction of tourism. These conflicts have been augmented by various factors since the 1980's, including a mining boom in the 1980's and the explosion of tourism since the 1990s. As a result, local employment has experienced a gradual, but constant transformation. SPA has shifted from being a municipality where the main activities were agriculture and livestock, to one where most of the labour force work in construction, mining and tourism. The new economic activities and significant public investment have helped alleviate poverty in SPA to the extent that in 1996 it was removed from the list of 20 most poverty-stricken municipalities in Chile. At the same time, the transformation has also led to greater 'monetisation' of people's lives and a distancing from the earth and its resources.

9. The passing of the Indigenous Law in 1993 provided long-awaited recognition of the indigenous peoples by the government and Chilean society in general. As a result of this law, the municipality was declared Atacama La Grande Indigenous Development Area and this has given the Atacameños (the indigenous population) greater control over their ancestral lands and the use of public funds. The current challenge for the Atacameño population is two-fold: to connect traditional production activities (agriculture, livestock, craftwork) with tourism and the economy in general, through diversification and technology development; and to generate favourable conditions for them to participate in the services demanded by mining activities. In other words, the Atacameños must take advantage of the opportunities by revaluing their own identity in order to become a part of local development. This process

has not been easy, however, due in large to the need for capacity development in indigenous organisations and leadership, and particularly in the absence of a unified vision of the future that such a huge challenge requires.

10. Throughout the Antofagasta Region, the primary economic activities relate to the extraction and transformation of metallic and non-metallic minerals, which constitutes 60 % of the Regional GDP (CASEN 2006). Key minerals in the region include copper, molybdenum, silver, sulphur, and lithium carbonate. Locally in San Pedro however, the burgeoning tourism industry has resulted in a more diverse economic base, with the main activities generating employment in the municipality including: construction (18%), hotels and restaurants (15%), and mining (11%). In 1982 agriculture represented the main income generating work for about 32% of the economically active population in the municipality; in 1992 this figure only reached 21%. Tourism has been the fastest growing sector in the last decade (10%), with roughly 50,000 tourists visiting the area each year. Amongst the Atacameño people, 9% of the working population are involved in agriculture.

11. Tourism seems to be the preferred development option for both the Atacameño communities and outsiders, both resident and non-resident. This activity experienced sudden and unregulated growth triggered by the arrival of entrepreneurs who set up the first campsites and tourism agencies, followed by hostels and restaurants, and finally diverse categories of hotels and internet cafés. At the start of the 1990s, the communities began to realise that large sums of money were being generated in the area, none of which were improving the standard of living of the land's ancestral 'owners'. The Red Likanhuasi was established a decade later, the first community-based tourism initiative and a pioneer experience in the co-management of tourist attractions within protected natural areas.

12. The first clear effect of the mining activity and tourism has been the dramatic increase in the area's population, which has doubled in twenty years, and the ongoing and ever-increasing flow of tourists. This has led to a marked change in the lifestyles of the Atacameño communities, particularly those living in the settlements of San Pedro de Atacama (related to tourism) and Toconao and Peine (related to non-metal mining, mainly lithium), partly on account of the new jobs available and partly due to living alongside new social groups that have settled in the area.

SOUTH AFRICA AND LESOTHO

13. Southern Africa's ecosystems are globally recognised as some of the most biodiverse systems in the world. Humans have long been an integral component of these ecosystems dating back over 50 000 years. As the "cradle of humankind", these ecosystems have co-evolved together with their human inhabitants from largely rangeland systems supporting hunter-gathers and later nomadic pastoralists to today's landscape of increasingly urban and increasingly monocultured agricultural systems.

14. These changes to the region's ecosystems have brought with them significant improvements in many elements of human wellbeing. However, these improvements have not been felt by all, especially the rural poor and marginalised and have come at a cost to biodiversity, available freshwater and the quality of land, soil and vegetation. Furthermore, it is now clear that these ecosystems are life support systems, providing ecosystem services like freshwater, food, fuel, fertile soils and recreation and spiritual opportunities (among many other benefits). This life support is of enormous importance to all inhabitants, and especially rural and poor communities. The sub-global Southern African Millennium Ecosystem Assessment (SAfMA) highlighted this importance, as well as the fact that recent changes in ecosystems and biodiversity have compromised the ability of these life support systems to support and enhance the quality of life of all citizens now and in the future. Of key concern

are the declines in biodiversity and ecosystem services associated with already limited water resources. SAfMA highlighted how these declines will be further exacerbated by global change, especially in vulnerable communities.

15. SAfMA succeeded in raising the profile of the need for sustainable biodiversity and ecosystem management in the region. It also helped to lessen the divide between conservation and development, illustrating that social and economic development depends on judicious management of ecosystem services. It played a pivotal role in highlighting the perilous state of the region's water resources and the opportunities and challenges associated with current water governance arrangements. However, in a similar fashion to the global Millennium Ecosystem Assessment, there is currently little evidence that SAfMA has had a direct impact on policy development and decision making in the region.

16. This gap between science and policy is linked to the fact that policy and decision makers are often uninvolved in and unaware of the research. Furthermore, the knowledge and data produced are often not in a format useful to the country's decision makers who need tools and information which they can apply in their day to day activities (Cowling et al. 2008). Faced with these realisations it has become clear that if ecosystem research and development is aimed at ensuring the sustainable management of the region's biodiversity and ecosystem services, then it must be embedded in a social process involving policy and decision makers in order to develop information, knowledge and tools to be mainstreamed into decision and policy making.

17. This project attempts to bridge this gap between science and policy in ecosystem management in Southern Africa, and by so doing distils lessons for use in other parts of the world. The project builds on SAfMA, especially the Gariep Basin Assessment (one of the nested scales of assessment), and focuses on the countries of Lesotho and South Africa in carrying the work of SAfMA forward into decision making and policy implementation.

TRINIDAD AND TOBAGO

18. Trinidad and Tobago is the most industrialised country in the Caribbean relative to its size, and industrial development is often in conflict with environmental conservation. Rapid industrial development, which is largely based on development of the petroleum and petrochemical sector in Trinidad, has expanded to the extent that Trinidad is the largest supplier of Liquefied Natural Gas to the United States and the number one exporter of ammonia in the world. In Tobago, rapid expansion of the tourism sector has led to Tobago becoming a popular tourist destination in the Caribbean especially for visitors from the United States and Europe. Whereas these developments have given the country global recognition and attention, the Government of Trinidad and Tobago's Vision 2020 Operational Plan 2007-2010 (GOTT, 2007) and National Environmental Policy 2005 (NEP) have made clear its intention to find the right balance between economic development and environmental conservation so that the country does not compromise its own future. As noted by Vision 2020 Operational Plan 2007-2010 (GOTT, 2007), the twin-island Republic of Trinidad and Tobago 'like other small island developing states has a fragile natural resource base which allows limited room for error in its utilisation and management'.

19. Biodiversity in Trinidad and Tobago is in rapid decline because of a combination of driving forces at the national and sub-national levels. The historical rate of loss of natural (forest) vegetation is about 0.8% per annum (Agard and Gowrie 2003). According to the National Biodiversity Strategy and Action Plan for Trinidad and Tobago (NBSAP, 2001), neither the direct users/exploiters of biodiversity, nor those who indirectly degrade the resource base pay the direct costs for the use or misuse of these resources. The result being that the restoration, remediation, protection and other social and economic consequences of

these actions devolve directly upon the state and its agencies. However, state agencies are ill-equipped to deal with these problems (EMA, 2001; EMA, 2008; Northern Range Assessment, 2005).

20. Loss of biodiversity and its ecosystem services is having significant impact on human well-being. A Millennium Ecosystem Assessment (MA) sub-global assessment (SGA) of the Northern Range of Trinidad and Tobago (Northern Range Assessment, 2005) assessed the condition and trends of several ecosystem (including regulatory) services and their contribution to human well-being. Another MA SGA of the Caribbean Sea and coastal areas (CARSEA, 2007) similarly documented the general decline in ecosystem services and the mismatch between the provision of services and the scale of governance.

21. The National Environmental Policy of Trinidad and Tobago calls for the conservation of ecosystem services. The Parliament of Trinidad and Tobago approved a National Environmental Policy (NEP) in 2005 pursuant to requirements of the EM Act (2000) which contains a mandate to “Conserve life-support systems i.e., the ecological systems that cleanse air and water, regulate water flow, recycle essential elements, create and regenerate soil and enable ecosystems to renew themselves.” It also identifies other sustainable benefits such as “oxygen production, carbon fixing, aquifer recharge, stabilisation of soils against erosion, prevention of flooding and the provision of animal habitats.” The Government of Trinidad and Tobago has provided legal protection to some of the areas that provide these ecosystem services areas under the Forest Act (1980) and the Environmentally Sensitive Areas Rules (2001) but much more needs to be done.

22. The Parliament of Trinidad and Tobago approved legislation in 2001 for the creation of a “Green Fund” to provide resources to Organisations and Community Groups² to partner with Government to conserve the environment. The Green Fund (GF) is taken as a tax of 0.1% of the gross sales and receipts of companies carrying on business in Trinidad and Tobago. The fund can only be used for reforestation, remediation and conservation projects. The activities financed by the Fund are managed by the Green Fund Unit of the Ministry of Planning, Housing and the Environment. The procedures for implementation are finalised, the first projects are accepted for funding and particular synergies have been developed between the proposed ProEcoServ project and The Nariva Swamp restoration project that is funded through the GF (see also App 17).

23. The objective of the current project is to allow NGO’s, CBO’s and The Tobago House of Assembly to collaborate with the Ministry of Planning, Housing and the Environment to improve the decision making framework for biodiversity conservation and sustainable delivery of ecosystem service benefits in Trinidad and Tobago. The proposed project will focus on identifying and spatially mapping areas, which provide key bundles of ecosystem services in the Caribbean Sea and coastal environment of Tobago along with some case studies from two selected areas in Trinidad. Data generated will be used to develop practical policy and decision support tools to guide decision makers on choosing development strategies, which ensure sustainable flow of selected bundles of ecosystem services. The Government of Trinidad and Tobago through the Ministry of Planning, Housing and the

² “Organisation” means (a) a body incorporated by or under a law other than the Companies Act, or (b) a group of persons registered by the Ministry with responsibility for community development as a non-governmental organisation, which is primarily engaged in activities related to the remediation, reforestation and conservation of the environment.

“Community Group” means a group of individuals from a particular locality within Trinidad and Tobago which is (a) primarily engaged in activities related to the remediation, reforestation and conservation of the environment, and (b) registered as a community-based organisation by the Minister with responsibility for community development.

Environment (MPH&E) is about to initiate the development of a new National Physical Development Plan to be made pursuant to the Town and Country Planning Act (1968). The proposed project has the potential to offer a spatial based ecosystem services planning model, which can be mapped onto the macroeconomic planning framework.

VIET NAM

24. In Vietnam, ecosystems and biological resources are a part of the country's economy and culture, among others reflected through values such as environmental protection (ecological function value); direct use (economic value); and socio-culture. Biodiversity makes a significant contribution to the national economy by ensuring food security, maintaining the gene resources of livestock and plants, and by providing materials for fuel, medicine and construction.

25. By 2006, the forest coverage, including natural and plantation forests, increased to 38.2%. Among these are 2 million hectares of special-use forest, 5 million hectares of protection forest and 8 million hectares of production forest. A system of 128 protected areas has been established and developed in all ecoregions nationwide, covering an area of 2.5 million hectares or about 7.6% of the territory. In late 2008, the Prime Minister approved a system of 45 interior protected wetlands. Another system of 15 marine protected areas is in planning and has been submitted to the Government for approval. Moreover, 2 World Natural Heritages, 4 ASEAN Natural Heritages, 2 Ramsar Wetlands and 6 Biosphere Reserves are internationally recognised.

26. Biodiversity protection in Vietnam is incorporated in different legislative forms and sectors. The principles and general regulations for biodiversity protection, included in the law on environmental protection (1993 and 2005), are an important foundation for the further development of specific regulations towards comprehensive biodiversity protection. Species and ecosystems are basic components of the environment; legislation on biodiversity protection, therefore, must be an inseparable part of environmental laws. Sectoral legislation specifies regulations for biodiversity protection within the sector, for instance the law on forest protection and development contains regulations for forest-based biodiversity; the decree 109/2003/ND-CP includes regulations for the protection of wetland biodiversity, or ordinances on plant varieties and domestic animals regulate the protection of genetic resources of plants and domestic animals. In addition, some regulatory measures for biodiversity protection are also found in criminal law and administrative law.

27. The Downstream Mekong River Delta, also commonly known as and hereinafter referred to as the Cuu Long Delta, the Mekong Delta or the Delta, is the most southern region of Viet Nam, within latitude 8020' - 11005' N and longitude 104025' - 106050' E. The Delta of 39,000 km² covers 12 provinces, from Long An to Ca Mau, and accounts for 12% of Viet Nam's total land area.

28. There is a great diversity of wetlands in Viet Nam that possess a range of resources, biodiversity functions and important social, economic and cultural values. With an area of more than 10 million hectares, wetlands can be found in almost all ecological regions of the country. These wetlands play a vital role in the lives of the Vietnamese people and the socio-economic development of the country.

29. The Mekong Delta presents most typical ecosystems in the Mekong Basin because (i) its biodiversity is abundant; (ii) it is most strongly influenced, both positively and negatively, by the Mekong river's operation regime; and (iii) it is a zone that intensively interacts with the sea. In the Cuu Long Delta, there exist a wide range of ecosystem types, from coastal mangrove to inland Melaleuca, from estuarine and aquaculture to agricultural ones. Each

type has its own features with regard to species distribution, area, or services it provides. Among the ecosystems in the Delta, the coastal mangrove, the inland Melaleuca and the estuarine are of greatest concern in term of biodiversity, while rice cultivation, shrimp and fish breeding should be noted due to their immense provisioning capacity and economic value.

30. In the Cuu Long river delta, ecosystems provide the people with many important services that have enhanced their well-being. On the other hand, due to short-term economic targets and inappropriate management and utilisation policies, the many ecosystem services have been dramatically changed and weakened, which already resulted in biodiversity deterioration and a reduced well-being of the people at the present and will further decline in the future if current extraction and management practices are maintained.

31. Between 2003 - 2005, the “Downstream Mekong River Wetlands Ecosystem Assessment in Viet Nam” was conducted as a Millennium Ecosystem Assessment SGA, covering the conditions of ecosystem services in 12 provinces of the Cuu Long River Delta of Viet Nam, from Long An to Ca Mau and identifying the main drivers for change in ecosystem services in the area. The study focused mainly on provision services and little emphasis was given to regulating and cultural services. In addition, there is little evidence so far that the SGA has made a significant direct impact on policy formulation and decision-making in Viet Nam, among others for the following reasons:

- Limited involvement of policy makers and provincial or local stakeholders during and after the SGA;
- Strong scientific focus with a lack of tools, models and methods for decision-making that can be readily applied at implementation levels;
- Limited awareness of decision makers on ecosystem services.

2.2. Global significance

CHILE

32. The Atacama salar is a wetland ecosystem, and is considered to be accredited under the RAMSAR Convention on Wetlands, similar to two other salar ecosystems in the Antofagasta region that are already RAMSAR wetlands. High Andean Wetlands constitute a habitat for migratory or stationary species and they are generally a biological diversity reservoir for the entire region. The wetlands provide important environmental services including water quality/quantity maintenance and aquifer recharge. These wetlands are also shelters and breeding zones for a great number of species with conservation problems such as Andean flamingo (*Phoenicoparrus andinus*), James' flamingo (*Phoenicoparrus jamesi*), Chilean flamingo (*Phoenicopterus chilensis*), Condor (*Vultur gryphus*), Horned coot (*Fulica gigantean*), Rufous-bellied seedsniper (*Attagis gayi*), Least seedsnipe (*Thinocorus rumicivorus*) and American kestrel (*Falco sparverius*). In addition, they are a fundamental component of the habitat for highly economic and ecological important species like the Vicuna (*Vicugna vicugna*) or the Vizcacha (*Lagidium viscacia*). These wetlands are strategic stop-overs for a significant number of migratory birds. The three previously mentioned flamingo species that exist in the high Andean wetlands are included in Appendix I of the Convention on International Trade of Endangered Species of Wild Flora and Fauna (CITES) and of the Convention on the Conservation of Migratory Species of Wild Animals (CMS). However, as the Atacama Salar holds over 40% of the world's lithium reserves, and just a single company has a mining concession for over 60% of the salar surface, the salar is currently the focus of controversy due to the impacts on water availability resulting from lithium extraction, and the knock-on effect for the fragile dryland ecosystem.

SOUTH AFRICA and LESOTHO

33. South Africa and Lesotho are recognised for their high levels of biodiversity, especially of endemic species. Together they house a rich and spectacular array of terrestrial, aquatic and marine ecosystems occupying less than 2% of the land's surface area, but home to more than 10% of the world's plants and more than 7% of the world's mammals, birds and reptiles. They are also the location of three globally recognised biodiversity hotspots: the Cape Floristic Region; the Succulent Karoo (a semi-arid biodiversity hotspot); and the Maputaland-Pondoland Albany hotspot; unique Afrotropical biogeographic ecoregions, Centres of Endemism and other types of biodiversity priority areas. These biodiversity priority areas are recognised on the basis of their high levels of species diversity, especially of endemic species, as well as the substantial threats that they face from human activities. South Africa and Lesotho are also the location of the grassland biome, one of the most diverse, most threatened and least conserved biomes in the world (White et al 2000; MA 2005). This biome covers more than 2/3rds of South Africa and the entire extent of Lesotho, and is the source of most of the region's water, food, medicinal plants and fuel (especially coal for electricity).

34. This biodiversity together with the diversity of peoples, topography, climate and geology of the region ensures a wide variety of landscapes, scenic vistas, lifestyles and knowledge. Natural and cultural resources underpin a large proportion of the economy and many urban and rural people are directly dependent on them for their livelihoods, jobs, food, shelter, medicines and spiritual well-being. These dependencies span the continuum from commercial (e.g. game ranching, nature based tourism, wildflowers) and semi-commercial to subsistence (e.g. medicinal plants, fuelwood) through both formal and informal markets from local to global scales. In addition to these direct links between biodiversity, human wellbeing and the economy, biodiversity plays a role in many other aspects of the region's social and economic development in supporting and enhancing freshwater supply, ensuring productive land and agriculture, regulating floods and other storm events, and controlling the levels of green house gases. These indirect links have large economic, social and environmental value, which are often not captured in formal accounts or policy processes and the conservation of this biodiversity is therefore of national, regional, as well as global importance. What makes these links particularly relevant is the socio-economic context of the region. Legacies of apartheid which affected both South Africa and Lesotho include pervasive poverty and unemployment, an increasing gap between the rich and the poor, and declines in wellbeing associated with HIV/AIDS, tuberculosis and water borne disease. South Africa has the largest poverty gap in the world, while Lesotho remains the poorest country in Southern Africa. These issues have made social equity and wellbeing national priorities resulting in the prioritisation of economic growth, job creation and poverty alleviation. This has meant that environmental issues have received less attention allowing for further declines in biodiversity and ecosystem services, and in turn worsening the wellbeing of the vulnerable and the poor. There are however, indications that national policy makers are recognising the links between human wellbeing and ecosystem condition, with new programs that combine job creation and ecosystem stewardship, as well as increasing interest in incentives and payments for ecosystem services around carbon and water.

35. Of further global relevance are the lessons that can be drawn from the dryland nature of this project. Dryland systems worldwide (and the people who inhabit them) are some of the most vulnerable to future global and environmental change due to a combination of vulnerable people and ecosystem services, currently degraded state of these systems and their vulnerability to desertification. In these systems biodiversity plays a critical role in promoting the resilience and adaptation potential of ecosystems and society. Southern Africa's ecosystems are largely dryland systems, where soil water is a limiting factor, restricted by low rainfall and high evaporation. This unique combination of water limited,

vulnerable yet diverse and potentially resilient social-ecological systems makes this a globally relevant case study for the opportunities and challenges associated with mainstreaming the sustainable management of dryland biodiversity and ecosystem services into decision making and development planning.

36. A final – and related – contributor to the global significance of this project is its focus on the links between biodiversity and water management. While the region is richly endowed with an array of natural resources, there is one exception – water. And as water affects every activity and aspiration of human society and sustains all terrestrial and aquatic ecosystems the value of managing and maximising water flows, while minimising any adverse social and ecological impacts, is a key challenge to the future of the country's development. While the traditional approach to this challenge has been an increase in manufactured infrastructure like dams, transfer schemes and groundwater abstraction, this project with its focus on the bundle of regulating services which support and enhance the quality and quantity of available freshwater, will aim to highlight the role that biodiversity (or ecosystem infrastructure) can play in maximising the available water. By establishing the linkages between biodiversity conservation and the valuable water that these ecosystems provide, making the case for integrated ecosystem and catchment management, providing the necessary information and tools for informed decision making and helping to bridge the gap between science and policy we aim to distil lessons and methods relevant to all water stressed regions.

37. Five of South Africa's most important catchments and their rivers are shared with neighbouring countries, making the process of water management more complicated, but very relevant to many other parts of the world with shared ecosystem services. The water produced in Lesotho is pivotal in supporting the economy of Southern Africa through the Lesotho Highlands Water Project which transfers water into the Vaal River system for use in the economic heartland of Gauteng. Less than 6% of water produced in Lesotho is consumed domestically, and this represents a valuable resource in a water scarce region. In 1998 water royalties from the Lesotho Highlands Water Project (LHWP) accounted for 13.6% of Lesotho's GDP and 27.8 percent of all government revenue. The cumulative value of this export (water and associated hydroelectric power) up to April 2009 was R 2,676,131,968 (www.lhda.org.ls, accessed 1 June 2009). The investment in physical water infrastructure if all phases of the project are completed will be approximately US\$8 Billion. With predicted aridification of the western portion of Southern Africa the value of Lesotho in terms of water production, as well as the need for strong and sustainable cross-boundary co-governance arrangements, is set to increase over time.

38. Two further characteristics of the region present opportunities for a project of this nature and help ensure its likelihood of success. These include recent political change which permitted the passing of innovative legislation and the establishment of institutions for managing this diversity; and a long history of research, collection, classification and knowledge (including traditional and indigenous) of biodiversity. The substantial political, economic and social changes that took place during South Africa's transition to democracy provided the flexibility and possibility for new and cutting edge policy development. A constitution which recognised the right to a healthy environment set the scene for innovative policy development with regards to the environment and conservation. A Water Act which recognised the rights of the environment and a need for equity in environmental decision making soon followed. This time period also saw the promulgation of the Biodiversity Act which mandated the establishment of the South African National Biodiversity Institute (SANBI) – tasked with biodiversity management and research. SANBI soon became a world leader in biodiversity policy, planning and coordination publishing the first ever National Spatial Biodiversity Assessment, leading the way in the listing of threatened ecosystems and

mainstreaming biodiversity concerns into other sectors of government. In Lesotho the National Vision and Poverty Reduction Strategies, with their focus on intergenerational equity and environmental sustainability are key strengths. This strong institutional presence, together with innovative policy sets the region apart from many other developed and developing countries. However, problems around enforcement and capacity remain a challenge in both countries. More recent change in South Africa in 2009 included the merging and formation of government departments responsible for the management of biodiversity and ecosystem services with those responsible for managing water. These types of changes often allow for innovative programs and policies to be implemented and will form a key component of this project.

39. South Africa (and to a lesser extent Lesotho) sits in a unique position relative to other biodiverse countries in that ecological research has a long and profound history in the region. Early explorers collected and catalogued significant quantities of species from many taxa, much of which is still housed in the country's museums and have been updated into digital forms. Together with recent extensive atlasing efforts, the country now has distribution data for many taxa from plants to beetles. These data, supplemented by detailed and high resolution vegetation maps, provide a solid platform for much biodiversity research and modelling. Substantial investment in ecological research during the 20th century resulted in large research programs, good capacity development and large amounts of data, knowledge and publications on biomes like the Fynbos, Grasslands, Savanna and Karoo. Research into particularly water, soil and agricultural production has also spanned several decades and much of the data and knowledge required to map and assess ecosystem services comes from these early studies. Traditional knowledge on South Africa's biological resources is a significant resource still largely untapped, with a few exceptions of commercially useful plants like tea and appetite suppressants. But the Southern African Millennium Ecosystem Assessment demonstrated the value of this knowledge in the diversity and novelty that it gave the assessment of ecosystems and their services, identifying and valuing services missed out at regional scales. This wealth and diversity of knowledge made the Southern African Millennium Ecosystem Assessment possible, and provides a solid platform for future ecosystem service assessments.

TRINIDAD AND TOBAGO

40. As reported by CARSEA 'the Caribbean Sea has been critically assessed and ranked by experts as having the highest priority for conservation of a marine eco-region in Latin America and the Caribbean (Sullivan Sealy and Bustamante 1999). The two ecologically distinct small islands groups of the region, the Bahamian and the Lesser Antilles (of which Trinidad and Tobago is a part), each have very high percentages of endemic species, many of which are endangered. Also the Caribbean islands as a whole have been classified as a biodiversity hotspot, meriting global priority for conservation purposes (Myers et al 2000). Although this classification reflects the diversity and vulnerability of land-based flora and fauna, the many interactions between marine life and islands habitats make it highly relevant to the global importance of the Caribbean Sea ecosystem'.

41. Trinidad and Tobago offer unique island observatories and early warning systems for larger more extensive tropical country ecosystems. Because of its proximity to the Venezuelan coast, the island of Trinidad has much of the plant biodiversity of the South American mainland, but on a scale where small impacts on ecosystems are very noticeable. The high pressures on land due to small land area, and growing population and industrialisation, mean that ecosystems are in constant threat from development. In addition, the limited extent of the ecosystems and the low buffer capacity, mean that changes to ecosystem services are rapidly noticeable and quickly have social and economic impacts

that may take much longer on a comparative mainland site. Hence, the islands provide a unique opportunity to study and evaluate complex ecosystem/human interaction, at shorter time scales than larger countries, so that findings can help develop broader global policy before problems occur at larger scales.

42. The proposed project addresses an important scientific gap in the analysis of coupled social-ecological systems identified by the MA and suggested as one of the priorities for new research on ecosystem services beyond the MA. Carpenter et al 2009³ point out that the MA sub-global assessments were replete with examples of complex feedbacks that could not be represented as simple ecologically based causal chains. They cited how the pre-cursor to this project, the Caribbean Sea Ecosystem Assessment (CARSEA) showed how coral reef biodiversity (of species and spatial heterogeneity) is embedded in complex linkages. These are indirect drivers like (urbanisation, investment in unsustainable tourism, international shipping practices, fragmentation of authority among 22 island states), direct drivers (land and sea use, coastal pollution, fish harvest, climate change, river discharge, alien species introductions), ecosystem services (principally ecotourism and fish harvest), and amenity values measured as jobs, GDP, and investment (CARSEA, 2007). They concluded that no simple policy lever can change outcomes and proposed that future research should focus on controls of ecosystem services themselves, addressing the effects of multiple drivers, structural factors including biodiversity, and human feedbacks. It was suggested that this is the kind of research needed to acquire information about how drivers and management interventions change ecosystem services. The new research should evaluate not only the direct effects of biodiversity, but the role of biodiversity in modifying the effects of drivers on ecosystem services. Finally, Carpenter et al 2009 state that these effects are the essential ones for understanding changes in ecosystem services and projecting the consequences of policies intended to improve ecosystem services.

43. ICSU-UNESCO-UNU (2008) further elaborated that the proposed project would ideally aim to produce shorter-term outputs (e.g. within five years as in the proposed study) of information directly relevant to decision-makers and would build capacity in the region to study, monitor and manage ecosystem services. These regional pilot projects would be a pre-cursor to linking up with larger global change programmes in order to investigate the global implications of ecosystem service change at multiple scales.

44. Follow-up initiatives to the Northern Range and Caribbean Sea Assessment are included as part of a global network of sub-global assessments and activates, which comprises one aspect of the follow-up programme to the Millennium Ecosystem Assessment being led by UNEP and several other partners. Involvement in this network will allow for the direct transfer of information and learning to other countries and regions around the world, thereby facilitating replication of the project outcomes at the global level. This learning might be especially important and instructive for SGAs with coastal/marine components, which are currently in the process of designing or undertaking their assessment work.

45. The Association of Caribbean States (ACS), which is an intergovernmental body representing the Wider Caribbean region and comprised of twenty-five member states and three associate members⁴, has initiated discussions with the European Union (EU) to

³ S. R. Carpenter et.al. (2009). Science for managing ecosystem services: Beyond the Millennium Ecosystem Assessment. Proceedings of the National Academy of Sciences of the United States of America 106(5): 1305-1312.

⁴ Member states include: Antigua and Barbuda, Bahamas, Barbados, Belize, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Suriname, Trinidad and

encourage greater support for the Caribbean Region within the EU. Models for PES developed as part of the current Ecosystem Services project could provide a sound basis for building a partnership between the ACS and the Caribbean Community (CARICOM) to expand the learning throughout the Wider Caribbean Region, and to use channels such as the EU to bring attention to this type of work at the global level.

VIET NAM

46. The Mekong Delta within Viet Nam's territory is the furthest downstream portion of the Mekong River Basin, encompassing Cambodia, Lao PDR, Thailand and Viet Nam. The Mekong Delta has a total area of approximately 3.9 million hectares, occupying about 12% of the total natural area of Viet Nam, including thirteen provinces and cities. The wetlands of the Mekong Delta are among the richest ecosystems of the basin (tidal floodplains, coastal marshes, peatland marsh, estuaries, etc.) and are important breeding sites for many aquatic species migrating from upper reaches of the Mekong River. The wetland area covers approximately 5,000,000 ha, which includes inland wetlands and coastal wetlands with a depth of less than six meters at low tide. Saline coastal wetlands are distributed along the coastline of the East Sea, southwest of the Ca Mau Peninsula and the Gulf of Thailand. Of a total of 1,636,069 ha, 879,644 ha are permanently flooded wetlands distributed in the sea region at depths less than six meters at low tide, and 756,425 ha are seasonally flooded. The most common wetland types in this area include permanently flooded and non-vegetated saltwater wetlands, seasonal saltwater wetlands for agricultural cultivation, and seasonal saltwater wetlands for aquaculture.

47. Wetlands are of importance for the entire Mekong basin in general and for the Mekong Delta in particular. They present not only ecological-environmental values but also socio-economic ones. The wetlands in the Mekong Delta encompass areas of valuable biodiversity and fertile areas for cultivation. It is these areas in the Mekong Delta that have been since long the rice granary of Viet Nam, which contribute around 80% of the exported rice quantity of the nation. Viet Nam has been one among world's leading shrimp exporter for the last decade, and most of Viet Nam's exported shrimp come from this region.

48. Based on natural conditions and existing biological systems, it is possible to categorise the ecosystems in Cuu Long River Delta. The main ones include:

- Coastal wetland ecosystem, mainly mangrove distributed in coastal Ca Mau, Bac Lieu, Soc Trang, Tra Vinh and Ben Tre provinces.
- Inland wetland ecosystem, represented by Melaleuca forests in U Minh (located in Ca mau and Kien Giang) and Dong Thap Muoi (of Long An and Dong Thap provinces).
- Coastal estuarine ecosystem.
- Special ecosystem in Dong Thap Muoi. The diversity of Dong Thap Muoi is rich. Statistics listed the existence of 61 fish species in the Vam Co Dong and 55 fish species in Vam Co Tay. In Dong Thap Muoi, some waterbirds, including migrant ones, are recognised the global rare species. The special ecosystem in Dong Thap Muoi was classified as a significant wetland by IUCN.

Core functions of main ecosystems in the Cuu Long River Delta**Coastal Mangrove:**

- *Silting and fixing coastline as to form a vegetation wall to protect the coastline from being eroded by sea waves.*
- *Nursing, spawning and feeding ground for shrimp and fish.*
- *Treatment place of urban and industrial waste to prevent coastal water from being polluted.*
- *Biodiversity conservation sites for 40 mangrove species.*

Inland Melaleuca ecosystem:

- *Reduction of flow velocity during the flood season, preventing soil erosion.*
- *Preventing soil and water acidification*
- *Provision of clean water for human and crops in dry seasons.*
- *Living ground for many aquatic and terrestrial species.*
- *Provision of timber, fish, honey, etc.*

Estuarine ecosystem:

- *Flow of nutrition, phytoplankton, larva, shrimp, fish.*
- *Reproducing ground for shrimp and fish.*
- *Determining coastal sedimentation patterns.*
- *Biodiversity conservation.*

49. Ca Mau is the southern-most province of Vietnam, stretching from 8030' to 9010'N and from 10408' to 10505'E. Ca Mau shares its northern border with Kien Giang and Bac Lieu provinces, while its eastern, southern and western sides face directly to the South China Sea and the Gulf of Thailand. The total area of the province is 5,211 km², accounting for 1.57% of the total area of Vietnam and 13.6% of the Mekong River Delta.

50. The biodiversity of the wetlands of Ca Mau is very rich, mostly present in Ca Mau's mangrove ecosystem, marsh and submerged forest ecosystem, and estuarine ecosystem. Data provided by Minh Hai center for the research and application of mangroves (2001) revealed that the flora of Ca Mau has 239 species belonging to 76 families. The mangrove forest consists of 93 species of 38 families; the remaining 201 species of 74 families are distributed in fresh water swamp and other wetland ecosystems. In Ca Mau, there are about 101 species of 41 families living in the flora in bird grounds. The fauna of Ca Mau is very abundant, particularly aquatic species (fish, crustacean, molluscs, reptile and amphibian) and bird species. The mangrove forest of Ca Mau record 44 genus of phytoplankton, 63 fish species, 50 bird species of 15 families, 12 mammal species and 12 reptile species (Mai Dinh Yen, 1996). High valuable species of Ca Mau include bee, molluscs (hard clam, blood cockle), crustacean (mud crab), and shrimp (black tiger, white shrimp, greasy-back shrimp, giant prawn). Ca Mau Cape (Mui Ca Mau) was recognised by UNESCO as world biosphere reserve in 2009, being home to more than 100 rare and endangered species of fauna.

2.3. Threats, root causes and barrier analysis

51. Understanding the factors that cause changes in ecosystems and ecosystem services is essential to the design of interventions that enhance positive and minimise negative impacts. Each of the four pilot countries used the project preparation phase to review their respective SGAs, to further examine key threats and drivers of ecosystem change, as well as to carefully scrutinise these results through broad stakeholder involvement and feedback. Although the targeted ecosystems and ecosystem services in each pilot differ considerably and range from marine and coastal areas to dryland systems, there are various commonalities with regard to the main direct and indirect threats and drivers of ecosystem change.

52. Direct drivers of change exert direct influence on ecosystem processes and can therefore be identified and measured to differing degrees of accuracy. The main direct drivers identified in the four countries include:

53. Land use and habitat modification: According to MONRE (2004), **VIET NAM** has more than ten million hectares of wetlands. Over the last fifteen years, the natural area of wetlands has been reduced while artificial wetlands have increased. Natural mangrove forests are being converted into aquacultural ponds, tourism facilities and planted forests. Over the past twenty years, 183,724 ha of mangrove forests have been lost while aquacultural areas have increased to 1.1 million ha in 2003. Specifically, in the Ganh Hao area of Bac Lieu Province, about 7,000 ha mangroves have been lost during a 27-year period (from 1964 to 1991) due to erosion, with an average loss of approximately 259 ha/year. In southwestern Ca Mau, after one year of conversion of mangrove forests into shrimp ponds, approximately 20 zoobenthos species were lost while bird species from Bac Lieu and Dam Doi colonies migrated to other areas. Loss of mangrove forests could have extremely negative effects, including a loss of richness in biodiversity, loss of habitats and breeding sites, soil acidification, environmental pollution, and coastline and estuary erosion. For instance, in southwestern Ca Mau, after one year of conversion of mangrove forests into shrimp ponds, approximately 20 zoobenthos species were lost while bird species from Bac Lieu and Dam Doi colonies migrated to other areas.

54. According to the Ministry of Construction's Urban Development Plan for the Mekong Delta to the year 2020, the urban population in the Delta in 1996 was approximately 2.7 million, and the urbanisation ratio was 16.2%. By 2003, these figures had risen to 3.26 million and 19.6% respectively. The plan for year 2020 estimates that the proportion of the population in the Mekong Delta living in urban areas at that time will be 40%, which would lead to an increase in urban area and a reduction in the area of wetlands.

55. In **SOUTH AFRICA** and **LESOTHO** conversion to agriculture, forestry plantations and urban expansion has resulted in the loss of about 20% of the country's natural habitat. The remainder of the land is mostly used for the grazing of domestic livestock and wildlife. South Africa and Lesotho include large (as yet unquantified) tracts of degraded land from overgrazing, frequent burning and fuel wood harvesting, resulting in biodiversity loss, soil erosion, loss of biotic crusts and declines in water quality. In parts of the region high livestock numbers are a consequence of several indirect factors including human population growth, increasing reliance on the natural resource base, and loss of grazing area to other land uses with consequent displacement of people and herds. Interestingly, in Lesotho an increasing proportion of the national herd is owned by business men, who are generating wealth elsewhere (often South Africa) and then increasing their herd sizes significantly.

56. In **TRINIDAD AND TOBAGO**, the need for land for industrial development, ports, and hotels as well as for housing has led to a significant rate of land clearing especially in the coastal zone. For example regular conflicts occur in Trinidad over the trade-off of mangrove wetlands in favour of industrial development and port facilities.

57. Unsustainable exploitation of natural resources: Threats to the water cycle in **CHILE**'s San Pedro De Atacama municipality are related to additional water demands as a result of mining and tourism. Within the hydrological basin of the Salar de Atacama 162 water rights⁵ have been granted for a total of 6,223 l/s, distributed between 2,234 l/s of surface water (73 rights) and 3,989 l/s of underground water (89 rights). Surface water rights are mainly held in the north of the Salar, around San Pedro de Atacama, and in the east, whilst most of the underground water rights are in the southeast of the basin. In the altiplano of the municipality of San Pedro de Atacama, i.e. the basins lying to the east of the Salar basin, there are a further twenty surface water rights, for a total of 2,770 l/s. By comparing the rights granted (6.2 m³/s) with the water recharge rate of the basin (about 5 m³/s) it can be seen that the

⁵ Refer to Section 3.6 for an explanation of the Chilean Water Code.

volume that could be extracted is on average greater than that coming in to the system. However, it should be pointed out that extraction rates are only higher than calculated recharge rates in the southeast of the basin. This situation has been regulated by means of a special agreement between users and the General Water Department (with an Early Warning Plan) and a restriction of water flow. In spite of this, the system is very complex and comparison between offer (recharge) and demand (use) is not that simple. It should be noted that no water rights are required for brine extraction from the nucleus of the Salar, since this extraction falls under the Mining Code.

58. It is evident from current recharge figures that water availability is stretched in the municipality. There is however not enough available information to understand the potential threat to water supply with any degree of certainty. There are certain inconsistencies between the information on water rights for the settlements and the available records on effective water use. Accurate information on drinking water consumption and resource availability is required in order to estimate how many people can effectively be supplied with potable water.

59. Resolution Number 09/2000-CP (15/06/2000) of the government of **VIET NAM** opens new development directions on agricultural production, especially converting rice into export shrimp farming, which initially creates moderately good income for household groups and initially improves the life of farmers. However, this conversion process happens very fast, while support for the production process, such as irrigation systems, seeding and investment funds, or technical support does not meet demand. Monoculture in shrimp farming is very popular in coastal areas and the economic risk level is high; therefore, a considerable part of shrimp farmers is loss-making and indebted, which results in selling land for debt settlement. Deforestation and leading salt water to rice fields for shrimp farming strongly alters various ecological functions of the ecosystems, and the initial provisioning capacity of these ecosystems declines considerably. Consequently, natural ecosystems are destroyed, water sources and cultivated soil are polluted. Further, this negatively affects human well-being, and the close relationship between human well-being and the proper functioning of the wetland ecosystem is caught in a continuous vicious cycle downwards.

60. The development of shrimp aquaculture in Ca Mau in the recent years has caused damages to the ecosystems and their functions as well as the quality of soil, surface water and ground water. The impact of destruction of coastal mangrove forest to lead salt water into rice fields for shrimp aquaculture caused serious consequences to the ecosystem and environment, particularly:

- Reducing substantial area and biodiversity of mangrove forest ecosystem;
- Promoting strong saline absorption into inland;
- promoting water stagnation and erosion at the sea and river sides;
- Causing water pollution and soil erosion.

61. Pollution: The transformation of land into shrimp aquaculture in **VIET NAM** was oftentimes carried out too quickly and at a large scale, without appropriate planning, little invested capital and poor technology. Therefore, water and land environments were altered seriously, including disease outbreaks as well as pollution at a large scale, thus not only endangering the ecosystem but also leaving many shrimp cultivation areas at high risk.

62. Shrimp aquaculture in Ca Mau province is conducted with different production models, tending to gradually increase capital and technology investment in order to achieve higher economic gains for the producers. However, the more intense the production models, the higher the potential of pollution it creates, and therefore, the worse consequence it has on the environment and ecosystem. In Ca Mau, intensive, industrial shrimp aquaculture has

caused highest level of pollutants, such as nitrogen, phosphoresce, BOD, COD, suspended solids, organic wastes, or chemical residuals.

63. Most rivers in **SOUTH AFRICA** are extensively modified with high dam densities and substantial flow modifications, with resultant biodiversity and water quality declines. Mining, although limited in extent, has had substantial impacts on biodiversity and ecosystem services through air and water pollution, the clearing of vegetation and soil, and inappropriate mine closures.

64. In terms of pollution significant drivers are the availability of inexpensive coal, cold winters, and the availability of fuelwood in rural coastal areas. The continued use of coal and wood by much of South Africa, together with the associated health risks, represents arguably the most persistent and significant local air pollution problem. Furthermore, the growth of road transportation and power generation emissions have been noted to be significant in terms of increasing South Africa's contribution to global warming.

65. Climate Change will potentially cause flagship protected areas in the **SOUTH AFRICA AND LESOTHO** region to lose many of their species and may cause a reduction in biomes by 35-55 percent. Coarse-scale climate change models predict that the climatic conditions that are currently associated with the Succulent Karoo biome will no longer exist by 2050, because of anthropogenic enhancement of CO₂ levels. If a strong relationship is assumed between plant and animal distributions and these broad-scale climatic correlates of biome distribution, it is reasonable to expect that there will be severe disruptions of the region's biota over the coming decades (Van Jaarsveld and Chown 2001). These impacts of climate change extend beyond biodiversity losses to significant impacts for ecosystem services and human wellbeing including declines in water availability, losses in soil and productive land, risks to the tourism industry.

66. More difficult to understand and manage are the factors which influence or alter these direct drivers. These factors operate more diffusely and are called indirect drivers by the MA conceptual framework. Indirect drivers include primarily demographic, economic, social, political, climatic, scientific and technological, and cultural and religious drivers. The interactions of these drivers determine levels of resource use, consumption patterns and waste production and thus the strength and direction of direct drivers of change. Major indirect drivers of ecosystem change identified by the four countries include:

67. Institutional and organisational weakness: There are serious weaknesses in the existing institutional framework of **TRINIDAD AND TOBAGO** that need to be addressed in order to ensure effective environmental management. Foremost among these is the relative ineffectiveness of land use planning and control which requires strengthening the Town and Country Planning Division of the Ministry of Planning, Housing and the Environment. There is a serious deficiency in institutional capacity due to lacking appropriate human resources. There has been a general shortage of financial resources for planning and environmental institutions making it difficult for them to fulfil their mandates. There is a pervasive trend of failure to effectively enforce some important pieces of existing environment related legislation such as those supposed to control quarrying. Due to the slow pace of the governance process other important environment related legislation has not been made law after being prepared for years e.g. the Air Pollution Rules. Finally, no Ministry seems to be mainly responsible for mainstreaming the process of sustainable development.

68. In **VIET NAM**, managers and beneficiaries alike do not yet fully understand the social, economic and ecological functions and values of wetland ecosystems, or the role of conservation and management in their preservation. Therefore, decisions relating to the utilisation of wetlands have often not been practical. Wetland management in Viet Nam

remains sector-based, overlapping, uncoordinated, scattered, and a management mandate on wetlands has not yet been clearly defined. Policies on wetland management have been inconsistent and unsystematic, with changes over time which have had negative effects, including loss of biodiversity, environmental degradation and pollution. Furthermore, due to only weak collaboration between agencies in the implementation, particularly between government agencies and NGOs, information and experience sharing on ecosystem services approaches is very difficult.

69. The separation of water use rights and land ownership in **CHILE** has created a complex situation, particularly with respect to indigenous communities. While indigenous communities were given greater control over land resources through the implementation of the system of indigenous development areas (ADI, for more detail see also section 3.6), they remain unable to control water use on this land. In San Pedro de Atacama, this regulatory inconsistency has already given way to conflict. The water authority (The General Direction of Water (DGA) has created the option for ‘bidders’ to apply for water rights in the district, on land that falls within the ADI. As a result, the district mayor has led an objection to this call for applications, and is supported by civic organisations.

70. An additional layer of complexity has been added through the economic characteristics of the Chilean water law. For example, many farmers have sold their water rights to mining companies, and have therefore lost the rights to control water use or contamination levels on their own land.

71. The management of ecosystem services not only requires information, but also informed managers with adequate resources to make decisions, and ensure these are enforced. This is currently an enormous gap in the **SOUTH AFRICA AND LESOTHO** region, especially at the local scale where land use decisions have been devolved without adequate human, technical and financial capacity. With the exception of some metropolitan municipalities (such as the City of Cape Town, Johannesburg, and Ekurhuleni, and some of the municipalities in Mpumalanga), little capacity development has been achieved at local level. Capacity development at all provincial and local government levels is particularly critical, because the shortage of skills and infrastructure in environmental management is coupled with an increasing emphasis at the local level for integrated planning and for greater involvement in environmental functions.

72. **LESOTHO** is faced with acute capacity constraints, staffing deficiencies, and politicisation of the civil service. Inadequate administrative and institutional capacity in ministries and central government agencies has made policy formulation, coordination, and implementation cumbersome. Qualified and experienced personnel are often in short supply (World Bank, 2006). Capacity limitations need to be seriously taken into account when designing programmes, and there is a need for investing in capacity building (World Bank, 2006).

73. Information availability and flow. Knowledge and awareness in **VIET NAM** about the functions and values of wetlands, and about their conservation and management, are limited. Communication and awareness-raising activities have not received proper attention and have not always been suitable to the various target groups. Wetlands are not yet included in the environmental education programme. Through the efforts of the Ministry of Natural Resources and Environment, ecosystem services, and the potential for payment for ecosystem services (PES) schemes have been included in the Law of Biodiversity. Article 74 reads “Organisations and individuals using environmental services relates to biodiversity shall pay charge to services providers”. Similarly, the Ministry of Agriculture and Rural Development submitted for the Prime Minister’s approval Decision No. 380/QD-TTg on a

policy of piloting forestry PES. However, awareness about ecosystem services and PES exists only on a very small scale, mostly at ministerial level, while branch offices and extension services are not trained to utilise or to increase awareness of ecosystem services, except only in a few communities in pilot areas of new PES programs and projects. In addition, there is still a lack of data on ecosystem services as well as a limited utilisation of data in decision making processes.

74. While some good data and knowledge on biodiversity and ecosystem services exist in **SOUTH AFRICA**, major gaps appear around the functioning, thresholds and management of ecosystem services, especially regulating and cultural services; and are worse in the case of Lesotho's data. Similarly, a lack of data on the value of ecosystem services and biodiversity prevents their consideration in most development decisions. Not only is data availability a problem, but it is clear that even where data exist they are not in a form suitable for uptake by decision and policy makers. Investment is required in research and development of ecosystem service data, indicators and maps in formats that can be mainstreamed into decision making, as well as a review of existing policies and processes to highlight key intervention points for this mainstreaming.

75. Attitudes and values towards the environment: Environmental literacy surveys in **TRINIDAD AND TOBAGO** have shown that there is a widespread lack of awareness about environmental issues among the population. Contributing to this problem is the fact that environmental studies are not widely incorporated into the formal education programmes of schools nor are they adequately addressed in informal educational programmes available to the community. One very visible way in which poor attitudes to the environment manifests itself is in the tendency to litter, which is of epidemic proportions. Although the introduction of an environmental impact assessment (EIA) through new legislation has formalised the need for public consultation, most people still do not get involved. There is little formalised involvement of non-governmental organisations and community-based organisations (except for turtle monitoring), even though they are frequently best suited to perform certain environmental management functions. There is unsatisfactory private sector involvement in environmental management (other than in voluntary compliance programmes), even though the private sector has significant technical and financial resources to offer.

76. **SOUTH AFRICA** and **LESOTHO** are plagued by socio-economic challenges of pervasive poverty and unemployment, an increasing gap between the rich and the poor, and declines in wellbeing associated with HIV/AIDS, tuberculosis and water borne disease. These issues have made social equity and wellbeing national priorities resulting in the prioritisation of economic growth, job creation and poverty alleviation. This has meant that environmental issues have received less attention and are often not seen as a national priority requiring the allocation of often limited resources. The links between a healthy environment and enhanced human wellbeing are however helpful in raising national values and perceptions on the importance of environmental stewardship and will be a key focus of this project.

2.4. Institutional, sectoral and policy context

CHILE

77. CONAMA (*Comision Nacional del Medio Ambiente, National Environment Commission*) is the national coordinating environmental agency. CONAMA has regional chapters or divisions. Among CONAMA's main responsibilities are:

- To propose environmental policies to the President
- To inform about environmental enforcement and compliance
- To manage the environmental impact assessment system

- To manage the process for the elaboration of environmental quality and emission standards and regulations, and
- To act as a consulting, analysis, communication and coordination agency on environmental matters.

78. Recent environmental policy documents, such as the national environmental agenda and policy and the national and regional biodiversity strategy make explicit mention to biological diversity and even define concrete goals for its protection and management.

79. Sectoral ministries and agencies, at the national level and regional level (Chile is a non-federal, rather centralised country), have diverse degrees of competence on environmental matters. Of particular importance for this project are the agencies in charge of: water management, agriculture and livestock, tourism and forestry. These and other agencies put forward a number of initiatives (policies, plans, programs, projects) which have a direct or indirect impact on biodiversity. Relevant examples are the Water Policy, the implementation of Indigenous Development Areas, and the National Plan to Combat Desertification (refer to Section 3.6).

80. Additionally, the sub-national authorities (regional and local; the latter at the municipal level) have attributions on matters that eventually impact on biodiversity. Relevant examples of initiatives they implement are: regional and local development plans and urban land use plans (there are no land use plans for rural areas in Chile).

81. Section 3.6 presents a detailed analysis of the main policy instruments (plans, programs and policies), with a focus on the consistency of this project to these instruments.

SOUTH AFRICA

82. Policy and planning environment: The primary legislation governing the management of ecosystems, biodiversity and ecosystem services in South Africa is the Constitution, which states that “Everyone has a right to an environment that is not harmful to their health or well-being ...” as well as a right “... to have the environment protected, for the benefit of present and future generations...” These rights are enacted in a plethora of policies and laws relating to the various aspects of the environment and implemented through a range of institutions within the local, provincial and national spheres of government. In a review this of overarching legislative framework the following Acts and Frameworks were identified as relevant to this project:

- *The National Environmental Management Act* (No. 107 of 1998) (NEMA). This Act sets out the principles, which are derived from the Constitution as well as international environmental law, which apply to environmental decision-making (Van der Linde, 2006). The emphasis within NEMA is on environmental management that places “... people and their needs at the forefront of its concern, and serve(s) their physical, psychological, developmental, cultural and social requirements equitably.”
- *The National Environmental Management Biodiversity Act* (No. 10 of 2004) (NEMBA) which provides for the management and conservation of biodiversity. NEMBA provides for biodiversity planning and monitoring, the protection of threatened ecosystems and species, the control and management of alien invasive species, the regulation of bioprospecting, equitable benefit sharing and the regulation of permits, among other factors (Kotze *et. al.*, 2007). This Act also gives effect to international agreements relating to biodiversity to which South Africa is a party
- *The National Water Act* (No. 36 of 1998) (NWA) (DEAT, 2006), which has changed the way water is managed in South Africa from one based on rights granted as a result of land ownership, to one in which water is designated equitably in the interests of the citizens of the Republic. The overall purpose of the Act is to ensure that South

Africa's water resources are protected and managed in a way which meets basic human needs of current and future generations; promotes equitable access to water; promotes the efficient and sustainable use of water in the public interest and facilitates socio-economic development.

- *The Development Facilitation Act (DFA)* (No. 67 of 1995) sets the overall framework for planning throughout the country, with more detailed laws and regulations being promulgated within the provinces (Glazewski, 2000). In general the DFA aims to "... merge wise and economically beneficial land use practices with the ideals and aspirations of the new democratic South Africa" (Glazewski, 2000:245). This is to be undertaken in a sustainable, participatory way, as the principles specifically promote "... sustainable land development practices and processes" and encourage communities to "... actively participate in the process of land development."
- *The Municipal Systems Act* (No. 32 of 2000) which provides the context for municipal planning in South Africa and states that all local authorities should develop a single plan that integrates across all sectors and forms the framework for all decision-making, including the allocation of budgets (Audouin and Rossouw, 2007).
- *Conservation of Agricultural Resources Act* (No. 43 of 1983) (CARA) enables the Minister to prescribe control measures related to the use and protection of land, the irrigation of land, the prevention of salinisation of land, the protection of water sources against pollution as a result of farming, the use and protection of vegetation, the control of weeds and invader plants and the restoration of degraded land among other factors (Glazewski, 2000). The Act also enables the Minister to establish schemes in terms of which money may be granted to land users for e.g. soil conservation schemes.
- South Africa has also developed a *National Framework for Sustainable Development* (NFSD) that describes the national vision for sustainable development, as well as strategic interventions aimed at re-orientating South Africa's development trajectory in a more sustainable direction (DEAT, 2008). This document uses ecosystem services as the foundation for all activities and programs set out in the Act and will be a key focus of this project
- *Accelerated and Shared Growth Initiative for South Africa* (AsgiSA) was formally launched AgsiSA in February of 2006. It has its origins in the national commitment to halve unemployment and poverty by 2014 and is an important government initiative. Currently there is little dialogue and collaboration between the NFSD above and AgsiSA and the project will aim to support initiatives which aim to mainstream environmental considerations into AgsiSA and associated development programs.

83. Existing legal and policy instruments for mainstreaming ecosystem services into decision making processes: These Acts have enabled the development of a number of approaches and instruments which direct decision making and natural resource use in South Africa. The most relevant to this project include:

- *Environmental Impact Assessments* (EIAs) are required in relation to particular listed activities.
- *Environmental Management Frameworks* (EMFs) are provided for in the EIA Regulations; central to these are the compilation of maps indicating the attributes of the environment in particular geographical areas including the sensitivity of the environment, the conservation status of particular areas, the environmental management priorities in these areas and the kind of activities which would have a detrimental affect on the environment within each area.
- *Environmental Management Plans* (EMPs) and Environmental Implementation Plans (EIPs) are requirements under NEMA. The purposes of these plans are to: coordinate

and harmonise environmental policies, plans, programmes, and decisions among departments so as to minimise the duplication of procedures and functions and to promote consistency in the exercise of functions that could affect the environment; give effect to the principle of cooperative governance; secure the protection of the environment across South Africa; and prevent unreasonable actions by provinces in respect of the environment that may affect the economic or health interests of other provinces or the country as a whole. EMPs focus on policies and mechanisms to ensure that other bodies comply with departments' environmental management mandate, while EIPs focus on ways in which general policies and functions take account of environmental management.

- *Integrated Development Plans* (IDPs), and their spatial expression through Spatial Development Frameworks (SDFs) are required in terms of the Development Facilitation Act (DFA) and its legislation. These require integration between the social, ecological, economic, institutional and financial aspects of planning, as well as coordination between the various spheres of government. They provide an important opportunity, at the municipal level, for the inclusion of environmental aspects into decision-making and planning. Not only is the environment one of the sectors to be considered in the formulation of the plan, but the Municipal Planning and Performance Regulations, which were promulgated in 2001 in terms of the Municipal Systems Act, state that a strategic assessment of the environmental impact of the SDF as a whole, should be undertaken. The formulation of IDPs also provides an important mechanism for community groups to engage with the development process, as consultation with the local community, and their participation in the formulation of the IDP, is required in terms of Section 29 (b) of the Act.
- Bioregional plans and the listing of threatened ecosystems are processes provided for through NEMBA, which map out priority areas for conservation and management action. These provide an important opportunity for coordinating land use and water use decision making.
- The devolution of water resources planning and management to local Catchment Management Authorities (CMA) under the National Water Act represents a key implementation instrument for this project. Water needed to meet basic human needs and the needs of such ecosystems is "reserved" before water is allocated to other users.
- A LandCare programme is "directed towards the conservation of agricultural natural resources and the avoidance of activities which put in jeopardy the sustainability of agriculture or which, as a result of agricultural activities, cause wide environmental damage" (Glazewski, 2000:205). It is a community –based programme that involves a range of stakeholders, including representatives from the various spheres of government.

84. While many of the Acts and the instruments they support are truly innovative and focused on issues of sustainability and equity, few have achieved their potential due mostly to problems with implementation linked to many of the barriers mentioned above. There is also still a strong utilitarian focus in applying many of these instruments and all too often environmental concerns are not explicitly or systematically incorporated into the resulting outputs (Gilman et al., 2004).

85. Institutions: There are many institutions responsible for managing ecosystems, biodiversity and ecosystem services in South Africa, which exist at several levels of governance. South Africa's Constitution states that the three national, provincial, and local spheres of government are distinctive, interdependent, and interrelated. While national and provincial governments have concurrent legislative competence for environmental

management, most of the decisions that relate to the use of land and natural resources are taken at local government level.

86. The institutions of relevance to this project, and targeted as part of the stakeholder mapping and interviews include the national level Department of Environmental Affairs and Tourism (DEAT), Department of Water Affairs and Forestry (DWAF) and Department of Agriculture (NDA). NEMBA provided for the establishment of the South African National Biodiversity Institute (SANBI). The functions of SANBI include reporting on the status of South Africa's biodiversity, the dissemination of information concerning biodiversity and the coordination of programmes to include civil society in the conservation and sustainable use of biological resources.

87. At sub-national scales Catchment Management Authorities (CMAs) are the main institutions for the future management of water resources (Glazewski, 2000). The purpose establishing these institutions is to allow DWAF to delegate water resource management to the catchment level, as well as to involve interested and affected parties (including communities, private land owners, municipal officials, and government agencies) in the management of these resources (Glazewski, 2000). Currently these multi-stakeholder agencies are in the process of being established by DWAF around the country and are unique in terms of their composition. Other institutions established in terms of the Act include Water User Associations (former irrigation boards), Advisory Committees and a Water Tribunal. Water User Associations operate at a restricted local level and are "... cooperative associations of individual water users who wish to undertake water-related activities for their mutual benefit."

88. At the provincial and local scales there are again a plethora of institutions responsible for managing ecosystems, biodiversity and ecosystem services. The configuration, capacity and responsibilities of these institutions vary from province to province from a single institution responsible for agriculture, conservation and the environment in Gauteng Province, to provinces where each of these sectors falls into a separate institutions e.g. Western Cape.

89. Cooperative Governance: In order to facilitate coordination and integration between all of these departments with environmental functions, the Committee on Environmental Coordination (CEC) was created in terms of NEMA (DEAT, 2006). This committee comprises the Director of DEAT as well as representatives from other national departments that conduct activities affecting the environment (e.g. Department of Health, Department of Agriculture and the Department of Science and Technology) (Peart, 1999). One of the main functions of the CEC is to promote the implementation of Environmental Implementation Plans (EIPs) and Environmental Management Plans (EMPs), which aim to coordinate the environmental activities of national and provincial departments (DEAT, 2006). Those departments whose activities directly involve environmental management functions are required to prepare EMPs, while those whose activities may affect the environment need to formulate EIPs. A further institution has been created, namely the Ministerial Technical Committee (MINTEC), aimed at facilitating coordination between national DEAT and provincial environmental departments (DEAT, 2006)

LESOTHO

90. Policy and Planning Environment: Similar to South Africa, Lesotho has over 50 pieces of legislation dealing directly or indirectly with the environment, and these are administered by many different Ministries and Departments. There is a substantial degree of overlap between these laws, while others are inconsistent or even contradict each other. This complex legal environment, coupled with fragmented administration, makes implementation

of project recommendations difficult. Acts and instruments of importance to this project include:

- The Environment Act 2001 which creates some potentially useful tools in terms of funds, tax incentives, monitoring, protection and enforcement of relevance to this project.
- The Water Resources Policy approved by Cabinet in 1999 aims to ensure sustainable development of water resources, adequate supplies of potable water, even in drought conditions, and the proper assessment and protection of water resources.
- The National Environmental Action Plan (NEAP) and the National Biodiversity Strategy and Action Plan which spell out the need for immediate support to the mountain areas which are recognised as the key areas for biodiversity conservation in the country.,
- The Lesotho Agricultural Support Program (LAPSP), implemented with funding from the United States Agency for International Development (USAID), introduced grazing fees in 1992 which were withdrawn in 1993 in the run up to the elections as political opponents of the government turned this into an election issue accusing the government of imposing a tax on resource that was their inalienable birth-right. Since the withdrawal of grazing fees, uncontrolled grazing resulting in increasing erosion and rangeland degradation has continued. The GoL has approached the Government of the United States through the Embassy in Maseru for assistance with the reintroduction of grazing fees as a way of controlling stocking levels on rangelands and stemming widespread soil erosion.

91. Decision Making Processes: Lesotho established a National Environment Secretariat (NES) under NEAP and there are several Ministries responsible for range management. The emphasis is on local decision making with regard to activities dealing with management of natural resources. The concept of Range Management Areas (RMAs) and, latterly, Managed Resource Areas (MRAs), under the leadership of Community Councils and other local committees are the proposed mechanism to ensure sustainable range management. Several structures with their own constitutions have been established. See Section 5.1.2 for more detail.

92. Transboundary environment: The Lesotho Highlands Water Project (LHWP) is a key element of the region's transboundary water resource management programme. The LHWP is a four-phase water transfer project overseen by the Lesotho Highlands Development Authority (LHDA) which involves diverting about half the water flowing down the Senqu River in Lesotho into the Vaal River system to meet increasing needs in this heavily industrialised corridor which contains approximately 40% of South Africa's population. Phase 1B of the project became operational in 1998, with the transfer of water from a network of reservoirs in the Lesotho Highlands. Following completion of Phase 1B, the supply of water to the Vaal dam from the project was boosted by 180 million cubic meters to 780 million cubic meters. In return, Lesotho receives R200 million per annum from South Africa in royalties. The Lesotho Highlands Water Project has had an undeniably profound impact on Lesotho's economy. In 1998 it accounted for 13.6% of Lesotho's GDP, and royalties from the sale of water and project-related customs dues make up 27.8 percent of all government revenue. Yet, the country's poor have seen little of this economic boom. The Lesotho Highlands Water Revenue Fund (LHWRF) is intended to distribute some of the projects royalties to the nations poorest. Instead, the LHWRF had to be restructured, in part because of corruption and mismanagement, and was replaced by the Lesotho Fund for Community Development in 2001 (LHDA 2003). The LHDA, with money provided by government and not the water royalties directly, is currently funding pilot Integrated Catchment Management projects in the catchments of the dams of the LHWP, with a focus on establishing Catchment Management

Committees under the Community Councils (Gerard Mokone, pers. comm.). If this pilot is rolled out on a broader scale there appears to be the potential for overlap of mandates of these committees with the RMA Committees. However, these committees represent a potentially useful structure for implementing PES projects.

93. Other transboundary arrangements include the Maloti-Drakensberg Transfrontier Conservation and Development Project (MDTP), a collaborative initiative between South Africa and the Kingdom of Lesotho to protect the exceptional biodiversity of the Drakensberg and Maloti mountains.

TRINIDAD AND TOBAGO

94. The Government of Trinidad and Tobago, through the mechanism of the Green Fund Regulations which were laid in Parliament has established the policy and regulatory frameworks for implementation of a payment for ecosystem services system that can support and strengthen a holistic approach to biodiversity conservation and poverty alleviation. The Green Fund was established in 2001 under the Miscellaneous Act, Part XIV – Green Fund Levy - by the Government of the Republic of Trinidad and Tobago. The Fund is capitalised by a tax, known as the Green Fund Levy, of 0.1% on the gross sales or receipts of a company carrying on business in Trinidad and Tobago. The purpose of the Fund is to financially assist organisations and community groups that are primarily engaged in activities related to the remediation, reforestation and conservation of the environment. The Green Fund Regulations 2007 provide for the eligibility of beneficiaries and activities, management, general operations and accountability for activities that receive financial assistance from the Fund. The Regulations specifically identify the National Environmental Policy 2005 as the main policy context of the Green Fund. In September 2008, a Green Fund Executing Unit was established in the Ministry of Planning, Housing and the Environment to manage the general operations of the Fund, facilitate and support potential beneficiaries in the application process and monitor, evaluate and report on the activities funded by the Fund. The Green Fund Advisory Committee, established in 2008 under the Miscellaneous Taxes Act, advises the Minister with responsibility for the environment on the certification of activities related to the remediation, reforestation and conservation of the environment for financial assistance from the Fund. The Minister with responsibility for the environment reports to Parliament annually on the activities financed by the Fund.

95. The Government has also laid in Parliament a National Biodiversity Strategy and Action Plan 2001, and a National Environmental Policy 2005, which acknowledges the importance of the sustainable use of ecosystem services. Further Parliament has adopted as law the Environmental Management Act 2001, which created an Environmental Management Authority (EMA) to act as a technical coordinating agency, an Environmental Commission to perform the functions of a specialised court and an Environmental Trust Fund. Through the Environmental Management Act 2001, subsidiary legislation has been created to give legal protection to Environmental Sensitive Areas (ESA) and Environmentally Sensitive Species (ESS). A few such areas and species have been designated. Many other areas also have protected area status under the Forest Act (1918) of the Ministry of Agriculture and Marine Resources. Finally, the Governments Vision 2020 Operational Plan 2007-2010 has identified specific indicators and set targets for biodiversity conservation. In Tobago, The Tobago House of Assembly has set up a Department of Natural Resources and the Environment (DNRE) to coordinate environmental activities.

96. The project will work with all four agencies and Ministries to support existing regulatory structures and priorities set at national levels. In addition to the national

engagement, the project will seek to establish a coalition of liked minded NGO partners to help achieve the project objectives.

VIET NAM

Policy analysis

97. Over the last fifteen years, the Government of Viet Nam has paid great attention to the formulation and completion of a legislation system to establish a legal foundation for national governance, creating favourable conditions for international integration. A number of these regulations are related to wetland management. Legislation on environmental protection and nature conservation has contributed significantly to wetland protection. Viet Nam has passed more than 500 regulations on environmental protection and nature conservation since 1976. However, of these, only about ten refer directly to wetlands, while the rest are indirectly related through the protection of various components of wetlands such as water resources and wildlife protection.

98. Viet Nam has formulated and organised the implementation of an action plan relating to the conservation and development of wetlands. Some key documents of relevance to wetland management are the following:

99. *Management strategy to the year 2010 for a protected area system in Viet Nam*, with its main goals to establish and manage effectively PAs located in various ecosystems and to contribute to the protection of natural resources, biodiversity, while preserving the bountiful and unique landscape of Viet Nam. Various activities to develop and manage PAs are provided through this strategy. Conservation activities should be combined closely with development strategies, in order to promote roles and functions of a PAs system. The decisive principle of the strategy is sustainable development. The Strategy forms the basis for developing plans to manage protected areas in special-use forests, wetlands and marine areas. The strategy also identifies a set of strategic actions, including

- PA system planning
- Development of a legal framework for PA system management;
- Strengthening of natural resources management and biodiversity conservation;
- Reforming the organisation of the PA management system;
- Reforming procedures to establish, fund and invest in PAs;
- Training for human resource development, improvement of conservation knowledge and skills;
- Promoting information-education-communication and attracting community participation;
- Involvement in biodiversity conservation;
- Promoting international cooperation.

100. *National Strategy for Environmental Protection Until 2010 and Vision toward 2020* identifies detailed objectives to ensure ecological balance at high level with the following targets:

- Recovering 50% of mining areas and 40% of severely degraded ecosystems;
- Increasing forest cover by 43% of total natural land, recovering 50% of degraded watershed forests and improving forest quality;
- Increasing total area of PNAs by half as much against current area, especially MPAs and wetland preserved areas;
- Recovering the area of mangrove forests by 80% as compared to 1990.

101. *Government Decree No. 109/2003/ND-CP* issued on 23 September 2003 addresses the *conservation and sustainable development of wetlands*. The Government requires

establishing wetland reserves under strict protection regulations, including a prohibition of construction works and migration to the wetland sites. Buffer zones for wetland sites must be established, managed and be restricted with regard to exploitation, which would endanger the wetland sites conservation. The Decree identifies principles on conservation and sustainable use of wetlands; identifies detailed tasks on wetland management; and names the main state agencies involved in wetland management.

102. *Circular no. 18/2004/TT-BTNMT* dated August 23, 2004 guiding the implementation of the Government's Decree no. 109/2003/ND-CP of September 23, 2003 on *conservation and sustainable development of wetlands*. The Circular guides the conservation and sustainable development of wetlands with particular eco-systems and high biodiversity, among these those with functions of maintaining water sources or balancing the ecology, or those that are of international or national importance. For the conservation of wetlands, the circular identifies conservation criteria, conservation forms, institutional responsibilities for formulating projects to establish wetland reserves, management of wetland reserves, and the coordination of implementation activities.

103. The Viet Nam Biodiversity Action Plan (BAP) to the year 2010 and vision to the year 2020. One of the objectives identified under BAP is biodiversity conservation and development in wetlands and marine areas through:

- The increase of the total area of wetlands and marine reserves of national and international importance to over 1.2 million hectares.
- The restoration of 200,000 hectares of mangrove forests;
- The designation of five wetlands to be included in the list of wetlands of international importance (Ramsar sites).

104. Under major tasks, BAP identifies tasks for biodiversity conservation and development in wetlands and coastal areas, including:

- a) Building, developing and managing a wetlands and marine reserve system:
 - To adopt and carry out strategies, master plans, national and provincial plans on integrated coastal zone management;
 - To adopt and implement master plans on wetlands and marine reserves, paying due attention to functional zones and buffer zones; to adopt and implement conservation plans for each reserve;
 - To conduct investigations and surveys on, prepare application for designating wetland areas to be in the list of wetland of international importance (Ramsar sites).
- b) Rehabilitating and developing wetlands and marine ecosystems:
 - To restore and develop important coral reefs and seagrass sites;
 - To investigate and evaluate the current status of mangrove forests; to adopt and carry out plans on restoration and development of coastal mangrove forests of protection significance;
 - To restore wetlands ecosystems in environmentally vulnerable areas.
- c) Sustainable use of wetlands and marine natural resources:
 - To apply protective methods and wisely use wetlands of national and international importance;
 - To build up and apply integrated management models for wetlands and marine natural resources suitable to local communities' practices;
 - To strengthen the monitoring system for natural resources, environment and biodiversity in important wetlands and marine zones.

105. Wetland management is mentioned mostly in environmental strategies, but not in development plans and the system of policies and regulations on wetland management has

not been completed or synchronised. Specific provisions in legal documents relating to wetlands and ecosystem management often overlap, and are also often scattered within different pieces of legislation. In addition, there is still a lack of scientific tools guiding the development of strategies and policies.

Institutional and sectoral analysis

106. Prior to 2003, no central institution was solely responsible for wetland management in Viet Nam. Each sector or ministry was mandated by the Government on sector-based management which included wetlands. For instance:

- MARD was responsible for the management of wet rice cultivation land, protected areas (wetland national parks and nature reserves)
- MONRE was responsible for the management of river basins and served as a national focal point for coordinating activities related to the Ramsar Convention on Wetlands.
- In addition, some other sectors were closely associated to wetlands, such as water transportation, tourism, and hydroelectricity.

107. On 23 September 2003, the Prime Minister issued Decree number 109/2003/ND-CP, which stipulates the mandates and functions of ministries, sectors and localities in wetland conservation and the sustainable development of wetlands (see Box 1).

Box 1: Mandates and functions for wetland conservation and sustainable development: Decree 109/2003/ND-CP

Ministry of Natural Resources and Environment (MONRE)

- MONRE shall resume the function of state management on the conservation and sustainable development of wetlands (Article 5, Clause 2).
- MONRE shall formulate an overall plan for baseline surveys, research and assessment of environmental status of wetlands nationwide; shall lead activities such as surveys, research, and development of conservation and sustainable plans; and shall submit to the Prime Minister requests for the establishment of wetland protected areas, and of wetlands of national and international importance which are located across multiple provinces and related to multiple sectors (Articles 9, 11).
- Within its jurisdiction, MONRE shall formulate, submit and issue policies and legal documents on wetland protected areas; shall undertake inspection and examination on implementation of wetland related legislation; and shall serve as a national focal point for implementation of the Ramsar Convention (Article 15).

Ministry of Agriculture and Rural Development (MARD)

- MARD shall organise investigation, research and preparation of planning for the conservation and sustainable development of wetlands within its sector which have national or international importance and are located across multiple provinces (Articles 9, 11).
- MARD shall take a lead and organise the management of sector-based wetland protected areas having national and/or international importance (Article 15).

108. One important trend is that wetlands in Viet Nam have been resettlement areas for communities for generations, which has helped to form their typical cultural values and farming traditions. As a result, wetland management cannot be separated on a sectoral basis, nor can it be separated from community development. The challenge is that planning of wetland development has not been synchronised and there has been a lack of coordination between sectors in integrated wetland management. Wetland management and wise use of wetlands require synchronised and integrated policies and measures.

Wetland management at the provincial level

109. Viet Nam has 63 provinces and centrally run cities. The Provincial People's Committee (PPC) is the highest administrative authority in a province, under which departments are organised following a similar vertical structure to the central level. Thus, wetland management at the provincial level is similar to that at the central level. In other words, each provincial sector/department is responsible for state management on their respective issues, including wetlands-related issues, according to the laws and duties assigned by the PPC. Specifically, the Decree 109/2003/NDCP has stipulated:

- PPCs of provinces and centrally run cities shall organise management of those wetland protected areas that do not fall under the management responsibility of ministries and that belong administratively to these provinces and cities.
- The Departments of Natural Resources and Environment of provinces and centrally run cities shall take a lead in surveys, research, conservation planning and sustainable exploitation of wetlands of provincial and local importance.

2.5. Stakeholder mapping and analysis

CHILE

110. Table 1 summarises the Chilean stakeholders involved in the first phase of this assessment. At the outset of the project preparation, the work team proposed the creation of an advisory committee as a forum to:

- Provide and share information, knowledge and experience between the members;
- Express and integrate different perspectives and interests;
- Generate trust and dialogue between relevant stakeholders; and
- Move beyond institutional and organisational boundaries.

111. The creation of this project advisory committee proved to be the central axis of the assessment process, offering a space for governance to the seventeen participating representatives from the different user groups: the Atacameño community, the public sector, local government, tourism operators, mining companies and inhabitants of the municipality.

Table 1: Main ecosystem users and stakeholders

Users	Description	Interest	Role in decision making about resource use
Atacameño peoples	14 Atacameño communities, represented in the Atacameño Peoples Council; 'Red Likanhuasi'- rural tourism network	Multiple interests: developmental, economic, social, political, subsistence Research	Marginalised
Regional universities	Archaeological Research Institute and Museo R.P. Le Paige of the Universidad Católica del Norte; Universidad de Antofagasta.		Marginalised
Mining companies	Sociedad Chilena del Litio (SQM), Minera Escondida Limitada, Compañía Minera Zaldívar	Economic	Central
Tourism operators and entrepreneurs	Hotels, hostels, campsites, tourism agencies, internet cafés, etc.	Economic	Marginalised
Government authorities	Regional government, through the Office of the Premier, Region II San Pedro de Atacama Municipality	Developmental	Central
Public services	ADI	Environmental,	Central

	CONADI Programa ORIGENES – MIDEPLAN CONAF CONAMA DGA SERNATUR CONICYT	developmental, social	
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SOUTH AFRICA

112. During the project's design phase, extensive stakeholder consultations were undertaken in both South Africa and Lesotho (see Annex 16 for further information). The stakeholder consultations were aimed at identifying awareness gaps and inconsistencies, stakeholder needs, opportunities and constraints for using ecosystem services in decision making and policy processes and to ensure buy in into the project itself. Results of the stakeholder consultation are presented in Section 2.6 below.

113. Central to South Africa's legislative environmental framework is the inclusion of stakeholders in planning, decision-making and monitoring. In the section that follows, the role of government, civil society and the business sector in environmental governance is discussed.

114. *Government.* There are three main spheres of government in South Africa namely: the national, provincial and local spheres. Each has responsibilities in terms of environmental management as discussed below.

115. *National government:* National government has legislative competence in terms of all matters that are not expressly assigned to provincial legislatures (Glazewski, 2000). For example, the promulgation of policy and legislation related to water, minerals, national parks, national botanical gardens and marine resources is the exclusive competency of this sphere of government (Glazewski, 2000; Peart, 1999). In addition, the Constitution places a responsibility on national government to assist provinces in developing the administrative capacity to effectively exercise all their powers and perform their functions, including those related to environmental concerns.

116. *Provincial government:* There are nine provincial legislatures in South Africa, each of which has the power to, *inter alia*, pass a provincial constitution, pass legislation regarding the matters assigned to it (including aspects pertaining to the environment) and assign legislative powers to a municipality within the province (Glazewski, 2000; Peart, 1999). Provincial governments are also required to "... provide monitoring and support of local government in the province; and promote the development of local government capacity to enable municipalities to perform their functions and manage their own affairs".

117. Provincial legislatures have exclusive legislative competence for provincial planning, provincial recreation and amenities and provincial roads and traffic. In terms of Schedule 5 of the Constitution, they also have legislative competence for the following matters administered by local government: beaches, municipal parks and recreation, cleansing, refuse removal, refuse dumps, solid waste disposal and noise pollution.

118. In terms of Schedule 4 of the Constitution, provincial governments share legislative competence with the national sphere of government in certain matters. These matters include the environment, agriculture, soil conservation, health matters, pollution control, tourism, administration of indigenous forests, nature conservation (excluding national parks, national botanical gardens and marine resources) and urban and rural development. They

also share legislative competence with national government in numerous matters relating to the environment which are administered by local government. These matters include air pollution, municipal planning, municipal public transport and water and sanitation services.

119. *Local Government:* The independence of local government is established in the Constitution which states that “A municipality has the right to govern, on its own initiative, the local government affairs of its community, subject to national and provincial legislation, as provided for in the Constitution” and that “The national or a provincial government may not compromise or impede a municipality’s ability or right to exercise its powers or perform its functions”. There are three categories of municipalities in South Africa which are defined in Section 155 (1) of the Constitution as follows:

- *Category A:* A municipality that has exclusive municipal executive and legislative authority in its area;
- *Category B:* A municipality that shares municipal executive and legislative authority in its area with a category C municipality within whose area it falls (known as a Local Municipality)
- *Category C:* A municipality that has municipal executive and legislative authority in an area that includes more than one municipality (known as a District Municipality).

120. The objectives of local government include providing a democratic and accountable government for local communities, promoting a safe and healthy environment, promoting socio-economic development, and ensuring the provision of services to communities in a sustainable manner, among others (Republic of South Africa, 1996).

121. *Civil Society:* Civil society’s (which includes Non-Governmental Organisations (NGOs), Community-Based Organisations (CBOs), trade unions and organised business) involvement in environmental governance is provided for in the principles of the National Environmental Management Act (No. 107 of 1998) (NEMA).

122. There are numerous opportunities for the involvement of civil society in environmental management, some of which have been mentioned in Section 2.4 above. However, an important overarching participatory institution, established in NEMA, is the National Environmental Advisory Forum (NEAF). Members of the NEAF include representatives from academia, organised labour, organised business, NGO’s, CBO’s, women’s groups, the disabled, youth groups, as well as individuals with specialised skills (DEAT, 2006). The purpose of this statutory Forum is to advise the Minister on the views of interested and affected parties regarding the application of the principles within NEMA, any matter concerning environmental governance and management and appropriate methods of monitoring compliance with the NEMA principles. DEAT (2006) identified the following as key priorities on which the NEAF will advise the Minister: genetically modified organisms; the National Strategy for Sustainable Development; climate change; transfrontier parks and quotas and permits for coastal protected areas.

123. Environmental NGOs in South Africa generally focus on the issues of environmental justice and sustainable development, with programmes typically relating to campaigns against nuclear energy, the promotion of improved waste management, the monitoring of air and water borne industrial pollution and the promotion of renewable sources of energy. More recently NGOs have begun to play an important intermediary role in South Africa, supporting government where capacity gaps are evident, providing an important link in the science-policy interface and promoting private-public partnerships around environmental issues. Examples of environmental NGOs include: The Wildlife and Environmental Society of

Southern Africa; the Endangered Wildlife Trust; The Botanical Society of South Africa; the Environmental Justice Network and WWF-SA, among many others.

124. Civil society is increasingly becoming involved in issues related to environmental management and, in the last decade or so, environmental information has been more widely available to the public (DEAT, 2006). Although substantial public participation has occurred in the development of environmental policy, participation in processes for decision-making and implementation have been less extensive. There are particular groups, including the poor, disadvantaged and rural communities, which are constrained in their participation due to insufficient access to transport, information and communication technologies.

125. There are several organisations and initiatives that coordinate civil society involvement in environmental issues, including the South African National NGO Coalition (SANGOCO) and South Africa's Sustainability Watch (SusWatch). The is a national network of civil society organisations, including CBOs, NGOs, faith-based organisations, trade unions, women groups, youth groups and children's organisations (<http://www.suswatch.org/safrica/>, accessed 29/04/09). SusWatch works on issues related, for example, to water justice, trade and environmental governance, food security, biodiversity and energy.

126. Business The participation of the business sector in environmental management and decision-making is generally included in the discussion pertaining to civil society above. However, there are a number of significant sustainability initiatives that relate particularly to corporate environmental governance including, for example, the following:

- The King Committee on Corporate Governance Report (2002) that contains a code for the highest standards of corporate conduct in South Africa (DEAT, 2006). These standards include a 'triple bottom' line approach to a company's business that considers its social, economic and environmental dimensions. Non-financial reporting is included as a criterion of good governance (DEAT, 2006).
- The introduction of a Socially Responsible Investment Index (SRI) which assesses the performance of companies against 'triple bottom line' criteria, as well as governance issues. In 2008, 61 companies were listed on the SRI index (<http://www.jse.co.za/sri/>, accessed 29 April 2009).
- The participation of certain South African companies (in varying numbers) in international sustainability initiatives including, for example, the United Nations Global Compact, the Global Reporting Initiative and the Responsible Care Initiative (DEAT, 2006).

127. Despite these initiatives, there is still much progress to be made in ensuring sound corporate environmental governance. DEAT (2006:82) reports that "...few South African companies have been taken to task over poor environmental performance, and even fewer understand their full environmental 'footprint'".

LESOTHO

128. National Government: Key Ministries with mandates for environmental management are: Ministry of Tourism, Environment & Culture; Ministry of Natural Resources (Department of Water Affairs within this ministry); Ministry of Agriculture; Ministry of Local Government, and Ministry of Forestry & Land Reclamation. As with environmental legislation there are overlaps of responsibility. For example, until recently rangeland management fell under the purview of the Ministry of Agriculture. The Department of Livestock Services and its Rangeland Management Division (RMD) in the Ministry thus handled rangeland development and management issues under one administrative authority. Recently GoL reorganised government ministries and departments resulting in the RMD being moved to the new

Ministry of Forestry and Land Reclamation. This institutional arrangement splits the responsibilities for range management and livestock development. These responsibilities should ideally be housed under one Ministry for more effective coordination (Chapeyama, 1994). Ideally, the natural resource and environmental responsibilities of Ministry of Forestry and Land Reclamation, the Ministry of Natural Resources and the Ministry of Tourism, Environment and Culture would be merged into one Ministry in order to simplify administration and implementation (Turner 2005).

129. Local Government: Turner (2005) provides a good summary of the complex and changing environment of local governance in Lesotho. Officially, the indigenous system of local government by a hierarchy of chiefs answerable to the King has been complemented since the 1960s by various village, ward and district structures. District Councils were established in 1945 but closed down by the first independent government of Lesotho through the Local Government Repeal Act of 1968. Village Development Committees were introduced in the early 1970s and steadily took over more of the official functions of the chiefs, although the latter played a stronger role in the Village Development Councils that were established in 1986. These bodies continued to function until 2001 when they too were closed down. Through all this formal institutional evolution, the chiefs have retained much practical authority on the ground at community level, although their effectiveness has continued to vary greatly. Some have been respected and popular leaders. Others have been corrupt and incompetent, which in some cases has led government, using its powers under the Chieftainship Act 1968, to replace them with their wives.

130. The democratically elected governments in power since 1993 have expressed a commitment to more representative forms of local government, which led to the Local Government Act 1997. It was only in 2005 that the local authorities provided for by the legislation were established i.e. Community Councils, District Councils and a Municipal Council for Maseru. At least a third of the seats in each kind of Council are reserved for women. There are 128 Community Councils in the country, each divided into between nine and 15 electoral divisions. Each electoral division has elected a Councillor. The chiefs within each Community Council area choose two gazetted chiefs from among their number to join the elected representatives in the Council. Community Councils are expected to establish a number of Standing Committees, including for Planning; Land Allocation and Environment; and Technical Services.

131. The recent changes have resulted in a less local form of local government than rural communities had before Village Development Councils were closed down in 2001. Chiefs retain certain functions under the Chieftainship Act 1968, but the formal authority for land allocation and administration, natural resource management and development planning at 'local' level has passed to the Community Councils, each of which covers a far larger area than the original Village Development Councils. In many places, chiefs may continue to play a liaison role that extends beyond their formally legislated functions.

132. District Councils (DC) are consist of the chairperson and one other elected member of the Community Council. Two gazetted chiefs, who could in theory include Principal Chiefs, are chosen by the chiefs in the Community Council areas to sit on the DC. The functions of DCs include "control of natural resources", "land/site allocation" and "grazing control", as well as physical planning, water resources, agriculture and forestry. Community Councils, too, are charged with "control of natural resources", "land/site allocation" and "grazing control". Exclusion of cattle post areas from District Councils' jurisdiction can be inferred from the wording of the Local Government (Declaration of Councils) Notice No. 202 of 2004, which sets out the boundaries of the new local authorities. This follows the curious usage of the LGA in declaring areas to be Councils. It declares the District Councils to consist of the areas

declared as Community Councils in their respective districts. This implies that the Cattle Post Areas (highlands) do not fall under District Council jurisdiction.

133. In summary, the traditional chieftainship institution has been weakened, while the formal institutions set-up to take their place have been beset by problems of legitimacy (Bisaro, Undated).

134. *Civil Society*: There are few civil society organisations in Lesotho with a biodiversity focus, but there are some useful partners within civil society, including the Lesotho Biodiversity Trust (LBT), Quthing Wildlife Development Trust, and Endangered Wildlife Trust Birds of Prey Working Group.

135. Lesotho Biodiversity Trust was established by the LHDA in 2002 for the purpose of undertaking conservation, research and monitoring of the Maloti Minnow (*Pseudobarbus quathlambae*) in Lesotho, this linked to mitigation required in terms of the Environmental Action Plan. The Trust would have as its further objectives the training of biodiversity scientists for the benefit of this and other threatened species in Lesotho, as well as making interventions for endangered plants and animals as necessary in the future. The Trust was provided with M8 Million by the LHDA for this purpose.

<http://www.lhwp.org.ls/Reports/PDF/biodiversity%20trust%20launch.pdf>

136. The Quthing Wildlife Development Trust (QWDT) was registered in 2000 after having been founded in 1988 as the Wildlife Society of Lesotho. It has a reported membership of 1300 people. It is the aim of the trust to conserve the biological diversity of the Quthing District of Lesotho, and to foster the sustainable use of the environment with special regards to eco-tourism. QWDT has successfully implemented running eco-tourism projects in four locations in the Quthing District.

137. Run out of South Africa but with a southern African focus, Endangered Wildlife Trust Birds of Prey Working Group has, in partnership with EKZNW, been working on vulture conservation and monitoring initiatives in Lesotho for the last 5 years. The focus is expanding to other raptor species, and will therefore increasingly be focusing on issues of land management.

138. *Business*: Given the small size of the mining and manufacturing sector in Lesotho, there are relatively few opportunities for local business to pay for ecosystem services. However, in neighbouring South Africa with the largest economy in Africa companies are increasingly looking for opportunities for Corporate Social Responsibility investments or triple bottom line reporting. Many mining companies have a social link to Lesotho because of the large migrant labour force that work on the mines. There is a growing market for carbon emission offsets in South Africa. South African businesses in Gauteng indirectly pay for catchment management through water tariffs paid to DEWA which in turn are channeled through the Trans Caledon Tunnel Authority to the GoL. The biggest potential buyers of carbon, if a trade could be established, would however still be international companies.

TRINIDAD AND TOBAGO

139. During the project's preparatory phase, the national executing agencies (The University of the West Indies, The Cropper Foundation and the Buccoo Reef Trust) began engaging a range of relevant stakeholders throughout Trinidad and Tobago including public agencies, research institutions, non-governmental organisations (NGOs) and a range of communities and community-based organisations (CBOs) throughout the country.

140. Two stakeholder consultations – one in Trinidad and the other in Tobago - were held and were geared at receiving feedback on stakeholder interest, project scope, and

commitment of stakeholders to become involved in the project. Both consultations, as well as follow-up discussions with individual stakeholders, indicated wide stakeholder interest and were important for fine-tuning the project scope and gaining commitment for tasks. A list of the main stakeholders' involved or expressing interest in participating in the project are given below.

Box 2: Main potential T&T Stakeholders involved in the Project

Regional Organisation

- The Association of Caribbean States (ACS)

Public Agencies

- Ministry of Planning, Housing and the Environment (MPH&E)
 - o Green Fund Unit
- Tobago House of Assembly (THA)
 - o Department of Natural Resources and the Environment (DNRE)
- Environmental Management Authority (EMA)
- Ministry of Agriculture, Land and Marine Resources
 - o Fisheries Division
 - o Forestry Division
 - o The National Herbarium

Research Institutions

- The University of the West Indies (UWI)
 - o Department of Economics
 - o Sustainable Economic Development Unit (SEDU)
 - o Department of Life Sciences
 - o The National Herbarium
- The Institute of Marine Affairs (IMA)
- The University of Trinidad and Tobago (UTT)
- Department of Plant Sciences, The University of Oxford

National NGOs

- The Cropper Foundation (TCF)
- Buccoo Reef Trust (BRT)
- Caribbean Natural Resources Institute (CANARI)
- Environment Tobago
- Point-a-Pierre Wild Fowl Trust
- Trust for Sustainable Livelihoods

141. No one institution, agency or organisation in Trinidad and Tobago has the expertise to deliver on all components of the project, and there is therefore need for collaboration and partnership for undertaking the work. The logframe with main project partners/collaborating organisations assigned to various tasks under the project is given in Appendix 16.

142. There is a special interest for this project, which has been expressed by the Green Fund Unit of the Ministry of Planning, Housing and the Environment. This project offers an opportunity to pilot test a national-level model for Payment for Ecosystem Services (PES), which would ultimately help to inform how funding disbursed by the Green Fund scheme may be prioritised and allocated so that there is a long-term, multiplier effect within the country. In this regard, the Green Fund mobilised its resources for a project to restore the Nariva swamp which at the same time will support the proposed ProEcoServ project in the same area, and its eventual expansion to other sites.

143. It has often been noted that in national studies and data collection frameworks, Trinidad receives a disproportionately high level of attention and priority when compared with Tobago. Discussions held with the Chief Secretary of the Tobago House of Assembly (THA)

have indicated a high level of interest in the project because of the opportunity to deepen the understanding of Tobago's natural systems and the management measures required to sustain them.

144. Many of the stakeholder groups so far engaged in the project were involved in the two MA sub-global assessments (SGAs) undertaken in Trinidad and led by The University of the West Indies and The Cropper Foundation (the Northern Range Assessment and the Caribbean Sea Assessment). There are therefore already-established networks within Trinidad and Tobago and throughout the Caribbean region, which provide a sound basis for the partnerships and collaboration required for undertaking the project.

145. In addition to national-level interest for the project, the Association of Caribbean States (ACS)⁶ has indicated a high level of interest in the project. It has articulated that it would be willing to work with the Caribbean Community (CARICOM) Secretariat and other intergovernmental bodies in the region to help expand the project beyond Trinidad and Tobago so that lessons and experiences are not only shared throughout the Latin America and Caribbean Region (especially the small island developing states of the Caribbean), but might also be fed up to larger international processes such as within the European Union and other interest groups.

146. Within the wider stakeholder group, there is already evidence of a cross section of related projects and activities. These activities would certainly complement the current project and in some cases offer opportunities for co-financing. In addition, it has also been recognised that the current project would serve as an opportunity to streamline and bring together many of the initiatives already on the ground. Some of the existing initiatives include:

- The Cropper Foundation (TCF) and The University of the West Indies (UWI) were the lead organisations for both the Northern Range and Caribbean Sea Assessment. Together, TCF and UWI have been coordinating or have been heavily involved in initiatives which are geared at following up on these two MA SGAs
- The Environmental Management Authority (EMA) and the University of the West Indies have already initiated a project in the Nariva swamp area in Trinidad which focuses on mapping greenhouse gases and reforestation efforts. Under this project, the EMA recently received project funding from the Green Fund for the reforestation efforts in the Nariva swamp, and this will serve as a first step in the analysis and development of a model for PES in Trinidad and Tobago.
- The Sustainable Economic Development Unit (SEDU) and the Caribbean Natural Resources Institute (CANARI) have completed studies on Payment for Ecosystem Services (PES) throughout the Caribbean region
- The University of the West Indies, through the Herbarium and in collaboration with the University of Oxford has undertaken a full floristic study of Trinidad and Tobago
- The Institute of Marine Affairs (in collaboration with UNEP) and The Cropper Foundation have initiated work within key Northern Range watersheds, and these would serve to provide technical inputs into the project
- The Buccoo Reef Trust (BRT) has for several years been undertaking work on the Buccoo Reef of Tobago. Along with the Tobago House of Assembly, the BRT has been leading one of the demonstration projects under the GEF-Integrating Watershed and Coastal Area Management (GEF-IWCAM) initiative in Tobago.

⁶ The ACS is an intergovernmental body comprised of twenty five member states and three associate members from the Latin America and the Caribbean (LAC) which seeks to strengthen regional cooperation and integration. The ACS has a special interest in preserving the integrity of the Caribbean Sea, and has established a Caribbean Sea Commission for this purpose.

147. A general classification of the main actors involved in the project is given as follows:
- Public agencies: The main public agencies so far included in the project are the Ministry of Planning, Housing and the Environment, the Ministry of Agriculture, Land and Marine Resources, and the Environmental Management Authority in Trinidad, as well as the Tobago House of Assembly along with its Department of Natural Resources and the Environment (DNRE). These agencies are directly responsible for drafting and overseeing the implementation of environmental policies and legislation in the country. However, it has been recognised that successful completion and implementation of this project will depend on the involvement of other public agencies such as local and regional corporations, the Ministry of Community Development, the Ministry of Local Government, the Ministry of Finance, the Ministry of Tourism, and the Ministry of Education.
 - Research Institutions: The University of the West Indies will serve as the lead institution in the project. However, the project will provide an opportunity for research institutions throughout the country to pool their resources and expertise towards the development of decision-making support tools and information, thereby helping to bridge the gap between research and policy/decision making.
 - National NGOs: There are a number of environmental NGOs throughout Trinidad and Tobago involved in a range of research projects and on-the-ground activities geared at improving the management of ecosystems and the livelihoods of communities. This project will draw on the experience and networks of these organisations to bring together the skills and expertise necessary for successful project implementation. In addition, it is hoped that the current project will spawn spin-off initiatives, which might then be lead, by these NGOs in due course.
 - Communities and CBOs: There are several communities throughout Trinidad and Tobago which directly use and/or are directly affected by ecosystem services. In some cases, communities derive subsistence livelihoods from their natural environment - for example turtle watching tours in north-eastern Trinidad, fishing villages in coastal areas, subsistence farmers in the watersheds of the Northern Range etc. What has become evident however, is that many of these communities (many of which are rural and can be classified by national standards as poor) are affected by the degradation of ecosystem services either on account of their own actions, or by the actions of others. This project proposes to work with such communities to assist in the restoration/protection of the ecosystem services which will ultimately secure and sustain their livelihoods.
 - Intergovernmental bodies within the Caribbean/Latin American Region: Organisations such as the Association of Caribbean States (ACS), the CARICOM Secretariat, the Organisation of Eastern Caribbean States (OECS), the UNEP Regional Office for Latin America and the Caribbean (UNEP ROLAC) and the United Nations Economic Commission for Latin America and the Caribbean (UNECLAC) are all in some way involved in environment/sustainable development activities throughout the Caribbean Region. They therefore serve as channels for the expansion of the current project to other countries throughout the Region, especially the Small Island Developing States

VIET NAM

148. During the project preparation phase, stakeholder consultations were conducted. Starting point for the stakeholder mapping and analysis was the existing legislative framework regulating the roles and responsibility of state government on wetland management in general and the environmental service in particular. In addition, a number of research institutions and NGOs are also working in this field.

149. National government

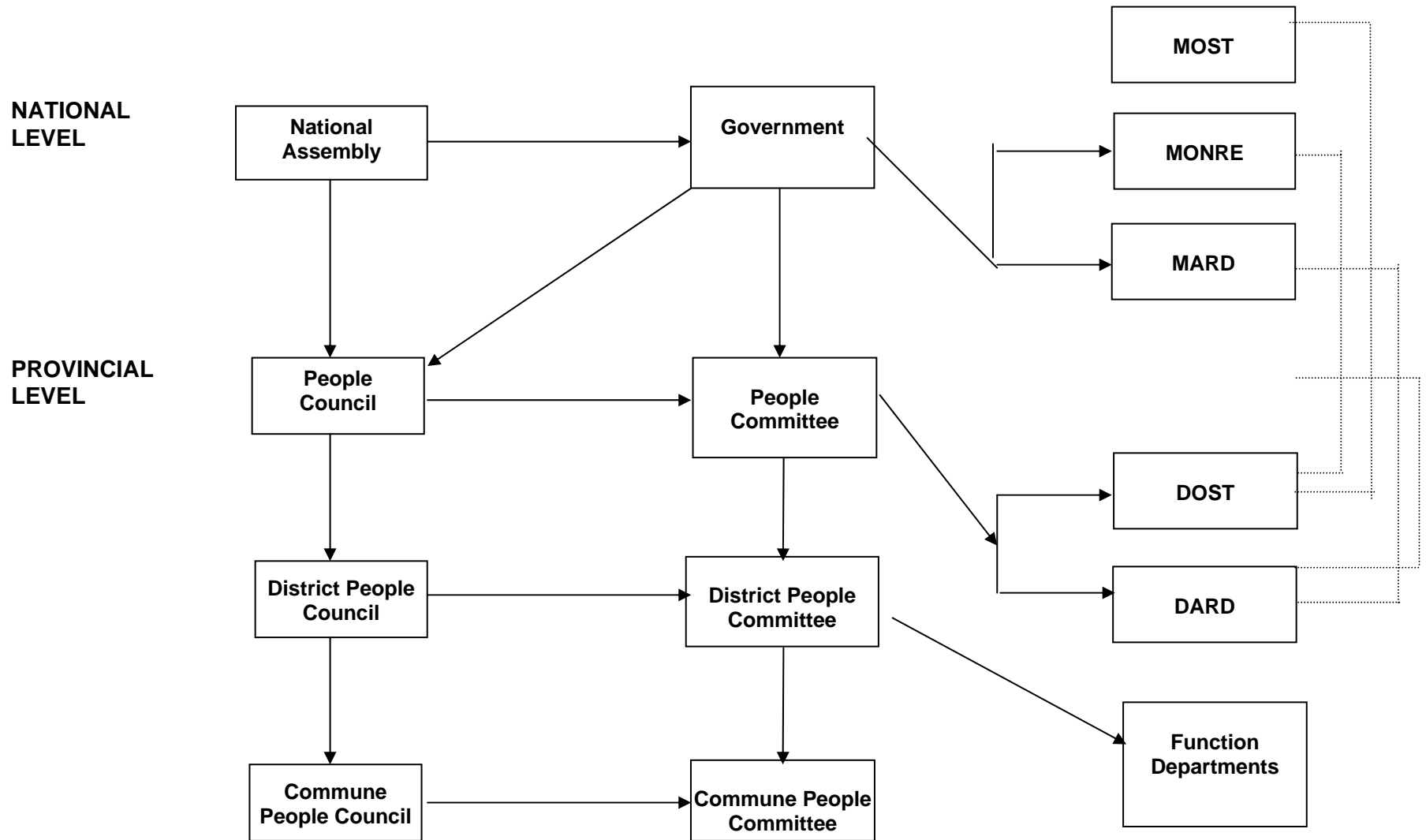
- *Ministry of Natural Resources and Environment (MONRE)* resumes the function of state management on the conservation and sustainable development of wetlands
- *Ministry of Agriculture and Rural Development (MARD)* provides technical support for specific wetlands under the management of MARD, as defined in Decree 109.
- *General Department of Tourism (GDT)* is a state agency in charge of tourism activities in the country (Degree 20/CP on 27/12/1992). As eco tourism is increasing, wetlands attract a growing number of tourists and visitors. In order to rationally explore and use wetlands, state management from the GDT is required and the collaboration between MARD and GDT creates an opportunity to develop an appropriate policy for the management of this resource.
- *Ministry of Planning and Investment (MPI)*: the Law on Environment Protection 2005 defines the MPI as a leading agency in collaboration with different ministries, ministerial level government agencies and people's committee of the provinces to ensure that environmental protection is incorporated in strategies, master plans and socio-economic development plans of the country, region, as well as important projects approved by the National Assembly, Government, and Prime Minister. The MPI is having rights and duties as a standing agency to assess investment projects conducted in and outside of the country; it is an agency in coordinating the management and use of ODA; and it collaborates with MOF in defining the expenses and income plan of state allocations to ministries, same-level agencies and localities for approval from the Government.
- *Ministry of Finance (MOF)* has the function to unite state management on finance, accounting, and state budget issues (Degree 178/CP date 28/10/1994). It guides, among others, ministries and provincial people committees to set up an annual state budget forecast; combined with the MPI to set up finance plans, socio-economic development plans, and annual basic construction plans; it is tasked to unite management and guide taxes, collect fees and organise other collections of state budget; or to lead the distribution of state budget expenses, or basic construction investment capital and loans. MOF and MPI are therefore agencies assessing investment plans, including budgets to develop wetlands.

150. Local government. According to the law on the organisation of People's Council and People's Committees, the People's Council is the agency of state authority that arranges administrative divisions at three levels: provinces, districts and communes; the People's Committee is the executive agency of the People's Council.

- *The people's committee of provinces*: These people's committees manages reserve areas of wetlands, according to degree 109/2003/NĐ-CP
- *Department of Natural Resources and Environment (DONRE)*: Degree 109/2003/NĐ-CP defines that DONREs of provinces and cities directly under the central government preside at investigations and research for wetland areas out of range of provision 1 and provision 2 of the respective article (Article 9); they preside at and submit for ratification the establishment of reserve projects and sustainable exploitation for wetland areas, as defined in provision 3 article 9 and Article 11. Moreover, DONREs have the function to assess projects, land usage for projects, projects investigating reserve areas of wetlands; they set procedures of land registry, forestry land allotment and grant certification of rights using forestry land, or for the management of special forest and wetland. The land survey department focuses on general land management and forestry land management, usually in consort with the forest management branch.

- *Department of Agriculture and Rural Development (DARD)* is the local agency tasked to support provinces' people's committee in state management on agriculture and rural development areas, including the task to manage, protect and develop forests in wetland reserve areas at provincial level.
 - *Department of Planning and Investment (DPI)* in collaboration with *Department of Finance (DOF)* assess investment projects for wetland areas at provincial level and allocate the budget for usual activities in wetland areas.
151. Research Institutes/Universities
- *Ha Noi National University*: The University has participated in research and studies, including a study on ecosystem valuation.
 - *Institute of Geography, Vietnamese Academy of Science and Technology*: The Institute has experience on GIS mapping and was involved in phase I of the Vietnamese SGA.
152. NGOs
- *IUCN*: The IUCN has experiences in the valuation of wetlands and will provide valuable expertise for the project.
 - *WWF* has participated in projects on wetland management and wetland valuation and can provide expertise in this area
153. In addition to influencing the project's strategic approach and its individual components, the comprehensive stakeholder analysis, together with the baseline and gap analysis (see below) provide a layout of the current situation for wetland management in Viet Nam and identify key challenges that need to be addressed in order to facilitate the implementation of a comprehensive ecosystem services and ecosystem management approach.

Figure 1: State Management of Wetlands in Viet Nam



2.6. Baseline analysis and gaps

CHILE

154. The Chilean baseline analysis was informed by workshops and interviews with key informants, many of whom formed part of the advisory committee in the first phase of the assessment. These key informants provided their opinions on the extent to which the results of the previous assessment were used, the strengths and weaknesses of the assessment process itself, and provided suggestions for a second phase based on their understanding of other initiatives that are currently underway.

155. A first observation that can be made regarding the use of the information gathered and synthesised during the SGA is that while the majority of the stakeholder institutions are familiar with the results, or at least are aware of the existence of the reports, the majority of them have not used the results of the study for decision making (Table 2). The exception is the regional state forestry department (CONAF), where the results have been used to inform decision making regarding environmental impact assessments. Other exceptions were the museum, where the information has been used in scientific publications, and the local municipality where the information has been used to inform decision making regarding water. Major obstacles in the use of the information by other stakeholders included either lack of knowledge about how to get hold of the reports, lack of expertise to understand the contents, or lack of interest since this was regarded as just another 'project'.

Table 2: Use of SGA outputs by different sectors

Stakeholder/sector	Use of results	What the results were used for
Private sector - tourism	No	
Private sector – mining	No	
Public services – indigenous development area	No, but inspired a workshops about natural resource management	
Public services – Forestry: CONAF	Yes	EIA decisions
Public services - Tourism: SERNATUR	No	
Research – Museum	Yes	Publications
Local municipality	Yes	Decision making regarding water allocation

156. Stakeholders identified a number of positive aspects of the first stage of the SGA, and these can be summarised as follows:

- The bringing together of all the different actors who had something to say and decide on the subject of ecosystem services in San Pedro de Atacama, and how well these various opinions were synthesised;
- The interaction that was generated between government departments and the community. This was the first time that there had been so many diverse actors seated around the same table;
- The development of research regarding the extraction and regulation of water resources;
- The development of a new understanding of the concept of 'ecosystems';
- The availability and analysis of information from different fields, especially the attempts to reach a balance between superficial and subterranean water in the study area, and use of future scenarios

157. However, stakeholders also identified a number of weaknesses during the first stage of the SGA. On the whole, these weaknesses highlight the need for the proposed second phase, and included:

- It was too academic and did not deal enough with people's 'experience' of life in the desert;
- Presumptions about what would be found through the creation of 'objectives' undermined a fuller understanding of human well-being;
- The lack of follow up and continuity in the study meant that not many people paid attention to the results;
- Concrete materials were not developed to help different actors make decisions;
- The project developed information relevant for decision makers, but not decision-support tools;
- There were not enough resources to support the participation of all actors;
- There were no funds to implement the findings;
- The law regarding the protection of the collective rights of Atacameños (and indeed of all indigenous populations in northern Chile) over water was not considered as fully as it should have been;
- There was a lack of participation of representatives of indigenous organisations;
- There was a lack of concrete actions aimed at tackling problems faced by indigenous communities.

158. Finally, Table 3 summarises the key themes that key stakeholders would like to see addressed during a follow up phase of the SGA, as well as key actions that should be taken as part of this process. Water is undeniably the key ecosystem service that tends to dominate discussions in San Pedro de Atacama. The second key theme that is raised time and time again is tourism, and its relationship with water, the landscape and the burgeoning mining industry.

Table 3: Suggested themes to be addressed in the second phase and specific actions toward achieving these

Key informant	Topics to be addressed	Actions to be taken
David Barrera. Atacameñan Businessman Owner of the Terrantai Hotel	- Deeper understanding of the water situation in the territory - What we understand by human well-being (western view point/indigenous viewpoint)	Work directly with local inhabitants and authorities based on the conclusions reached in first study
Carlos Sáez Operational manager of Sociedad Chilena del Lito	Regulation of water use	Effective tools to regulate the use of water and land resources
Aldo Barrales ADI representative CONADI	Tourism (the resilience and vulnerability of ecosystems with regard tourism)	d visits, capacity building for monitoring etc
Eduardo Rodríguez Regional Director CONAF II	The implications of the recognition of the rights of indigenous communities	- Discussion about the Territorial code/law - Put information on the table to help decision making in the dichotomy associated with development-conservation - General capacity building
Gustavo Herrera Soto. Regional Director	- Water - Ethnology, e.g. loss of cultural values.	What the territorial and management code means for sites visited by tourists

SERNATUR II Ismael Aracena Department of the environment. SQM	- Tourism Socio-demographics	Formulate a decision making tool for everyday use
René Huerta Head of projects, Archaeology Museum of San Pedro de Atacama	- Climate change - Desertification - Recharge of the salar - The generic impacts of mining (e.g. on water, air, socially e.g. indigenous poverty, migration, hygiene, collective rights etc	- Create a permanent working group - A moratorium on extraction rights for subterranean water This work should be conducted at the catchment scale, and include the regional government
Juan Sota. Environmental activist and ex councillor	- Water availability - Co-existence of mining and tourism - Mining and culture - Management of existing natural resources	- Study the availability of water as authorised and recognised by different actors (e.g. the state, mining, communities) - Study the carrying capacity/fragility of ecosystems
Justo Zuleta Santander Regional coordinator of the Orígenes Program – CONADI. Town Councillor	-The responsible use of superficial and subterranean water in San Pedro de Atacama -Predictive models that help to protect the natural resources of San Pedro De Atacama	- Open an office of Qapac-Ñan (Camino del Inca) in San Pedro de Atacama - - Open an office of TIE (Special Interest Tourism) San Pedro de Atacama

Table 4: Activities and initiatives currently underway in San Pedro De Atacama

Activity/ initiatives	Objective	Scale	Synergy or overlap with ProEcoServ
Water Working Group (including various public services departments, including CONADI, DGA, CONAMA, CONAF etc)	Initiate proposals and programmes, act as an advisory group	Regional	Synergy
Tourism Working Group: Directorio Destination Atacama Desert (including various public services departments and tourism operators)	Support and promote specialist tourism (e.g. archaeology, astronomy, biodiversity etc)	Regional	Synergy
Study of biodiversity in the Suri community (SAG)	Identify endemic species	Local	Synergy
Installation of rain gauge stations (SAG)	Measure rainfall	Regional	Synergy
Characterisation of 'humedales' (SAG)	Identify key characteristics of 'humedales'	Regional	Synergy
Reformulation of the Regulation Plan for San Pedro (Municipality and SAG)	To identify areas for future urban growth in San Pedro	Local	Synergy

SOUTH AFRICA AND LESOTHO

159. Ecosystem service research, development and implementation projects have in the last ten years received growing attention, both internationally and in Southern Africa. Reviewing past Southern African projects shows these to have a broad range of objectives, disciplinary interests, a diverse focus and a range of scales (Table 3). Current areas of understanding and progress are noted in this section, as well as existing gaps to identify the focus and study sites for this project.

160. *Policy support tools*: In determining the baseline and gaps for policy support tools (Tables 2 and 3, Appendix 16) reveal that there is generally good data (some of it spatial) for many provisioning services, with some data on the regulatory services of water flows and water supply. The many conservation planning projects in the region have made good spatial data on biodiversity available. This highlights the opportunities provided by good data and models for components of water services, agriculture related services and biodiversity, while virtually all other services have either been modeled at a global scale or been developed using simple formulae. Data on supply response functions and trade off relationships are largely missing. Current databases are comparatively good at an international level, and provide an excellent launch pad for future ecosystem service studies that are capable of filling the gaps described below.

161. Valuation studies have focused on provisioning services, primarily goods harvested from natural ecosystems (e.g. Turpie et al. 2003; Bohensky et al. 2006), in woodland and forest environments (e.g. Shackleton & Shacklton 2004; Shackleton & Shacklton 2006). There have been many assessments of the value of particular products from natural ecosystems which are used by rural communities in the savanna, thicket and forest biomes in the eastern parts of the country (Shackleton & Shacklton 2004; Blignaut & Hassan 2004), including cultural values associated with natural products (Cocks & Wiersum 2003; Cocks 2006). Fuelwood, fibre, foodstuffs, wild flowers, medicinal plants and pharmaceutical products have all received some attention. Water services, vulnerable to woody plant invaders that reduce water volume at a national scale have most attention. The situation in Lesotho is very similar to South Africa with very few service valuation exercises completed. However, the Lesotho Highlands Water Project, which has an undeniably profound impact on Lesotho's economy, has been valued and assessed for the contributions it makes to the GDP. In Lesotho data on the qualitative values of some wetlands are available (Macfarlane and Teixeira-Leite, 2009). In general ecosystem service valuations have been made in a variety of ways and presented in a range of units so that direct comparisons are not possible. The fragmented nature of existing ecosystem service data and values, the gaps in the spatially explicit valuation of regulating services (arguably the most valuable services), and the format in which these data are available has prevented their integration into decision making processes. No data has been translated into guidelines on how to manage ecosystems or how to develop other sectors within a sustainable development context, nor are their indicators and rapid assessment techniques available for use by decision makers in monitoring ecosystem services.

162. In reviewing existing policy and decision support tools there are important opportunities offered by the IDP and SDF process at the local scale, as well as the CMA process at the catchment scale. Of all the instruments reviewed it appears that these incorporate all the principles, legal context and mandate necessary to mainstream ecosystem services and biodiversity into decision making. The strengths of the IDP process and its related SDF, as well as the CMA process are that they are designed to integrate all sectors involved in land, water and resource use, they are located at the scale of decision

making (municipality or catchment) and are where the region's development plans are implemented. Many of the other instruments are focused on a single sector, applied at too broad a scale and are not actually the place where national values and plans become implemented (Reyers et al. 2008). However many barriers including capacity and data constraints, weak co-governance and the gap between science and decision making has limited the IDP and CMA processes. This project will review, support and enhance these processes by developing and providing better data in a more user useful and friendly format, by training decision makers in data and tool use and by developing and integrating new decision support systems and tools into these existing processes.

163. Although these and other instruments present many opportunities to mainstream ecosystem services and biodiversity into decision making, they are based on a static and predictable view of the world. Their need for data of a high certainty, their static nature and their ignorance of the concepts of resilience represent substantial constraints to their ability to cope with surprises, shocks and non-linear change. These shortcomings are critical considering that these kinds of change and shocks are likely to become more frequent with changing climates, economies and politics. The use of scenario planning in SAfMA (Bohensky et al. 2006) appeared to offer a potential tool to communicate and cope with uncertainty and risk, and is a tool that this project will explore further.

164. A final gap identified in the baseline assessment is the gap between scientists and stakeholders. The majority of ecosystem service projects in the region has been conducted by natural scientists and has excluded social assessments and analyses about how people benefit or suffer losses relating to services. Furthermore, very few of these projects have included decision makers and other stakeholders reliant on and / or responsible for ecosystem management. The design and execution of this project must bridge this gap and will be based on a framework for mainstreaming ecosystem services developed by Cowling et al. (2008) which recommends a socially engaged process of scientists and stakeholders aimed at empowering stakeholders to implement effective on-the-ground management that will achieve resilience of the corresponding systems.

165. This project builds on the Southern African Millennium Ecosystem Assessment (SAfMA) (Jaarsveld et al. 2005; Biggs et al. 2004; Scholes & Biggs 2004) especially the Gariiep Basin Assessment (Bohensky et al. 2004) and the lessons learnt during these projects. SAfMA succeeded in raising the profile of the need for sustainable biodiversity and ecosystem management in the region and helped to lessen the divide between conservation and development, illustrating that social and economic development depends on judicious management of ecosystem services. It played a pivotal role in highlighting the perilous state of the region's water resources and the opportunities and challenges associated with current water governance arrangements. However, in a similar fashion to the global Millennium Ecosystem Assessment, there is currently little evidence that SAfMA has had a direct impact on policy development and decision making in the region.

166. The projects inability to address the gap between science and policy can be attributed to many of the gaps outlined above the chief gaps being:

- Knowledge gaps that were not addressed especially those around supply response functions, trade offs and vulnerability to change, especially of regulating services;
- A limited focus on tools and approaches to include ecosystem services into policy and decision making;
- The mismatch between the focus of the study areas (mostly biophysical units) and administrative units where policy and decisions are made;
- Limited engagement with stakeholders, especially at the local scale where most land and resource use decisions are made; and

- The fact that the work did not continue beyond the production of reports to tools, information packs, training courses or policy engagement.

167. Subsequent to SAfMA it became clear that if ecosystem research and development is aimed at ensuring the sustainable management of the region's biodiversity and ecosystem services, then it must be embedded in a social process involving policy and decision makers in order to develop information, knowledge and tools to be mainstreamed into decision and policy making. This is the process proposed for adoption in this project. The project design comprises two existing projects which are beginning to address many of these above gaps and present useful opportunities to advance knowledge and application and as such will form pilot studies in this project.

168. The first of these projects is the National Grassland Program (www.grasslands.org.za) which aims to sustain and secure the rich biodiversity of the grasslands biome for current and future generations. This program provides many opportunities crucial to the success of this project in that it:

- Focuses on the grasslands biome of South Africa and Lesotho which:
 - Is one of the most threatened biomes in the world;
 - Is the generator of most of the region's water;
 - Has several CMAs in development who will need the information and tools developed in this project; and
 - Is the scale at which catchment management decisions take place.
- Involves stakeholders from government, the private sector and civil society.
- Has institutional structures in place.
- Has collated considerable data on biodiversity and has begun to focus on ecosystem services.
- Has investigated components of PES for parts of the region.

169. It furthermore represents a challenging policy context of 2 countries (and 5 provinces) jointly managing water services. This situation of joint management is typical of many ecosystem services which span human borders, and thus learning from this project, where this joint management is in an advanced stage, will be integral to global ecosystem management. By using the catchments of South Africa and Lesotho's grasslands to develop and pilot policy support tools for mainstreaming ecosystem services into catchment management, this project will benefit from the momentum of the existing program which will in turn benefit from the additional value added on ecosystem services.

170. The second project area is the Eden District Municipality (EDM), a semi-arid municipality at the intersection of all 3 of Southern Africa's global biodiversity hotspots. This area presents many opportunities to the project because:

- It is the location of the Gouritz Initiative (GI) which was set up in 2003 in order to coordinate strategies, facilitate co-governance, build capacity via mutual learning, and accommodate the needs of a diverse array of stakeholders. Its mission is to: *...take ownership of the sustainable utilisation of the unique biodiversity of the area by ensuring global recognition through partnerships, continuous awareness and responsible decision making for the benefit of all people, now and in the future.* The GI is coordinated by a Steering Committee with representation from all key partners including government departments, landowners, non-governmental organisations and municipalities. There is also a Gouritz Initiative Forum in which a larger number of stakeholders (including land owners, business representatives) and scientists meet and discuss issues of concern.

- Under the auspices of the GI, the Little Karoo Study Group was established to undertake research identified as important by the GI Forum. This study group comprises eight research institutions and five implementing agencies collaborating on research projects to support and promote sustainable development and the wise use of ecosystem services in the Little Karoo and has produced much research and data to date (Vlok et al. 2005, Le Maitre et al. 2007, O' Farrell et al. 2008, Reyers et al. 2009; Thompson et al. In Press; Table 3).
- It represents the scale of decision making in the region.
- It has recently published an IDP for the area which highlights concerns around the increase in the extent and intensity of degradation of the land by increased livestock (particularly ostrich) numbers, concerns about flood damage, problems regarding water security and intentions to mine fossil water, and the increasing importance of tourism as an economic sector. (EDM 2008).
- The IDP however is not informed by the data available, nor does it include strategies and tools to approach these environmental problems.
- It is represented by an incomplete and inadequate SDF which does not consider the environment or ecosystem services.
- It has been the site for the first study on resilience and management in the region (O' Farrell et al. 2008).
- The GI forum is contemplating a scenario planning exercise in an attempt to take the IDP forward in a way that considers sustainability and resilience.

171. These opportunities combine to make this an ideal area to pilot policy support tools for decision making and scenario planning to be developed in the project. This will provide the ideal site to test tools for local scale development planning. It is also an extremely vulnerable area to global change, with recent storm damage and drought costs, due to its semi-arid nature and the declines in the local economy.

172. *Policy environment:* South Africa is fortunate in that democracy in 1994 brought with it a constitution based on equity (both environmental and social), as well as innovative policies in natural resource management and equitable access to resources. Recent studies have shown the potential effects of these policies (especially water management policies) and how they can contribute to sustained yields of the benefits from water-related ecosystem services (e.g. Jewitt 2002; Rockström et al. 2004; Sengo et al. 2005). This baseline review highlights the opportunities provided by the National Biodiversity and Water Acts, as well as the National Framework on Sustainable Development, to the mainstreaming of ecosystem services into policy. However, as with the innovative decision making instruments discussed above, these policies have yet to realise their potential and to change the way the ecosystems and biodiversity are managed in the region. One of the largest constraints identified includes the continued perceived divide between socioeconomic development and sustainable ecosystem management. Legacies of apartheid in both South Africa and Lesotho include pervasive poverty and unemployment, an increasing gap between the rich and the poor, and declines in wellbeing associated with HIV/AIDS, tuberculosis and water borne disease and have made social equity and wellbeing national priorities. However, this prioritisation of economic growth, job creation and poverty alleviation has come at a cost to environmental issues.

173. Environmental concerns have not only received less attention and resources, but the socioeconomic development pathways chosen have mostly focused on the extraction of renewable and non renewable resources through mining, agriculture (especially irrigated agriculture), urban development and grazing practices. In South Africa the governments development plan as articulated in the Accelerated and Shared Growth Initiative for South

Africa (AsgiSA) makes no reference to the environment, other than as a constraint to economic growth and has almost no overlap with the NFSD. Together with NEAF who are attempting to address this gap between these 2 national policies, a comprehensive review of the policy environment, progress and constraints, as well as strong collaboration with AsgiSA and will be an important focus of this project. In the context of this project the policy arrangements between Lesotho and South Africa will also be a key focus.

174. The challenge of the gap between science and policy in South Africa is receiving increased attention through the Department of Science and Technology's program on the Science Policy Gap which has produced draft guidelines and a hand book and will be a central component of this project.

175. Another important gap to mainstreaming ecosystem services into policy is that outside of the environmental sector there is very little awareness of the importance of the environment and its links to human wellbeing. The old perception of infinite natural resources and waste sinks, and the technological ability to avoid possible environmental constraints still persists at all levels of governance. In fact, during the stakeholder assessment less than 50% of the people interviewed had a clear understanding of ecosystem services. Awareness and capacity raising are thus key intervention points required in this project.

176. Outside of the public policy environment, the baseline review highlighted three other programs which may offer sound opportunities to mainstreaming ecosystem services into other instruments. The first are public funded poverty relief programs of Working for Water, Working for Wetlands and Working for Woodlands. These programs currently use poverty alleviation funding to employ the poor to clear alien invasive plants, restore wetlands and plant trees and shrubs to restore woodlands. These programs hold immense public appeal as a mechanism to align conservation and development objectives. However, reviews of these programs highlight weaknesses in several of their ecological and social objectives and have requested support to address these weaknesses, to upscale these projects and to ensure their sustainability. These needs include better data and information on ecosystems and their services, an investigation of links to PES programs for private funding and a focus on equity in the distribution of the benefits from these programs to the marginalised and the poor.

177. The second group of programs are the public-private partnerships currently being pioneered by WWF-SA (a project member) to develop water trading schemes selling water credits to water intensive industries and using this funding to strengthen incentives for ecosystem management, alien clearing, land restoration and changing land use practices. This program has seen a lot of private sector interest, but currently does not have the resources, information or tools to upscale the program from one or 2 current schemes focused on alien invasive plant clearing.

178. The third opportunity is offered by broad public and private interest in payments for ecosystem service schemes. There is currently no national scale program on ecosystem services, or indeed a program linking ecosystem services and decision or policy making in South Africa. This has been identified as a key gap in existing sub-national programs. In Lesotho there is poor appreciation of the concept and potential for valuing and trading in ecosystem services. Even in the case of the LHWP there is no direct mechanism for payment of royalties for improved catchment management. However, as identified for South Africa by Blignaut et. al (2008), it appears that all of the essential ingredients to make the trade in water services are in place; the challenge is how to connect the discrete links of the trade chain into a functional and integrated trade system across international boundaries, government, the private sector, and with the added challenge of implementing this in

economically undeveloped rural communities and in a country with a complex legal, social, political and administrative environment, and where corruption could threaten implementation (World Bank Operations Evaluation Department, 2001). Recently, the need to capitalise on the potential for engaging with the trade in ecosystem services has been recognised (MDTP, 2008). At the moment however gaps in knowledge, institutional and management arrangements have prevented these schemes from realising their potential.

179. A final gap identified in this baseline study is around the implementation of CMAs and their water allocation process in South Africa. While a world leading innovation in terms of its recognition of an environmental and human reserve, knowledge on the supply response function of water ecosystem services, the size of the ecological reserve per catchment and the ecological requirements to provide that reserve is currently limited. The implementation of CMAs and their water allocation processes will require this information to determine the amount of water available for allocation, as well as the conservation and restoration activities required in some catchments to meet the “reserve” for basic human and ecosystem needs.

TRINIDAD AND TOBAGO

180. Existing studies show the considerable potential value of ecosystem services in the Caribbean Sea marine and coastal area. For example, a World Resources Institute (WRI) led study has valued Caribbean coral reefs at between 3.1-4.6 billion USD per annum. Among the services valued was the erosion protection regulating service, which was estimated at 0.7-2.2 billion USD per annum (Burke and Maidens, 2004).

181. The existence of a Green Fund in Trinidad and Tobago to provide resources to organisations and community groups for reforestation, remediation and conservation activities, presents an opportunity to support a payment for ecosystem services system. The tax of 0.1% of the gross sales and receipts of companies carrying on business in Trinidad and Tobago generated an average receipt to the Green Fund of 200 million TTD (33 million USD) per annum over the period 2001-2008. As at March 31, 2009, the Fund totalled approx. 1.6 billion TTD (265 million USD).

182. Despite the enormous potential for developing a social-ecological system that values biodiversity and ecosystem services and develops market-based mechanisms to change behaviour, there are significant gaps in knowledge and tools that the project seeks to address. In an innovative study looking at payments for watershed services in several Caribbean small island developing states, McIntosh and Leotaud (2008) have identified several key constraints of universal applicability to the implementation of similar payments for ecosystem services schemes. These are:

- Fragmented policy and institutional framework in which independently developed and often conflicting laws and incentives from different sectors militate against an integrated approach to watershed management;
- Informal land occupancy and/or lack of tenure security for key groups within the upper watershed, which complicates any formal contractual arrangements;
- Subsidised water pricing, particularly for certain economic sectors such as agriculture, and a resistance from both politicians and consumers to full cost pricing;
- Scarcity of willing downstream buyers on a scale that matches the extent of upstream remedial action required;
- High transaction costs relative to the small scale of the watersheds and the value of the services secured;
- Data gaps and, in many cases, insufficient human capacity within national institutions to identify critical problems for watershed services; design desirable land-use

interventions and quantify their hydrological impacts; conduct economic analyses to determine the potential of payment schemes to address the problems.

183. The project will address the gaps through by supporting the development of a payment for ecosystem services scheme through strengthening the policy process, legal framework, tool development and capacity development in NGO's, CBO's and official agencies.

184. Taking into account above-mentioned baseline and intervention areas prioritised by the collaborating organisations and stakeholders in Trinidad and Tobago, the project will focus a further set of activities with the aim to:

- 1) Support initiatives that a) promote the fair and equitable distribution of the benefits arising from biodiversity through a scheme for the purchase of ecosystem services by the state and possible private sector, and b) include within their management plans protocols that guarantee the conservation of ecosystems and the sustainable use of the products they may extract from them. These criteria will constitute preconditions for eligibility to receiving support;
- 2) Provide training on issues regarding management and quality for key actors and the adequate dissemination of information on products to promote a better management, using the criteria of conservation and sustainable use proposed by the CBD.

VIET NAM

185. *Decline in area and biodiversity in wetland ecosystem services, especially in Ca Mau province.* Large areas of mangrove in Ca Mau province have been destroyed due to near constant expansion of shrimp farming. It is estimated that mangrove cover in Ca Mau has dropped from over 200,000 ha prior to 1975 to 60,000 – 70,000 ha, and that almost all of this destruction has been due to shrimp aquaculture (EJF, 2003).

Loss in forest and biodiversity caused by shrimp expansion in Ca Mau	
• <i>Area of forest, destroyed for shrimp production in Ca Mau</i>	
Year	Area (ha)
1983	3,000
1988	28,701
1990	45,701
1991	47,480
1993	67,027
1995	76,036
1998	120,000
Over 120,000 ha of shrimp land, of which	
- Forested: 72,539 ha.	
- Pond edge area: 41,204 ha (50% is water surface and 50% is ground edge).	
- 25,000 ha of ground edge are impossible to afforest with mangrove species.	
• <i>Destruction of existent species:</i>	
- <i>Hunuitzera littorea</i>	
- <i>Scyphiphora hydrophyllacea</i>	
- <i>Aegiceras floridum</i>	
- <i>Instia bijuga</i>	
- <i>Avicenia lanata</i>	
- <i>Degradation of zooplankton and zoobenthos, fish. The quantity of bass fish, vernacular fish, shell, snail and clam is substantially reduced</i>	
• <i>Some rare species suffer risk of extinction:</i>	
- <i>Aegiceras floridum</i>	
- <i>Bruguiera gymnorrhiza</i>	
- <i>Heritiera littoralis</i>	
• <i>Decline of rare birds:</i>	
- <i>10 bird sanctuaries vanished</i>	
- <i>Some rare bird species are extinct such as Placanus onocrotalus, Ibis leucocephalus, Leptoptilos dabius</i>	
Source: Dang Trung Tan, 2001; Dang Cong Buu, Do Xuan Phuong-Minh Hai Centre for Mangrove Research, 1999	

186. Among the main ecosystem functions of mangrove forests are: to protect the coastal line, to buffer wave impact on the coast line, to prevent erosion and to protect banks. Another characteristic feature of mangrove forest is its high biodiversity and habitat of many aquatic species as their breeding ground. The transformation from natural mangrove forest to artificial shrimp ponds has substantially reduced the area of mangrove forest, a natural typical ecosystem of the estuary area, leading to the reduction in habitat area for newly born aquatic species that equally have high economic value.

187. The process of digging and damming up shrimp ponds in mangrove forest areas creates a salty accumulation on the surface which promotes alum land, as well as preventing water and nutrition exchange between forest ecosystem and outside environment, leading to the reduction of zooplankton and zoobenthos, finally causing the loss of habitat for various aquatic species in the mangrove forest. In the areas of transformation from freshwater rice-culture into salt-brackish shrimp aquaculture, there are changes in the biotic communities, leading to a re-allocation of an ecological tolerance range and food chain of many fauna and flora species. This considerably affected the aquatic ecosystem so that many valuable freshwater species disappeared. The terrestrial vegetation cover of specialised or monoculture shrimp area is poor, leading to a monotonous, unsteady ecosystem.

Provisioning and supporting services of the coastal ecosystem are also considerably affected, as well due to deforestation and the transformation from rice-culture to shrimp aquaculture.

188. The development of a shrimp aqua-monoculture in mangrove forests and coastal agriculture land has destroyed thousands of ha of mangrove forests, transforming mostly all of rice land into salt and brackish shrimp aquaculture in a former mixed shrimp –rice model. This led to big changes in provisioning and supporting services of these ecosystems, which manifest in the strong decline of products from these ecosystems such as wood and firewood, honey, natural fish, etc. and its supporting functions, which in the mid term will cause salt invasion into cultivated fields and the increase of coastal and riverside erosion, among others.

189. *Deficient policy framework to support wetland management in general and ecosystem services in particular.* Viet Nam lacks a specific law on wetlands, regulations on the conservation, management, wise use and sustainable development of wetlands, and clear and detailed regulations on the state management system. In addition, there is still only an incomplete agreement on coordination mechanisms between ministries, sectors and localities in activities relating to wetlands and a lack of measures and capacities for enforcement and implementation.

190. Existing legal documents directly related to the conservation and management of wetlands are issued primarily by ministries and provincial authorities while documents promulgated at a higher level, such as Government Decrees, are still limited. Current legislation does not yet meet the requirements of conservation and sustainable development of wetlands. Documents issued by Provincial People's Committees have mainly focused on administrative measures, and there is a lack of incentives to mobilise community participation in wetland management as well as feeble sanctions against over-exploitation. The system of policies and regulations on wetland management has not been completed nor is it synchronised. Specific provisions in legal documents relating to wetlands often overlap, and are also often scattered within different types of legislation. They lack scientific detail and do not take into account a number of socio-economic factors, which prevents their effective implementation. Further, there is currently no clear policy regarding protection, extension or reduction of wetland areas, nor does any existing policy involve local stakeholders. Conservation of wetland is presented in most environmental strategies and policies but not in development policies.

191. Through the efforts of the Ministry of Natural Resources and Environment, the notion of payments for ecosystem services (PES) has been included in the Law of Biodiversity in Article 74 "*Organisations and individuals using environmental services related to biodiversity shall pay charge to service providers*". Similarly, the Ministry of Agriculture and Rural Development submitted for the Prime Minister's approval Decision No. 380/QD-TTg on a policy of piloting forestry PES. However, awareness about ecosystem services exists only at a very small scale, mostly at ministerial level, while branch offices and extension services are not trained to utilise or to increase awareness of ecosystem services. Ecosystem services were not yet broadly promoted or extensively educated in the communities, media or youth, which can be an obstacle in the search for ecosystem services markets and opportunities in Viet Nam in general and the implementation of ecosystem services programs and projects in particular. Therefore, it is necessary to educate and train to improve the awareness of communities and attract active participation of communities in ecosystem services.

192. *Lack of data to establish baselines, and tools, models, valuation of ecosystem services or indicators.* The UNEP-GEF project on "*Reversing Environmental Degradation*

Trends in the South China Sea and the Gulf of Thailand", developed profiles for ten coastal wetland sites with the highest values in Viet Nam according to the Ramsar Convention's criteria, focusing on direct value (i.e. timber, fuelwood) and indirect value (i.e. aquaculture, marine product collection, medical plants, tourism) of wetland but not on regulating services. Nevertheless, Viet Nam is still lacking data on wetland ecosystem services.

193. In addition, there is still a need for tool to support decision makers in establishing and decreeing planning processes for sustainable management of ecosystems. The Sub-global Assessment under the Millennium Ecosystem Assessment, namely the "Downstream Mekong River Wetlands Ecosystem Assessment in Viet Nam", conducted from 2003 to 2005 analysed the main ecosystem services in the downstream Mekong, mainly through using inventory methods. However, the study does not address future scenarios of these ecosystems and their services as well as responses follow the status and future trends of these ecosystems. In addition, the study still has limited impact on decisions of policy makers for planning progress since there was little involvement of decision makers in the study.

194. National and international scientists have conducted substantial research on wetlands in Viet Nam since 1989. Aspects of particular research interest include natural conditions, ecological and biodiversity characteristics, functions and values, mapping, management, conservation, utilisation and inventory of wetlands. The number of staff, organisations, and research and inventory projects has been increasing, as has investment in wetlands research. However, the usefulness of research results remains limited as results are kept by various institutions and individuals without a central database, resulting in ineffective utilisation of available information and data. Major obstacles include the lack of a master plan for the conservation and sustainable development of wetlands, the lack of an integrated management plan for wetlands with full participation of the various sectors, the lack of a wetlands database, and an insufficient number of researchers and inventory staff to meet the demands for wise use, conservation and sustainable development of wetlands.

195. *Capacity for wetland management and ecosystem management is limited.* Currently, technical capacity in the conservation and sustainable development of wetlands is limited. Managers and beneficiaries do not yet fully understand the social, economic and ecological functions and values of wetlands, or the role of conservation and management in their preservation. Therefore, decisions relating to the utilisation of wetlands have often not been feasible.

196. There has been limited investment in capacity building and training for research and survey work. Advanced research methods are not being considered for application or modification for the specific conditions of Viet Nam. A good database on wetlands in the country is still lacking, and existing wetland inventory and assessment work does not meet the requirements for wetland conservation, management, and sustainable development.

197. To address above gaps, the project will:

- Develop multi-scale and locally valid tools and decision support models so as to particularly enable decision-makers at national and sub-national levels to analyse interconnected ecosystem services and drivers of ecosystem change, and to apply this knowledge in development planning and policy making.
- Support and strengthen a policy environment for the application of ecosystem management and services approaches at provincial and national levels.

2.7. Linkages with other GEF and non-GEF interventions

198. ProEcoServ will be situated in a growing and increasingly intricate landscape of past, ongoing and developing projects on ecosystem services and PES. So as to avoid duplication and to reduce overlap with other projects, the project will be firmly rooted in the lessons learned from the MA and complement the MA Follow-up Strategy endorsed by a broad consortium of collaborating organisations. It will utilise the results and data produced by the SGAs and aim at close partnerships with similar initiatives working on ecosystem services, specifically the MA follow-up networks established in the four targeted SGA areas, both at national/regional level as well as globally.

199. During the preparation phase, the country teams undertook an in-depth stakeholder analysis that also included an inventory of project-relevant initiatives and projects as well as potential partner organisations and agencies. Pertinent linkages at the global level were equally identified and included in the inventory. During project design, the experiences of the WRI and the Natural Capital Project –as well as other relevant initiatives- were also carefully reviewed and closely analyzed. The main findings from the above two initiatives were duly taken into consideration. In particular, the Atlas of Ecosystems and Human Well-Being for Kenya, produced by WRI, provided some important insights and important lessons in terms of the limitations that emerged in WRI's work, which did not provide for a clear distinction between the flows and stocks of ecosystem services, and also provided limited focus on economic valuation aspects. This experience is taken into account in this project, where all the above aspects will instead be addressed. The approach adopted by the Natural Capital Project provides for a strong focus on the stock of ecosystem services, with well-designed practical tools for economic valuation. This approach was considered most appropriate and is formally adopted as an element of this project (see below in paragraph 203).

200. As the organisational setting is complex in each country, this section will only refer to the cooperative arrangements with key initiatives and organisations so as to ensure coordination and knowledge exchange with ProEcoServ. For further detail, please refer to Appendix 17, that provides the full partner landscape and inventory as identified during the preparation phase.

GLOBALLY

201. Ongoing efforts by the MA Follow-up SGA working group are coordinated by the United Nations University's Institute of Advanced Studies (UNU-IAS) in close collaboration with UNEP, UNEP-WCMC and the Cropper Foundation, which aim at facilitating information exchange among SGAs all over the world and building their technical capacity.

202. These above-mentioned organisations are at the same time active collaborators and contributors to ProEcoServ. They will provide active input to the project activities where appropriate and agreed upon, and they will provide fora for disseminating lessons learnt from ProEcoServ to various other SGAs and ongoing work on ecosystem services.

203. Stanford University's Natural Capital Project (NCP) is an important research programme and network on ecosystem valuation and tool development for decision making. The NCP will be actively engaged in the implementation of ProEcoServ activities. A training session will be held for in-country technical staff on how to operate InVEST, an NCP tool-kit for undertaking ecosystem service assessments. Follow-up technical support will also be provided by the NCP team to pilot countries when applying InVEST.

204. At the same time, UNEP DEPI, and particularly its Ecosystem Services Economics Unit, is closely involved in the execution and coordination of UNEP's programme of work for 2010 and 2011 under the sub-programme 3 on ecosystem management. This involves the close collaboration with international partners and organizations, such as IPES, IPBES and similar platforms to advance the integration of ecosystem services in the environment and sustainable development agenda. As the executing agency of ProEcoServ, UNEP-DEPI will therefore ensure that there is an active exchange of information, experiences and tools among these core partners and related initiatives. The responsibility for liaison and coordination with the above initiatives will rest with the Global Project Manager (based in UNEP/DEPI, Nairobi), who will also support the set-up and regular meetings of a global Steering Committee involving representatives of the above initiatives (see section 4 and Appendix 11). At the national level, National Managers will also play the important function of ensuring coordination with relevant national initiatives, through the facilitation of national Steering Committees (see also below, as well as section 4 and Appendix 11).

NATIONALLY

205. In the set-up of their national implementation arrangements, each of the participating countries ensured that core partners identified and lessons learned from the earlier SGA and the stakeholder analysis and engagement process of the preparation phase were incorporated in the ProEcoServ management arrangements. ProEcoServ will thus either become a core part of already existing inter-organisational cooperation bodies, or, in the absence of these, strive to become such a central node for information sharing and knowledge management on ecosystem services. To achieve this and to reach out to relevant decision makers that can further promote the inclusion of ecosystem services approaches in national decision making, each of the countries included the relevant line ministries in their project steering committees.

206. In addition to being a central vehicle to influence policy making and to engage decision makers, the governmental agencies that will become part of ProEcoServ's governance structures do themselves undertake and coordinate a broad range of environmental and developmental projects. These projects, through the engagement of the agencies will become a part of the broader knowledge management network of ProEcoServ at the national level.

207. Further to the active involvement of the most relevant governmental agencies in project management and steering, each country arrangement seeks to closely associate the most relevant projects and stakeholder groups in the implementation plans of ProEcoServ.

208. In **CHILE**, the following agencies at national and provincial level are involved in the project steering committee: The environmental agency (CONAMA), the national water agency (DGA, through regional representation), the agriculture and livestock agency (SGA), the forestry and protected areas agency (CONAF), as well as representatives of the municipality and the local organisation of indigenous peoples. These are regarded as the key strategic stakeholders to drive the project and to disseminate its results as well as to provide important linkages to other ongoing activities and policy developments. Furthermore, an advisory group will allow other ecosystem users to partake in the project planning and implementation, such as community organisations, private sector organisations (mining and tourism).

209. In **SOUTH AFRICA AND LESOTHO**, the major government agencies for water and natural resource management at national and provincial levels will be involved in their project steering committee, as well as leading research institutes such as the national biodiversity institute of South Africa. As particularly relevant ongoing interventions, the national

grasslands programme and the Eden District's Gouritz Initiative were also given a stake in the steering committee, so as to ensure that project development and implementation are linked to and coordinated with other projects that aim at mainstreaming biodiversity considerations into sectoral processes and decisions.

210. Similarly, combining the direct involvement of decision makers and project implementation and other ongoing developments in **TRINIDAD AND TOBAGO** is the main aim of its steering committee composition. Therefore, representatives of the environmental management authority (EMA), the planning and environment ministry (MPHE) along with the ministry for land and marine resources will be closely involved, as well as the Tobago House of Assembly (THA), together with the main national and regional research institutes and NGOs. While the planning ministry is naturally a key governmental stakeholder for the integration of ecosystem services into national planning processes, it will also provide the linkage to the T&T Green Fund (GF), so as to allow for an immediate uptake of ProEcoServ tools and recommendations in the Nariva Swamp Restoration Project and vice versa. The national research institutes, in cooperation with international organisations, such as the World Resources Institute, are the main drivers for coral reef and ecosystem valuation in T&T and the Caribbean region. Regional inter-governmental organisations such as the Association of Caribbean States and its Caribbean Sea Commission along with major regional universities such as the University of the West Indies and NGOs including the Cropper Foundation, are also partners in disseminating and implementing the relevant findings.

211. To ensure coordinated project guidance and the appropriate linkages with national and provincial policy processes and project implementation, **VIET NAM's** project steering committee comprises of the most important national line ministries (i.e. for natural resources, for agriculture and rural development, for finance and for planning), as well as their provincial departments. As most projects are implemented under the auspices of one of these ministries, they will support the national ProEcoServ team in maintaining close contact with other relevant projects in Viet Nam, among these a GTZ-funded project on forestry management and coastal protection, a PES scheme for wetlands and the development of a strategic framework for the sustainable use of natural resources. The involvement and engagement of the executive powers, particularly at the level of project implementation, is assured through the participation of the Provincial Peoples Committee in steering ProEcoServ.

212. For further details on the project landscapes in each of the respective countries as well as their detailed implementation arrangements to ensure a systematic involvement of the relevant agencies and programmatic activities, please refer also to Section 4 and Appendix 17.

SECTION 3: INTERVENTION STRATEGY (ALTERNATIVE)

213. The overall intervention strategy for ProEcoServ can be summarised along its three main components and the respective outcomes and outputs:

Project Objective: Reduce threats to globally important biodiversity through integrating the findings and tools of ecosystem service assessments in policy and decision making		
Project Components	Expected Outcomes	Expected Outputs
1. Policy Support Tools	<p>1.1 Decision- and policy-makers have access to strengthened capacity and technical advisory services to analyse how their policy decisions affect selected bundles of inter-related ecosystem services, incorporating resilience, risk and uncertainty factors.</p> <p>1.2 Improved understanding in international fora of the potential for the development of new financial mechanisms for “non-carbon” ecosystem services</p>	<p>1.1.1 Spatial mapping of ecosystem services.</p> <p>1.1.2 Estimation of supply response functions for selected bundles of ecosystem services.</p> <p>1.1.3 Trade-off matrices produced across ecosystem services, and competing natural resource uses and human well-being.</p> <p>1.1.4 GIS-based valuation of ecosystem services at sub-national levels, chiefly for regulating services.</p> <p>1.1.5 Decision support systems to guide decision makers on choosing development strategies which ensure sustainable flow of selected bundle of ecosystem services.</p> <p>1.1.6 Provision and dissemination of practical tools, guidelines, indicators and information for decision makers at various levels of the pilot countries.</p> <p>1.1.7 Development of scenario planning as a decision support tool for understanding risk, uncertainty and building resilience.</p> <p>1.1.8 Scenarios produced for the bundle of ecosystem services under different plausible futures.</p> <p>1.1.9 Participation of local stakeholder groups in piloting scenario planning.</p> <p>1.2.1 Scoping for innovative international markets for “non-carbon” ecosystem services in Trinidad and Tobago</p>
2. Policy Environment	<p>2.1 Increased awareness, understanding and level of involvement of targeted stakeholders in the integration of ecosystem services management considerations into policy making processes in the pilot countries</p> <p>2.2 Ecosystem services are integrated into socio-economic, legal and policy instruments</p>	<p>2.1.1 A systematic outreach and dissemination strategy on ecosystem services developed and executed in the four participating countries</p> <p>2.1.2 An ecosystem services strategy developed for selected SMEs.</p> <p>2.1.3 Partnerships built for public-private cooperation for ecosystem management</p> <p>2.2.1 Opportunities and gaps identified in existing legal and regulatory instruments to accommodate ecosystem services (baseline to be established)</p> <p>2.2.2 Promotion of equitable and pro-poor economic, regulatory and financial incentives for sustaining ecosystem services</p> <p>2.2.3 Ecosystem services maps and valuation used to inform macroeconomic and sectoral planning</p> <p>2.2.4 Pilot studies conducted on investment in ecological infrastructure to ensure an accepted minimum and sustainable flow of selected ecosystem services.</p>
3. Science-Policy Interface	<p>3.1 Increased policy relevance of ecosystem services sciences’ results in international BD and ES-related processes</p>	<p>3.1.1 Horizontal and vertical information exchange established on ES sciences, tools and policy processes</p> <p>3.1.2 Outreach strategy developed to engage with policy platforms on ecosystem services (e.g. BD-related MEA COPs, IPBES, IHDP, GLOBE, TEEB)</p>
4. Project Management		

3.1. Project rationale, policy conformity and expected global environmental benefits

214. The GEF-supported Millennium Ecosystem Assessment (MA) concluded that more than 60% of the world's ecosystem services are either degraded or used unsustainably. There is increasing evidence that many changes inflicted by human activities are potentially irreversible, particularly with regard to biodiversity, with likely negative impacts on development and human well-being that are disproportionately borne by disenfranchised people at local levels. Particularly affected are regulating services of the ecosystem, such as air quality regulation, climate regulation at regional and local levels, erosion regulation, water purification and waste absorption, or natural hazard regulation. This degradation constitutes a significant barrier to achieving the Millennium Development Goals, if it is not reversed through a set of changes in policies, institutions and practices to conserve or enhance ecosystem services that avoid negative trade-offs and instead provide positive synergies among ecosystem services.

215. Independent evaluations attest the MA's emphasis on ecosystem services to having clarified the environment-development nexus and the linkage between biodiversity conservation and poverty alleviation in particular. The MA is also widely regarded as having been an innovative and technically sound assessment with high probability of impacting future applied research. The evaluations also concluded, however, that the MA's main strength as a scientific assessment compounded its main weakness: there is little evidence so far that the MA has made a significant direct impact on policy formulation and decision-making, especially in developing countries. This has been linked to:

- A generally rather weak focus on sub-global assessments and local levels within the MA;
- A very limited involvement of national and local stakeholders that ultimately make decisions affecting biodiversity and ecosystem management and act upon these;
- A lack of tools, models and methods palatable to decision-making and that can be readily applied at implementation levels.

216. The proposed project for ecosystem services (ProEcoServ) aims at addressing these challenges through an approach at multiple scales, targeting national and sub-national levels of decision making and the rarely identical boundaries of ecosystems at local, provincial and trans-boundary levels as well as the specific users and beneficiaries of their ecosystem services. ProEcoServ aims at developing capacities of decision makers, users and beneficiaries of ecosystem services to assess trade-offs and development choices that contribute to strengthened biodiversity and ecosystem resilience, and to develop and apply appropriate ecosystem management tools within sectoral planning frameworks and macroeconomic planning models.

217. ProEcoServ will apply its innovative approach in Chile, South Africa and Lesotho, Trinidad and Tobago, as well as Viet Nam. All of the selected locations have already had relatively solid SGAs and therefore there is a wealth of existing data upon which this project will build. With a focus on delivering on-the-ground results, demonstration activities will pilot the bundling of ecosystem services and the integration of ecosystem services approaches in resource management and decision making to promote innovative solutions that bear potential for scaling-up and replication.

218. The selection of these countries is also based on demonstrated interest or the ability to integrate ecosystem services approaches into environmental management and development policy making as well as complementarity of the project's activities with national priorities and policies.

219. The proposed project is fully in line with the long-term objective 2 of the GEF's biodiversity focal area strategy. It aims at mainstreaming biodiversity in production landscapes/seascapes and sectors, and it is compliant with the strategic priorities 4 and 5 through a multi-pronged approach that supports the strengthening of policy and regulatory frameworks for mainstreaming biodiversity, while removing critical knowledge barriers and fostering markets for biodiversity goods and services.

220. The project will produce important data and information sets on the linkages and potential trade-offs between ecosystem preservation and development processes and thus provide better insight into key ecosystem functions and how to preserve them sustainably. The incorporation of ecosystem services approaches into local, sub-national and national decision making will further strengthen sustainable use practices, while generating local incentives for the conservation of ecosystems. Global environmental benefits can therefore be expected in the following areas:

- Long-term conservation of species and habitat diversity, linked to reduced direct impacts and increased connectivity with relevant development processes;
- Enhanced conservation of ecosystems, such as mangrove wetlands, drylands and coastal and marine ecosystems;
- Improved protection for species diversity.

221. By building on existing capacity developed during the MA and working at specific sites that were already involved in the MA, there is a high likelihood that the application of decision and policy support tools will result in tangible global environmental benefits. The development and testing of policy support tools as well as the close engagement of policy makers will equally provide important lessons on how to mainstream biodiversity conservation and ecosystem management into sectoral policies and development processes, well beyond the pilot countries. Strengthening of policy and legal frameworks to better incorporate ecosystem services and creating incentives for conservation is among the aims of the project. The selected bundles of ecosystem services promise to strengthen local constituencies' resilience to natural hazards through enhanced disaster preparedness tools and climate change adaptation prospects and they can marshal financial support for the conservation of globally significant ecosystems. These services present mostly untapped opportunities to increase the sustainability projection of conservation efforts, in view of already stretched protected area and conservation budgets and the mixed record of integrated development and conservation projects. The project will thus further contribute to the global environmental benefits in terms of:

- Enhanced complicity and convergence of policy frameworks with ecosystem services approaches;
- Strengthened habitat and ecosystem resilience;
- Development of and access to innovative biodiversity conservation financing instruments.

3.2. Project goal and objective

222. The project objective is *to reduce threats to globally important biodiversity through integrating the findings and tools of ecosystem service assessments in policy and decision making.*

223. To achieve this objective, the project will support activities through the implementation of the following four components: (1) Development of policy support tools, (2) Strengthening of the policy environment (3) a science-policy interface, and (4) project management.

3.3. Project components and expected results

224. The project will reduce threats to globally important biodiversity through an applied ecosystem services approach at national, transboundary and global levels. The project components are intertwined and will jointly lead to developing capacities of decision makers, users and beneficiaries of ecosystem services as well as intermediaries to develop and apply appropriate ecosystem management tools within sectoral planning frameworks and macroeconomic planning models, and explore the potential for national, regional, or global markets for ecosystem services. This will be achieved through four major components.

225. Component 1 includes the development of multi-scale and locally valid tools and decision support models so as to particularly enable decision-makers at national and sub-national levels to analyse interconnected ecosystem services and drivers of ecosystem change, and to apply this knowledge in development planning and policy making. This comprises, among other tools, mapping of ecosystem services, trade-off matrices that lay out development choices and their potential harm or benefits for ecosystems, scenario development to exemplify the impact of different plausible futures as well as to understand and cope with risks and to building resilience. Furthermore, the scoping for innovative international markets for ecosystem services and their potential for establishing payment for ecosystem services approaches will be part of component 1. This will include investigative studies into possible opportunities and barriers to PES; conceptual frameworks to support the establishment of markets for ecosystem services at appropriate scale; institutional and regulatory mechanisms, reforms and incentives in support of such markets; and collaboration with local, national and international actors to reach agreements on the potential benefits of adopting ES as an integral part of decision making and planning processes.

226. In **CHILE**, a review of the SGA and other relevant studies on biodiversity and selected services including water (provisioning and regulating services), land-use, land cover, tourism and cultural services will be the starting point to achieving component 1, including a capacity exchange with the South African pilot on spatial mapping of ES to share lessons and approaches. Based on this, new information requirements for the bundle of ecosystem services related to water and tourism as key aspects of the sustainable development of the project area of San Pedro de Atacama (SPA) will be identified, updated and mapping tools be developed, together with the main users, for later dissemination training, and joint implementation at local and regional scales.

227. Further within this first component area will be the estimation of supply-response functions for selected bundles of ecosystem services, including qualitative and quantitative models on supply-response functions thresholds, discontinuities or irreversibilities in ecosystem response functions, with the aim, among others, of improving the current water balance at the basin level. Tools will then be produced and used for trainings, illustrating typical response functions in diverse formats to decision-makers and users.

228. In order to understand key tradeoffs between ecosystem services, competing uses and human well-being, trade-off matrices will be developed to aid decision making. Toward this end, a review will be conducted to update services' conditions, trends and main direct and indirect drivers of change (including climate change predictions). Thereafter, relevant criteria to be considered in the trade-off matrices will be identified through expert and local judgment and discussed with relevant stakeholders. Based on this process, the matrices will be developed, disseminated and training events for decision-makers and users will be held.

229. A GIS-based valuation of ecosystem services at sub-national levels, chiefly for regulating services, will equally contribute to achieving component 1. With a focus on water regulating services and erosion control as a regulating service associated with biodiversity, the valuation approach and criteria will be analysed according to national and international

relevant experiences (e.g. TEEB). A pilot valuation will then be conducted based on inputs from resource users and experts, including mapping and modelling of benefit/cost flows of these services.

230. A review of current strengths and weaknesses of decision-making tools and systems at the municipal and regional level will contribute to the development of decision support systems. Through this process, decision support requirements will be identified, e.g. in terms of information and capacity, or institutional arrangements for implementation. Building on data and experiences in the project so far, a hydrological/hydrogeological water balance model will be consolidated, including variables related to tourism and other selected ecosystem services. This also comprises of scenario planning under different plausible futures as a decision support tool for understanding risk, uncertainty and building resilience, including a review of the scenarios developed for the Chilean SGA, based on the bundles of ecosystem services supporting water and tourism. Thereafter capacity exchanges will be set up and implemented with the South African pilot study on scenario planning to share lessons and approaches. Based on the review and the exchange activity, the scenario planning approach will be developed, tested and refined with the Project Advisory Group (refer to Section 4), and local stakeholder groups will be involved in piloting scenario planning.

231. The review and appreciation of ways to approach the diverse decision makers and ecosystem users will guide the provision and dissemination of practical tools, guidelines, indicators and information for decision makers at various levels, including the development of guidelines for decision-makers in diverse formats based on the results of activities and results under component 1, with an emphasis on regional and local scales. For each of the outputs described above, pilot implementation processes with the involvement of key stakeholder groups will be conducted, the outcomes disseminated and decision-makers and users will be trained in the use of data developed and tools established.

232. In **SOUTH AFRICA AND LESOTHO**, the project will start with a review and collation of existing data from ecosystem assessments and other studies on biodiversity, hydrology, soil type and profile, geology, land use/cover, erosion measures, vegetation, wetlands, rivers, aquifer dependent ecosystems and flood regulation. This outcome will focus on the Eden District Municipality (EDM), as well as the grasslands biome including Water Management Areas (WMA) of South Africa and catchments of Lesotho.

233. The project then moves onto the technical development of ecosystem service models, maps, supply response functions, thresholds and discontinuities, trade off matrices and maps of ecosystem service values. These will all serve as inputs to two key policy support tools: decision support systems and scenario planning. The decision support system will be targeted at land use and water use decision making and will include the maps, models, functions and relationships developed above. This tool will be linked to a geospatial interface in order to make the tool and its output spatially explicit. Scenario planning will be developed and piloted in the Eden District Municipality together with the local stakeholder forum. These activities aim to test the use of scenario planning in enabling decision makers to make informed decisions while factoring in uncertainty and risk.

234. This phase will have numerous outputs including: ecosystem service maps, supply response functions, trade off matrices, maps of ecosystem services value flows, decision support systems, scenarios and scenario planning toolkits. All of these, together with appropriate guidelines and training materials will be packaged and made available to a wide audience.

235. In order to distil lessons in the development of policy support tools, each tool development phase will include the development and implementation of questionnaires on stakeholder perceptions, uptake and use of these products.

236. The capacity constraints, especially at local scales, will be a key challenge in rolling out these tools and thus the tool development will be partnered by substantial capacity building, guideline development and training workshops, as well as careful design of simple and easy to use tools which are fit for purpose and make use of existing capacity and technology available (e.g. hard copy vs. internet).

237. Scenario planning plays a significant role in this component, both in its value as a communication tool, but also in the development of plausible futures, consensus on the future and appropriate management pathways. Previous South African experience with scenarios in SAfMA highlighted the value of this approach, and provided a solid platform from which to start.

238. This technical phase will be supervised by a technical advisory committee and peer review. It will also be partnered with the development of guidelines, training materials and training course on the use and refinement of these tools. The tools and related material will be made available both on the internet and in hard copy

239. **TRINIDAD AND TOBAGO**'s strategy for achieving the outcomes under component 1 is to add on an ecosystem services component to existing studies at the four case study sites. These are the Caribbean Sea (cf. MA CARSEA Report), the Tobago coral reefs (cf. GEF funded IWCAM Project and WRI Coral Reef ES Valuation), the Nariva Swamp (cf. IBRD funded Restoration and Carbon Sequestration Project) and the eastern Northern Range of Trinidad (cf. UNEP and IADB funded Projects). The results will be packaged for potential use by decision makers at four scales. These are: (1) the global level at the UN General Assembly through a report and presentation (to include Caribbean Sea Ecosystem Services) on progress in the UN Resolution on sustainable development of the Caribbean Sea due from the Association of Caribbean States due every 2 years. (2). At the regional level, a report on marine ecosystem services to the Caribbean Sea Commission. (3) At the national level through working with the Ministry of Housing, Planning and Environment and its Agencies to develop and test a range of new decision support tools aimed at introducing ecosystem services into the national planning framework; and similarly (4) at the sub-national and local level working with the Tobago House of Assembly. At each scale, maps of ecosystem services, trade-off matrices with competing uses, ecosystem services valuation and scenarios will be developed. Training workshops and training manuals for stakeholders will be a uniform feature of all activities.

240. At the Tobago site some targeted scientific studies are also envisaged in order to estimate supply response functions and trade-offs between selected bundles of ecosystem services. The coral reef ecosystem services bundle includes recreation, erosion control/disturbance protection, nutrient retention, meat/fish provisioning and carbon sequestration. Valuation work on coastal disturbance protection from coral reefs in Tobago has already been done and will be expanded to take into consideration other parameters such as the contribution of coastal vegetation. New studies will also be initiated to estimate the potential for coral reefs in carbon sequestration.

241. At the Nariva Swamp wetland site the wetland trade-off dilemma will be investigated i.e. greenhouse gas regulation/climate control vs. water provisioning and quality vs. crop production vs. carbon sequestration. Wetland soils contain denitrifying microorganisms, which convert nitrate to nitrogen gas with nitrous oxide formed as an intermediary product. More than a decade ago, rice farmers deforested and drained 1500 Ha of the swamp

disturbing this process and inadvertently increased not only nitrous oxide emissions but methane emissions as well. The current project will measure methane and nitrous oxide emissions from the wetland using a novel ground based remote sensing method based on Fourier Transform Infrared Spectroscopy (FTIR). The FTIR method reflects an infrared beam off a mirror 200 m away back into the instrument for its computer to analyse the absorbance spectra of target gases and measure gaseous emission rates from the swamp over a wide area. Restoration of the hydrology by the government and the swamp vegetation by the nearby village community using funding from Trinidad and Tobago's Green Fund, should result in measurable methane and nitrous oxide emission reductions. The proposal is to do some international scoping for a market for carbon regulation/gas emissions reductions from a natural source. The project also has the potential to scope for a market for biodiversity, lifecycle maintenance ecosystem service credits that may be created by the restoration. Finally, the Green Fund is interested in developing a pilot PES services scheme for the Nariva Swamp Restoration and Carbon Sequestration Project.

242. In order to support the ACS Caribbean Sea Resolution at the UN, it is proposed to continue the development of four scenarios for the Caribbean Sea to the year 2050. The scenarios will be supported by quantitative modelling, trade-off analysis and where possible valuation of a basket of ecosystem services including food/fisheries (EcoOcean Model), Recreation and Tourism, and the regulating ecosystem services of climate regulation (including carbon sequestration), disturbance prevention and waste treatment. It is further proposed to explore the use the InVest Model for quantification.

243. **VIET NAM** will immediately embark on scaling down its SGA approach to the pilot province of Ca Mau, including a rapid assessment of current mangrove trends and conditions, inter-actions with shrimp and rice agriculture as well as human well-being. An active engagement with a GTZ-led project on mangrove conservation and restoration in the neighbouring province of Bac Lieu was already initiated, with the aim of exchanging information and lessons learned throughout the life of the projects. Further, there are indications that bilateral donors are interested in extending their engagement in coastal forest rehabilitation to Ca Mau. ISPONRE will closely monitor these processes and engage with the bilateral donors so as to maximise synergies. This engagement will be covered through ISPONRE's resources and funds, so as to be fully prepared and having all baseline data available at the expected start of the project.

244. Based on these initial preparatory activities, existing data, maps and tools will be reviewed, analysed and complemented, so as to develop tools to demonstrate trade-offs and supply-response functions in the mangrove ecosystems of Ca Mau. Close interaction with local and provincial stakeholders and decision making agencies will allow for an active uptake of these tools in sectoral planning processes.

245. Workshops and trainings on the development and application of all sets of different tools will ensure a continuous capacity development process to sustain the project's impact beyond its lifetime.

246. Component 2 will focus on supporting the policy environment and policy implementation for the application of ecosystem management and services approaches at national and transboundary levels. At the political level, this requires a degree of awareness by decision making and the public about the potential limits to growth and social welfare changes arising from further unchecked degradation of critical ecosystem services. While this awareness is still not broadly spread, it is nevertheless much greater than at the beginning of the decade, when the MA was conducted.

247. There is also a need to determine suitable legal and regulatory instruments and to utilise these as “entry points” into the decision making process (e.g. annual budgetary allocations by governments; reviews of development assistance programs by donors) through which remedial and pre-emptive actions can be internalised into state actions. At the operational level, this includes spatial based ecosystem planning frameworks mapped onto macroeconomic sectoral planning models, or estimations of the response of targeted ecosystem services to increasing levels of degradation and trade offs between ecosystem services flows (e.g. provisioning versus regulating services).

248. Such information needs to be provided in a terminology that is understandable and tangible to decision makers (e.g. income, employment, fiscal savings). Therefore, component 2 also includes the development of systematic outreach and dissemination strategies to reach the appropriate national decision makers and other relevant stakeholders.

249. In **CHILE**, the Project Steering Committee and the Advisory Group (refer to Section 4 and Appendix 10) will be involved throughout all project activities in strategy development and the establishment of dissemination strategy. This includes the identification of suitable existing and potential SMEs and entrepreneurs in the sectors of tourism and agriculture and participatory elaboration on opportunities and barriers for starting and maintaining businesses that take a sustainable flow of ES into account. An ecosystem services strategy for selected SMEs will be developed in accordance with regional policies, the potential for public-private cooperation for ecosystem management, and funding opportunities.

250. A key area within this component will be the consideration of ecosystem services for integration into socio-economic, political and legal instruments. Major hurdles in the legal/regulatory frameworks to implement an ecosystem services approach to decision-making will be identified, alongside the windows of opportunity and gaps through which ecosystem services instruments) can be integrated into decision-making processes. Based on this, a strategy to engage with legal and regulatory instruments at the regional and municipal level will be developed, including policy briefings for different sectors, aimed particularly at national level policy-makers. Closely linked is the preparation of examples for the integration of ecosystem services maps and valuation into sectoral planning instruments through briefing papers. Meetings will be held with officials and technical units in charge of macroeconomic and sectoral planning at the regional/municipal level to elaborate and discuss the use of such tools to inform sectoral planning.

251. The promotion of equitable and pro-poor economic and financial incentives for sustaining ecosystem services includes the identification and assessment of existing and planned financial incentives in the country, region and municipality. A feasibility analysis and awareness raising will take place at the community level, along with capacity building and training on the availability and access to incentives.

252. The final output will be the development of pilot studies on investment in ecological infrastructure to ensure an accepted minimum and sustainable flow of selected ecosystem services. This requires the identification of ecosystem infrastructure needs, as defined in Component 1, in coordination with relevant agencies. Conservation and restoration actions necessary to achieve or maintain this ecological infrastructure will be determined in consultation with the Advisory Group and paired with strategies and projects to support these. This pilot study will then be used as training material to offer courses to other national and provincial stakeholders.

253. In **SOUTH AFRICA AND LESOTHO**, the SAfMA helped to raise awareness among stakeholders of the importance of ecosystem services; there is nevertheless a need to strengthen this awareness and to broaden it beyond the stakeholders of SAfMA (many of

whom are no longer in the same positions of government). Component 2 will complement the baseline assessment and tool development under component 1 and will identify key national and provincial public and private stakeholders, policy makers, media and decision makers in South Africa and Lesotho for further engagement. From this group a project advisory group will be constituted together with their terms of reference which will include review, advisory and implementation roles.

254. Together with the engagement of stakeholders, an outreach and dissemination strategy will be an essential element of this project. As a part of this outcome stakeholder awareness will be assessed before (as part of the baseline) and after the implementation of the strategy to assess learning and uptake through the project.

255. Equally important will be the building of partnerships between public and private entities involved in ecosystem management. Private sector interest and capacity in the area of social and environmental sustainability is increasing in the region and provides an opportunity to engage directly with the private sector instead of waiting for government to regulate (and enforce) behaviour. Newly developed programs targeting major users of water and transport will be a focus of this component – developing partnerships, packages and incentives around social responsibility and ecosystem services e.g. carbon neutral and water neutral programs. Civil society will play a key role in these programs as both consumers as well as supporters of this new private sector behaviour. The involvement of NGOs including WWF-SA and BotSoc in the national executive will be relevant in this component. The baseline study highlighted potential opportunities in water neutral initiatives, wine industry partnerships and agricultural practices in the grasslands which will be complemented with a more thorough review of existing and proposed partnerships. A key activity will be the development of materials popularising these programs, establishing new partnerships and sharing learning on public – private cooperation as a means to improve ecosystem management. Outputs will include outreach and dissemination strategy and partnership outreach materials.

256. The baseline review highlighted four opportunities for engagement with socio-economic, political and legal instruments in South Africa and Lesotho in order to identify and implement the integration of ecosystem services. These include:

- 1) National and transboundary level laws and instruments,
- 2) Financial incentive programs
- 3) Macroeconomic and sectoral planning instruments
- 4) Water allocation processes

257. At the national level the baseline review of existing legislation and policies will be strengthened in consultation with national level government stakeholders to identify key weaknesses and strengths in this legislation for the management of ecosystem services. The water and biodiversity acts at a national scale, and the municipal planning acts at a local scale will be the key focus. A supplementary review will be required due to the large changes in government structure and strategy which took place in South Africa following on the 2009 elections. A key weakness at the level of policy implementation is the lack of co-governance so important to ecosystem management. Sectoral divides at all scales make the strengthening and perhaps adaptation of existing co-governance structures an essential component of this project. The recent rearrangements of government departments provide this opportunity. This will be done using the national executive team with representatives from the new departments tasked with managing natural resources.

258. An opportunity offered by the project will be the investigation of transboundary instruments for mainstreaming ecosystem services. This outcome will therefore focus on the

opportunities offered by these transboundary and other national instruments for integrating ecosystem services. Key constraints in these and other instruments will be reviewed under the auspices of a multi-organisational ecosystem services forum which will be established to direct and develop strategies for research and implementation of ecosystem service projects.

259. Another opportunity for mainstreaming is provided through the possibility of aligning existing financial incentives for ecosystem management with pro-poor programs. The very successful example of the Working for Water program is a case in point and lessons learnt from this program, which combines the clearing of invasive alien plants with job creation and training, will be a valuable opportunity. Activities will include a review of this and related programs in terms of current incentives used as well as their approach to poverty alleviation and equity. This review will aim to identify gaps and constraints to ensuring equity and pro poor focus in these financial incentives in order to develop best practice materials and training materials for stakeholders to highlight the benefits and constraints of financial incentive programs.

260. Macroeconomic and sectoral planning represent key opportunities and challenges for mainstreaming ecosystem services. The baseline review highlighted some opportunities in the form of the National Framework on Sustainable Development which uses ecosystem services as its central argument and the newly formed Planning Commission in South Africa also represents a key opportunity for engagement in strategy development and implementation. However, the Accelerated and shared growth initiative – South Africa (AsgiSA) potentially represents a constraints to this high level integration of ecosystem services and will form a focus area of these activities. The baseline review will be supplemented with a more thorough review involving the project’s advisory committee in identifying key interventions needed.

261. The water allocation process represents the fourth and final identified opportunity for high level mainstreaming of ecosystem services. This will include stakeholder participation and the formation of targeted pilot groups in the grasslands catchments. Using these groups and their expertise the project will then review the existing legislation and water allocation process and its mechanisms to identify ways to integrate the policy support tools developed above into these mechanisms. This will allow for the informed determination of the human and ecological “reserves”, as well as the type and condition of ecosystem infrastructure required to support these “reserves”. This pilot study will be used to develop training materials and courses for distribution to other CMAs tasked with water allocation in order to allow them to consider the bundle of regulating ecosystem services and associated infrastructure required to support human and ecosystem needs.

262. Outputs from these activities will include opportunities and gaps identified in legal instruments, especially transboundary instruments, best practice, benefits and constraints in pro poor financial incentive programs, intervention strategy for macroeconomic and sectoral planning engagement and pilot study on water allocation processes.

263. Following on from the technical assessments of ecosystem services in **TRINIDAD AND TOBAGO**, a crucial step to achievement of broader project objectives will be networking between government decision makers and public and private stakeholder organisations to disseminate new knowledge and experience on ecosystem services.

264. The goal of this aspect is to influence public policy and programmes at the national and regional levels. A key aspect of the strategy is the dissemination of the actual results achieved within participating communities to ensure buy-in for the alternative approaches introduced and the sustainability of improved practices beyond the project execution and investment period. In essence, this component will document and disseminate information

on best practice in public-private partnership for optimising the delivery of bundles of ecosystem services to people while conserving ecosystem resilience.

265. To achieve mainstreaming and sustainability of this approach, it is proposed that key stakeholder organisations from the public and private sectors be members of the Advisory Committee and one of their number Chair this steering committee of this pilot project (see also Section 4 and Appendix 10). The Advisory Committee will be responsible for distillation of the lessons learned and the recommendations for expansion and mainstreaming of the ecosystem approach at the national level.

266. It is proposed that the facilitation of training workshops for key stakeholders, and the development of training materials and policy briefs be contracted to the NGO partners in the project. Institutional partners such as the Green Fund, the Environmental Management Authority, the Association of Caribbean States (Caribbean Sea Commission) and the University of the West Indies will support broader dissemination efforts through their networks associated with their areas of responsibility.

267. In the case of the Green Fund of the Ministry of Planning, Housing and Environment, the strategy is to develop and pilot test a model for Payment for Ecosystem Services (PES) in three project sites, which could be replicated in other sites throughout Trinidad and Tobago on recommendation of the Funds Advisory Committee. The Green Fund has access to a bank of reforestation, remediation and conservation project proposals from NGOs, CBO's and SME's. These proposals can be screened for opportunities for public-private partnership for testing a pilot PES system and gathering ES valuation data. The emphasis will be on developing guidelines on how to include equity and pro poor incentives into emerging markets and payment for ecosystem services schemes.

268. The proposed collaboration with the Ministry of Planning Housing and Environment will also seek to make materials on ecosystem services available for possible use. Specifically the Ministry has engaged consultants to facilitate the development of a new National Physical Development Plan as required by law. An input into the process from this project could be ecosystem service maps, which can be super-imposed onto the economic planning framework in the Trinidad and Tobago government Vision 2020 Plan. Finally, the Environmental Management Authority (EMA) has developed a draft Environmental Code as required under the Environmental Management Act 2000. The updating of the draft will provide an opportunity for review in search for legal instruments with greatest opportunities for mainstreaming ecosystem services.

269. **VIET NAM's** implementation arrangements will be key to achieving the objective of component 2, the integration of ecosystem services in sectoral, political and legal instruments. The close involvement of all major line ministries, particularly MOF, MPI and MARD in the project's steering committee as well as technical working groups will ensure that a) the tools and approaches developed will find entry into ministerial planning processes, and b) that these tools meet the demand of the relevant agencies.

270. Outreach and capacitating workshops at provincial and local levels will be organised in close collaboration with the relevant departments and extension agencies in charge of wetland management, so as to ensure their familiarity with the project's approach and tools as well. Another important element in the project's intervention is the involvement and engagement of SMEs as a major stakeholder and contributor to both ecosystem use as well as conservation.

271. The aim of Component 3 is to contribute to a strengthened science-policy interface for ecosystem-conscious policy making at the international level, through engaging in an

intense vertical and horizontal information exchange on ecosystem sciences tools and experiences of relevance to policy making. Among the activities under the objective of a strengthened information exchange will be:

- The organisation and facilitation of exchange among the national teams under ProEcoServ, through site visits, joint tool development, data and experience exchange, joint workshops and seminars;
- The engagement of ProEcoServ practitioners with other international experts in the area of ecosystem services, so as to increase mutual learning and knowledge about implementation challenges and opportunities;
- The participation in international fora for ecosystem services sciences, in order to promote tools and knowledge gained through ProEcoServ experiences.

272. By utilising existing clearing-house and knowledge management systems, as well as close interaction with international policy platforms (such as MEA COPs, IPBES, IHDP, GLOBE, UN-REDD or TEEB) activities will promote ecosystem services tools, experiences and best practice at national level beyond the demonstration activities, and will provide fora to strengthen multi-scale linkages from local to international actors, as well as to bridge the gap between science and policy in developing countries. Among the core activities of Component 3 will be the implementation of a broad outreach and engagement strategy, particularly to align the development of policy briefs, information materials and the sharing of lessons learned with the relevant international processes, so as to establish pathways and opportunities to inform and influence international policy making with regard to biodiversity and ecosystem services.

273. Through these objectives and activities, Component 3 will provide the linkage between practical lessons from tool development and implementation at national and transboundary levels to the international agenda setting arena and thus be an integral part of the overall project strategy to demonstrate how to best integrate ecosystem service tools in policy and decision making with the longer term strategic goal to contribute to the mainstreaming of biodiversity conservation and ecosystem services approaches into sustainable development planning.

274. Component 4, project management, will be a combined effort at national and global levels, to ensure adequate institutional, management and administrative structures for effective project implementation in a timely and cost-effective manner, including the set-up and operation of a Project Steering Committee, recruitment and management of project staff sub-contractors and consultants, office premises, equipment and support services.

275. The global Project Manager and overall coordinator hired by UNEP/DEPI will act as the head of the ProEcoServ Management Unit and Steering Committee's Executive Secretariat. S/he will be responsible for overall project management and coordination, acting in close collaboration with, drafting TOR, contracting and supervising the work of the National Project Management Units in the five partner countries of ProEcoServ, as well as managing project consultants and subcontractors, compiling consolidated technical and financial progress reports for UNEP/GEF and representing the project in international fora. The project manager will also be directly responsible for managing technical activities under Component 3 of the project, coordinating specific additional support to the Vietnam component, as well as for setting-up and supporting (i.e. acting as the Head of Executive Secretariat of) the project's Steering Committee, involving a set of key stakeholders to ensure adequate project oversight and implementation. UNEP DEPI will host the Management Unit and SC Executive Secretariat.

3.4. Intervention logic and key assumptions

276. In each pilot country, the project will be conducted at national and respective sub-national scales in order to target the appropriate levels for policy making, planning and implementation responsibility, and at the same time at sub-national and local scales through pilot studies designed to influence local and ecosystem scale management and decision making processes and to engage relevant local stakeholders in tool development and application.

277. To allow for a best possible integration of ecosystem services and management approaches into sectoral planning and regulatory processes, the project will, from the outset, aim at working closely with key representatives of the respective sectors and within planning and decision making bodies. The project will build on relevant national experiences, e.g. through their various GEF enabling activities that established specific action plans for mainstreaming environmental issues into national development processes.

278. Further, utilising experiences of the Poverty Environment Initiative, the project will follow a three-pronged operational strategy:

- a) Together with national stakeholders, key entry points will be identified where the contribution of ecosystem services to development, economic and political processes can best be demonstrated.
- b) Through an alignment of environmental planning with other governance processes that shape planning, budgeting and policy frameworks, a direct engagement with the national economic and development planning will be achieved. Such an alignment will particularly permit plotting ecosystem management interventions that harmonise with economic and developmental planning models and processes and vice versa.
- c) Thirdly, to sustain the efforts for integrating ecosystem services into non-environmental planning and policy processes, the implementation of such planning frameworks will be closely supported, so as to strengthen existing national implementation capacities that ensure the longer-term embedding of ecosystem management approaches in decision making and national to local implementation. Where such structures have to be created, this will have to be done in close collaboration with all key stakeholders so as not to duplicate or defy existing processes. In applying a “minimally invasive” approach, the project aims at enabling countries to maintain this integrative planning and policy making approach beyond the lifetime of the proposed project.

279. As the project strategy is closely linked to active involvement of and interaction with national decision makers and policy planning bodies, a central assumption of the project is that there will be continuous organisational support for the mainstreaming of ecosystem services into national planning and policy processes, including stable mandates and responsibilities of the targeted institutions at national levels.

280. Engagement with decision makers at all levels is equally at the heart of the intervention strategy. It is therefore assumed that these key stakeholders are willing to engage with ProEcoServ and interested in learning about new approaches and tools that might influence and change their perceptions of development processes and their link to ecosystems. This assumption extends beyond individual decision makers and includes the hypothesis that there will be an underlying political will to inform, or prepare the ground for amendment or revision of key instruments for national development processes.

281. Further, and beyond national levels, it is assumed that ecosystem management and ecosystem services approaches continue to receive high attention in relevant international processes. With this assertion, there will be ample opportunity for ProEcoServ to inform

these international processes on tools developed and experiences made through the pilot implementation schemes, and thus to prepare the ground for replication and up-scaling of the project approach.

3.5. Risk analysis and risk management measures

282. The table below highlights specific risks that are related to the key assumptions which could affect successful implementation of project activities and the corresponding risk mitigation measures.

Table 4: Risks and mitigation measures

Risk	Risk Level	Mitigation Measure
Impact of climate change on ecosystem services (through increased natural hazards, loss of livelihoods etc.)	Medium	Valuations of ecosystem services and baselines for these are important preconditions for internalising ecosystem services in development planning. This in turn will reduce the vulnerability of local communities to declining ecosystem services and strengthen their resilience to natural disaster hazards and increase their capacities to adapt to climate change induced deterioration of provisioning and regulating services.
Reduced commitment to EM, ES and PES due to changes in government	Medium	Changes in commitment can not be excluded and are difficult to assess. Due to the project's multi-scale approach and multi-country piloting implementation, the overall project strategy is based on a wide group of stakeholders, which increases the chances for continuity and sustainability. Further, the utilisation of existing institutional structures at sectoral working levels will have a mitigation effect in case of government changes; such bodies usually continue to exist beyond governmental life cycles.
Weak institutional capacities	Medium	Within national governmental institutions as well as at local levels, the risk of a weak understanding of ecosystem management approaches is high. However, the project's strategy is founded on close interaction and capacity building at all levels of intervention in order to address this challenge. The stakeholder mapping and engagement already during project preparation will ensure further participation during implementation at national levels. UNEP/DEPI as an important actor in the MA follow-up process will at the same time be the broker at the international level to mitigate weak institutional capacities.
Lack of coordination among different stakeholders	Medium	Horizontal as well as vertical coordination among various stakeholders is usually a risk in many environmental projects. The proposed project will therefore emphasise on partnership building, common agenda-setting, and alignment of interests from the outset.
Ecosystem management knowledge is not applied or integrated into policy frameworks	Medium	At local levels, participatory approaches will ensure buy-in of stakeholders, generation of local knowledge and self-esteem; close involvement of and training for decision makers from a variety of departments and sectors will increase the likeliness of ecosystem services approaches being internalised into national planning and policy making.

Weak uptake of ecosystem services in international biodiversity-related platforms and processes	Low	Internationally, there is rising momentum for MA follow-up activities and a range of sub-global assessments to further the MA agenda. Ecosystem management approaches and schemes to investigate and upscale payments for ecosystem services are equally receiving increased interest. ProEcoServ will engage with a broad range of international platforms and potential multipliers to make best use of this.
Negative environmental impacts in other focal areas	Low	The broad institutional involvement as well as stakeholder participation, already during project preparation, will ensure that such considerations are taken into account. It is furthermore inherent to the ecosystem services approach to address issues beyond a single environmental sector and to allow for the uptake of multiple factors within an ecosystem.
Negative socio-political impacts	Low	Socio-political safeguards as well as gender concerns were addressed during the stakeholder mapping and engagement process. The project further intends to use the valuating and mapping of ecosystem services to contribute to the promotion of equitable and pro-poor economic and financial incentives for sustaining ecosystem services.

3.6. Consistency with national priorities or plans

CHILE

283. ProEcoServ is in accordance and supports the following national development and conservation priorities. Other national, provincial and local level policies can be identified as particularly relevant to the ProEcoServ project:

284. National Environmental Agenda: This Agenda was established by the Chilean Government for the 2002-2006 period. It considers four action lines; one of them is the Protection of Biological Diversity, which includes a program whose goal is to achieve, by 2006, the official protection of at least 10% of biologically important ecosystems in order to meet current international standards.

285. National Biodiversity Strategy: This Strategy is based on the Convention on Biological Diversity (CBD) and its first priority is to prevent the deterioration of natural heritage, by ensuring the conservation of biodiversity on all three levels (gene, species, ecosystem) as well as conservation of relevant soil and water resources and processes.

286. National Environmental Policy: The Policy was prepared by the National Commission of the Environment (CONAMA). ProEcoServ is in accordance particularly with the third objective, which seeks to encourage the protection of the environmental heritage and the sustainable use of natural resources, as well as with the fifth objective that recommends the involvement of citizens in the management of the environment.

287. National Plan to Combat Desertification: The High Andean Wetlands appear as high-priority ecosystems in the National Plan to Combat Desertification, in accordance with the Convention on Desertification and also with Chile's participation in the Sub Regional Plan for the Sustainability of the Puna (PASPUNA). This initiative is carried out with the support of the Secretariat of the International Convention to Combat Desertification, which was signed by Argentina, Bolivia, Ecuador, Peru and Chile.

288. The Development of Indigenous Areas Policy: It is critical to recognise that development areas exist in Chile that are determined by the existence of indigenous populations. ADI's (Indigenous Development Areas) constitute a territorial management strategy that considers a range of factors and characteristics identified by the Chilean State through the Indigenous Law (19.253 of 1992). These characteristics include:

- Spatial territories where indigenous people have historically lived;
- Spatial territories that currently have high densities of indigenous inhabitants;
- Spatial territories where land belongs to communities or individuals that belong to a particular ethnic group;
- Areas that appear to be a homogenous ecological unit;
- Where the population of the territory depends on natural resources.

289. The San Pedro de Atacama district falls within the Atacama la Grande ADI (see www.origenes.cl), created on the 10th March 1997. The Atacama la Grande was one of the first recognised ADI's in Chile, and is located in the mountainous sector of the II Region and its borders correspond almost exactly with the borders of the San Pedro de Atacama district. According to the 2002 Census, more than 50 % of the inhabitants of San Pedro de Atacama consider themselves to be of Atacameño (or 'licanantay') ethnicity.

290. The definition and functioning of an ADI is loosely related to governmental policy; ADI's operate as a special government program that have as their objective the focussing of actions and resources in indigenous communities. The lines of development are defined in a *Master Plan*, which is the strategic planning instrument that establishes the guidelines that should guide the work of the *Directing Council*. In the case of San Pedro de Atacama this Master Plan contains the Communal Development Plan (PLADECO), which is a management tool used by local government to define development priorities and actions.

291. With respect to its administrative structure, the ADI has the following components:

- *Council president*: Position occupied by the premier of the II Region (the regional authority defined by central government);
- *Executive Secretary*: Position occupied by the head of the Indigenous Affairs Office (CONADI);
- *Council members*: A variety of actors participate in the structure with 'voice and vote', including the following: presidents of indigenous communities, delegates of the Atacameño Peoples Council, Regional Planning Secretary (SERPLAC), mayor and San Pedro de Atacama council.

292. Water Regulation Policy: The legislation that currently regulates the ownership and use of water in Chile was developed in 1981, and has as its general institutional framework the neoliberal economic policy initiated by the military dictator of the time. The legislation effectively created a 'water market', unique in Latin American countries, where water rights are allocated and can be traded in the market. Once water enters the market, it therefore changes from a national good to a tradable good.

293. Water rights are separate from land rights and have the status of private property. The Political Constitution provides for the right to make use of water as private property. The Water Law does not prioritise different users of water (for example household users versus mining operations), and does not regulate the actual use of water by water rights owners. As result, while the state remains the owner of all water in the country, it does so with minimal responsibilities.

294. The General Direction of Water (DGA) is the state organ in charge of the use of superficial and underground water. It is important to highlight that this institution allocates

water rights free of charge, provided that applications comply with legal procedures, that there is water in the relevant area and that the water rights do not undermine other water rights owners.

295. The separation of water use rights and land ownership has created a complex situation with respect to indigenous communities, particularly bearing in mind the ADI system described in the previous section. While indigenous communities have greater control over the land through the implementation of the ADI system, they remain unable to control water use on this land. An additional layer of complexity has been added through the economic characteristics of the water law. For example, many farmers have sold their water rights to mining companies, and have therefore lost the rights to control water use or contamination levels on their own land.

296. In the case of San Pedro de Atacama, another dimension of this complex situation has given way to conflict. In this case, the DGA has created the option for 'bidders' to apply for water rights in the district, on land that falls within the ADI. As a result, the district mayor has led an objection to this call for applications, and is supported by civic organisations.

297. Regional Development Plan: The Regional Development Plan for Antofagasta is developed, managed and implemented by the Regional Government (GORE). This plan is implemented through a series of territorial and sectoral management instruments, for example the Regional Development Strategy, the Governance Plan, Communal Development Plans, Special Plans, annual sectoral plans, specific programmes and projects. The strategic areas covered by the Regional Development Plan include:

- Territorial infrastructure and territorial management, quality of life
- Childhood and adolescence social policy
- Modernisation of public management and civic participation
- Sustainable development: consolidate the Region of Antofagasta as a focus point of cultural integration, tourism and economics in the central west of South America.
- Consolidate a productive complex of mining, industry and services

298. District Development Plans: The project is also in accordance with the action priorities established in the Development Plans (PLADECOS) of the districts involved, where the participation of the indigenous communities in the management of protected areas, and especially in the benefits derived from tourism use of the territory is explicitly stated, as is the case of the Development Plan for the district of San Pedro de Atacama.

299. ILO Convention 169 on Indigenous and Tribal People: Ratified by the Congress in September 2008, this convention will become national law in September 2009. The Convention alludes to the right of indigenous people to manage their lands and resources. The Convention obligations apply directly to the State and indirectly (through Government action) to the private sector. In the case of San Pedro de Atacama, it is interesting to note that the Convention defines that where the State retains ownership of mineral and subsurface resources, indigenous and tribal peoples should be consulted prior to programs of exploration or exploitation of resources and wherever possible participate in the benefits of exploitation and receive compensation for damage resulting from exploitation. As confirmed by interviews with regional governmental agencies, the Convention poses opportunities for the implementation of co-management projects (indigenous people together with governmental agencies and the private sector) on, for instance, ecotourism. The interviewed agencies affirm that the Convention offers a legal structure for co-management projects that to date was not available.

300. Native Forest Law: Passed in July 2008 (after 15 years of deliberations), this law offers a pool of alternatives in terms of incentives and funds for preservation, rehabilitation

and sustainable productive activities (such as ecotourism). Special emphasis is made in the law on the protection, rehabilitation and development of vegetation in arid and semi-arid areas.

SOUTH AFRICA AND LESOTHO

301. There are a number of existing policies focused on the sustainable use of biological resources with which this project aligns. The Southern African Development Community (SADC) has a shared recognition of the value of and importance ecosystem services in alleviating poverty and providing the biological resources needed for socio-economic development. The SADC Regional Biodiversity Strategy seeks to entrench the recognition of biodiversity as a resource for sustainable development and for meeting the millennium development goals of the region. This strategy is focused on building tools, capacity and regional consensus and cooperation around biodiversity issues. The strategy also recognises the social pressures on resources, institutional constraints and weaknesses, and low levels of biodiversity awareness amongst resource users and managers. Furthermore, it seeks to enhance economic growth by adding value to biological resources, managing within sustainable parameters, and ensuring regulated and equitable benefit sharing for the people of the region. The importance of coordinated approaches to the utilisation and preservation of water resources with the SADC region have been in place since 1995, with the signed Protocol on Shared Watercourse Systems. The Regional Biodiversity Strategy directly complements this water resource agreement. Adjoined to this biodiversity strategy, member states are all signatories to the Convention on Biological Diversity, and have or are in a process of finalising National Biodiversity Strategy and Action Plans (NBSAP). South Africa has recently published an NBSAP (DEAT 2005) which demonstrates clear recognition of the benefit derived from the diversity of species which have learnt to use e.g. food, fibre, medicine, and points to the need for integrated terrestrial and aquatic management to minimise threats facing biodiversity and ecosystem services for improved social and economic security.

302. Since South Africa's transition to democracy the challenge of translating political change into actual realised social and economic benefits is a national priority. The Accelerated and shared growth initiative – South Africa (AsgiSA) is the governments economic development strategy focussed on addressing the issues of poverty alleviation, unemployment and promoting economic growth. This development and implementation strategy outlines the constraints and barriers to growth, key investment areas and government and institutional interventions that are required. It however has had little focus on sustainability. The National Strategy for Sustainable Development is a newly emerging framework for shifting South Africa's development path to one of sustainable development. Its objectives are to increase economic growth via environmental integrity, social equity and economic development, builds on existing programs (such as AsgiSA), and use multi-stakeholder approaches.

TRINIDAD AND TOBAGO

303. The Parliament of Trinidad and Tobago approved a National Environmental Policy (NEP) in 2005 pursuant to requirements of the EM Act (2000). The policy contains a mandate to "Conserve life-support systems i.e., the ecological systems that cleanse air and water, regulate water flow, recycle essential elements, create and regenerate soil and enable ecosystems to renew themselves." It also identifies other sustainable ecosystem service benefits such as "oxygen production, carbon fixing, aquifer recharge, stabilization of soils against erosion, prevention of flooding and the provision of animal habitats." The Government of Trinidad and Tobago has provided legal protection to some of the areas that

provide these ecosystem services areas under the Forest Act (1980) and the Environmentally Sensitive Areas Rules (2001) but much more needs to be done.

304. The Parliament of Trinidad and Tobago approved legislation in 2001 for the creation of a “Green Fund” to provide resources to Organizations and Community Groups⁷ to partner with Government to conserve the environment. The Green Fund is taken as a tax of 0.1% of the gross sales and receipts of companies carrying on business in Trinidad and Tobago. The fund can only be used for reforestation, remediation and conservation projects. The activities financed by the Fund are managed by the Green Fund Unit of the Ministry of Planning, Housing and the Environment. This circumstance provides a unique opportunity to refine the project criteria to be more proactive and engage vulnerable communities in a payment for ecosystem services system to be funded by the Green Fund.

305. The Government of Trinidad and Tobago through the Ministry of Planning, Housing and the Environment (MPH&E) is about to initiate the development of a new National Physical Development Plan to be made pursuant to the Town and Country Planning Act (1968). The proposed project has the potential to offer a spatial based ecosystem services planning model, which can be mapped onto the macroeconomic planning framework.

306. The government of Trinidad and Tobago ratified (1994) the Ramsar Convention on Wetlands and is committed to implement its obligations under this Convention. These actions have included the formulation of a National Wetland Policy, which has been approved by the Cabinet in 2001 (and which provides for exemplary practices⁸ in support of wetland conservation). By ratifying the Conventions on Biodiversity and Desertification the government of Trinidad and Tobago has further accepted a commitment to conserve and manage in a sustainable way its natural resources. GOTT has also ratified the Convention on Climate Change and signed the Kyoto Protocol. Reducing rates of deforestation and protecting coastal ecosystems are priorities under the environmental and climate outlooks of the country.

VIET NAM

307. Wetland management in general and environmental services in particular have been identified as a high priority in the legislative framework of Viet Nam, e.g. in the Biodiversity Law, or the Management Strategy for a Protected Area System in Viet Nam to the year 2010, etc.

308. The Biodiversity Law, approved by National Assembly on 13th November 2008. The Law has two articles that directly link to payment for ecosystem services:

- Article 35; Sustainable development of natural wetlands’ natural ecosystems
 - Natural wetlands are marsh, peaty or permanently or temporarily wet areas, including sea areas of a depth not exceeding 6 meters at the lowest tide level.
 - Statistical and inventory reviews on natural wetlands shall be conducted according to the Land Law.

⁷ “Organization” means (a) a body incorporated by or under a law other than the Companies Act, or (b) a group of persons registered by the Ministry with responsibility for community development as a non-governmental organization, which is primarily engaged in activities related to the remediation, reforestation and conservation of the environment. “Community Group” means a group of individuals from a particular locality within Trinidad and Tobago which is (a) primarily engaged in activities related to the remediation, reforestation and conservation of the environment, and (b) registered as a community-based organization by the Minister with responsibility for community development.

⁸ Revision of laws and institutional structures, development of environmental impact assessments and management plans, monitoring of ecological character, involvement of local communities in decision making, education and public awareness.

- Provincial-level People's Committees shall conduct surveys, statistical and inventory reviews and assessment of the current status of biodiversity and determine sustainable development mechanisms for natural ecosystems and locations and areas of natural wetlands on land use maps or their sea coordinates.
- Article 74; Environmental services related to biodiversity
 - Organisations and individuals using environmental services related to biodiversity shall pay charges to service providers.
 - The Government shall specify environmental services related to biodiversity.

309. Management strategy for a protected area system in Viet Nam to the year 2010. The strategy has four main objectives, the first of which is directly linked to wetland management: “To establish, organise and manage effectively a protected area (PA) system located in different ecosystems (including terrestrial, wetland and marine) in order to protect, within an ecologically sustainable development framework, the rich and unique biodiversity and landscape resources of Viet Nam; closely link conservation and development activities; and fully mobilise the roles and functions of the PA system to actively support the implementation of the Comprehensive Development and Hunger Eradication and Poverty Strategy.”

310. National Strategy for Environmental Protection until 2010 and Vision toward 2020. This strategy is the legislative framework for environmental protection in Viet Nam. The strategy identifies 5 major fundamental tasks for environmental protection. Two main activities identified in the strategy strongly support the protection and conservation of wetlands.

- Activities 3.4.3 River basis and Wetlands: Wetlands are an especially essential component of the environment. To conserve wetlands is to ensure the effective use of them and their biodiversity and, at the same time, sustain the ecological and socio-economic functions of these areas. Immediate actions to be taken to conserve wetlands environment include: the elimination of unsustainable wetlands use and irrational land use conversion; the conservation of the existing biodiversity values of wetlands; the rehabilitation of wetland ecosystems in environmentally sensitive regions; and the adoption of a combined system of agro-forestry and fishery to ensure the balance of ecological and socio-economic functions of wetlands
- Activities 3.5.3 on biodiversity conservation. The destruction of mangrove forests and sensitive eco-systems for the expansion of agriculture and aquaculture must be strictly prohibited; the control of forests fires and the rehabilitation of eco-systems and mangrove forests should be simultaneously carried out.

311. Decision Number 34/2005/QDD-TTg dated 22/2/2005 of the Prime Minister on promulgating the Action Programme of Government to implement Resolution 41-NQ/TW dated 15/11/2004 of Politburo on the environmental protection in the industrialisation and modernisation of the country. The Decision promulgates environmental protection programmes for sustainable development, including conservation and biodiversity programmes which directly link with wetland management.

312. Decision 380/2008/QDD-TTg of the Prime Minister on the Pilot Policy for Payment for Forest Environmental Services. Article 1 of the pilot policy states as its overall purpose “to establish the basis for the development of a legal framework for a national policy on payment for forest environmental services to be applied in the whole country, where the responsibilities and benefits of the payers and payees of forest environmental services (here after referred to as forest environmental services: FES) are clearly defined and to socialise the forestry sector, gradually establishing sustainable economic basis for protecting the environment and ecosystems, improving quality of service provision, especially ensuring

water supply for electricity production, for clean water production, and ecotourism business activities.”

313. Article 2, Scope of stipulation, refers to 1: the types of forest environmental services; norms of payment for use of services; the management of the money collected from FES provision; rights and responsibilities of the payees and payers of forest environmental services, and the responsibilities of the government agencies to the implementation of the policy on payment for forest environmental services. Secondly, it states that the timeframe for the application of the pilot policy for payment for forest environmental services is 02 years, starting from the date this Decision comes into force. The pilot policy is to be applied within the areas of Lam Dong, Son La, Dong Nai, Hoa Binh, Binh Thuan, Ninh Thuan and Ho Chi Minh City.

3.7. Incremental cost reasoning

314. The threats to the ecosystems in the four pilot countries vary widely according to the different ecosystems, as described in Section 2. Nevertheless, various common drivers can be identified, and among these are: (i) Land use and habitat modification and the unsustainable exploitation of natural resources, resulting from both the need to satisfy basic and urgent needs of the poor local population as well as extensive agricultural or extraction practices; (ii) ineffective institutional and organisational mandates and overlapping responsibilities, leading to weak environmental policies and poor enforcement abilities as well as a feeble integration of environmental policies into national development planning; and (iii) a deficient information availability and flow, preventing the consideration of ecosystem services in most development decisions. Even where data is available, it is usually not in a form suitable for uptake by decision and policy makers.

315. Without the GEF intervention, it is probable that the ecosystems in the pilot areas of Chile, South Africa and Lesotho, Trinidad and Tobago as well as in Viet Nam will continue to experience significant loss of biological value and ecological functions as they are converted for agricultural and extraction purposes, degraded through poor management practices, or neglected due to a lacking recognition and appreciation of the value of their ecosystem services and contributions to a functioning environment. The countries lack financial resources as well as capacities to undertake key activities and develop the necessary tools and decision support systems that can contribute to the development and implementation of sustainable management practices and the integration of ecosystem management and services approaches into national development policies.

316. Among the threats that will probably persist without the GEF intervention are:

At the global level:

- Persistent degradation of ecosystem services;
- Continued habitat destruction and reduction of species;
- Poor utilisation of tools and experiences to improve ecosystem management and sustainable use practices.

At the national and local levels:

- Rural communities and stakeholders barely knowledgeable about ecosystem services, trade-offs and choices;
- Unrelenting loss of natural-resources based livelihoods;
- Continued exposure to natural hazards and risks.

317. Therefore, ProEcoServ is proposing an alternative scenario with the hypothesis that this can be avoided through the development of multi-scale and locally valid tools and decision support models that trigger policy changes toward the mainstreaming of ecosystem

management into sectoral and macroeconomic decision making, as well as by furthering the capacities of both national and local stakeholders through targeted pilot implementation activities. The aim is to foster the enabling conditions by strengthening the organisational and institutional capacities in the four countries at local, provincial and national levels, to better conserve, manage and plan the use of natural resources through ecosystem services approaches and tools that will allow to also create economic alternatives to the currently unsustainable resource management, and to gain tools and experience that can be applied beyond the four pilot countries. Among the expected global environmental benefits are:

- Stabilisation of ecosystem services;
- Conservation of globally significant species and habitats;
- Ecosystem services data and approaches incorporated in sectoral and macroeconomic planning;
- Identification of good practice and lessons learned for a global strengthening of ecosystem management and services approaches.

318. The GEF investment will thus generate significant global benefits in large grass- and dryland, coastal forest and marine ecosystems while at the same time contributing to a paradigm shift toward the integration of ecosystem services into development planning. A detailed incremental cost analysis can be found in Appendix 3.

3.8. Sustainability

319. The overall project approach, as well as the strategies in each of the four pilot countries, is firmly rooted in existing policy processes, mandates and organisational structures. The development of policy-relevant tools and models, as well as the fostering of national sectoral policy frameworks aims at strengthening existing national implementation capacities that in turn will ensure the longer-term mainstreaming of ecosystem management approaches in decision making and national to local implementation. Where such structures have to be fostered or even be created, this will be done in close collaboration with all key stakeholders so as not to duplicate or defy existing processes. In applying such an approach, the project aims at enabling countries to maintain this integrative planning and policy making approach beyond the lifetime of the project.

320. The proposed ProEcoServ strategy and planned interventions in themselves incorporate important factors to maintain the sustainability of the outputs, outcomes and impacts after the project has concluded. These factors include: The development and pilot implementation of tools and planning models that are applicable at various scales and replicable beyond the pilot project areas; the development of capacities at all levels including marginalised sectors of civil society and the government; the overcoming of key barriers to mainstream ecosystem management and ecosystem services approaches into national development planning frameworks and regulatory instruments.

321. Similarly, another core component of ProEcoServ seeks to establish close linkages among national and sub-national planning and implementation experiences with international policy and convening platforms. It therefore aims at sustaining the project interventions by receiving guidance from as well as giving input to those international processes that shape biodiversity-related policy.

322. Further measures to ensure project sustainability are described below in the sections 3.9 and 3.10, as considerations of replicability as well as communications, mainstreaming and awareness are seen as core components of any project intervention strategy that aims at sustaining its impacts beyond project lifetime.

3.8.1 Financial sustainability

323. The project strives to design and implement innovative ways to integrate ecosystem services into decision-making. As financial sustainability will be closely related to levels of commitment of relevant agencies and other stakeholders, strong emphasis was put on informing and involving the relevant agencies and stakeholders during the project preparation phase. The project governance arrangements (e.g. Steering and Advisory Committees) will be an active mechanism to maintain a firm commitment from the diverse agencies and stakeholders. Main project outputs will be developed and shaped to maximise their relevance and usefulness to agencies and local stakeholders.

324. Mainstreaming ecosystem services and management approaches into existing national development planning processes will require external support for a short- to mid-term period of time. However, the project's overall approach is based on the assumption that the longer-term benefits of internalising and valuating ecosystem services will by far outweigh the initial costs of such an integrative process, both at national levels through the harnessing of payments for ecosystem services, as well as globally through reduced threats to important biological resources, and the expected mitigation effects on regulative ecosystem services such as water purification, waste absorption, natural hazard mitigation or carbon capture and sink services.

325. ProEcoServ will foster public-private partnerships and sustainable business initiatives for SMEs to become engaged in ecosystem management and to incorporate pro-environment and pro-poor business strategies. In **CHILE**, for example, is expected that project activities will be developed around ecotourism. This is a growing and promising economic sector in the project area, and also a desired development path, mentioned in a number of national and provincial policy documents. Therefore, its financial sustainability is to a great extent guaranteed by the very nature of the sector.

326. The Green Fund of **TRINIDAD AND TOBAGO** has expressed a special interest in the Payment for Ecosystem Services approach that is included in the ProEcoServ, and has recently approved funding for a project proposal to support the Nariva swamp restoration. This GF-supported project has significant synergies with ProEcoServ, and provides an opportunity to develop a viable avenue for eventual follow-up and expansion of the tools and results of ProEcoServ, as it bears the potential to scope for a market for biodiversity, lifecycle maintenance and ecosystem service credits, that may be created through the hydrology and vegetation restoration of wetlands.

3.8.2 Technical sustainability

327. During the project's preparatory phase, discussions with project partners and collaborating organisations helped to shape the nature and scope of the activities included in the project and thus project elements draw very heavily on local experience and expertise. It is expected that these project partners will continue to be involved and possibly be sub-contracted during the course of the project to deliver on technical components.

328. Because ProEcoServ draws on, complements and builds upon a number of other initiatives throughout each of the four pilot countries, there will be opportunities to reflect on best practices and lessons learned so as to inform the overall development of the project.

329. The project concept of an umbrella approach with four closely linked projects being undertaken around the world provides a sound platform because not only are there several opportunities for cross fertilisation across regions, but there is also the potential to mobilise technical expertise and inputs from UNEP and its networks.

330. Through interaction with the Millennium Sub-global Assessment network, a source of cutting-edge knowledge and experiences, opportunities are provided to test and revise the specific initiatives and technical solutions developed in the four pilot countries.

331. Project governance, through its national and global Steering and Advisory Committees will provide a permanent quality check to project initiatives and results. Additionally, specific outputs, regarded as particularly complex and/or contentious, will benefit from peer review during relevant stages of their development.

3.9. Replication

332. ProEcoServ is principally aimed at developing the capacity of key stakeholders – decision-makers, users and beneficiaries of ecosystem services as well as intermediaries – to develop and apply appropriate ecosystem management tools within sectoral planning frameworks and macroeconomic planning models. Using the experiences and lessons learned from this project, it is hoped that approaches and methodologies for the enhancing of ecosystem management will be developed for replication at national, regional and international scales.

333. With a focus on delivering on-the-ground results, demonstration activities will pilot the bundling of ecosystem services, policy support instruments and the integration of ecosystem services approaches in resource management and decision making to promote innovative solutions that bear potential for scaling-up and replication.

334. The development of tools such as ecosystem mapping, the estimation of ecosystem supply and response functions, trade-off matrices, tools for the valuation of ecosystem services etc., are aimed at informing and involving a broad range of stakeholders so as to be applicable at different scales and settings. They therefore will be developed keeping the need for broad replicability in mind.

335. Aside from fostering tool development conducive to replication, ProEcoServ has built-in concrete measures to ensure that the lessons learned and impacts achieved can be reproduced, for example through the global Component 3. In coordination and reciprocity with the national interventions, an outreach and engagement strategy will be designed with a strong focus on replicability. On the one hand, these interventions will promote communications and the exchange of experiences between the national programmes. On the other, they will allow for systematically gathering and documenting good practice and lessons learned during the project and will facilitate replication beyond the established limits through interaction with international platforms for biodiversity and ecosystem management. Through these platforms, the most important and relevant lessons of the project for the success of mainstreaming ecosystem services approaches will have the potential to influence the international biodiversity agenda and be readily available for application by other initiatives beyond the pilots of the project.

3.10. Public awareness, communications and mainstreaming strategy

336. The proposed project aims to ensure that knowledge and information on ecosystem service and biodiversity management are mainstreamed into public and private sectors responsible for the use and management of national natural resources. In order to do so, project involvement and support of social and stakeholder engaged processes will be ensured where science and policy work together to allow for the uptake of the results of the project.

337. The project consists of national scale and sub-national scale activities which will contribute to developing and testing tools, influencing policy and regulatory frameworks,

engaging in management processes and furthering new partnerships and markets. Of key importance to this mainstreaming process is the participation and ownership of stakeholders in this project. In order to facilitate this participation close communication channels between project managers, scientists, development experts and policy makers throughout all project components and among the project pilot countries will be established. This communication will inform the scientists of what is needed and useful, review the validity of the outputs of the project and support scientists in learning how to bridge the science-policy gap, while on the other hand the communication between scientist and stakeholder must ensure buy-in, ownership and belief in the outputs of the project. Communication and exchange between pilot countries will be essential to mutually learn, share and upscale lessons.

338. Component 1 aims at developing and piloting tools for policy makers, based on and designed to include stakeholder needs assessments to ensure that these tools are fit for purpose and useful. It will also include substantial capacity building and awareness raising activities to ensure that the target audience can use these tools in the right way and sees value in the tools themselves. Scenario planning will be an important communication and mainstreaming tool in this component

339. Component 2 aims at mainstreaming tools and knowledge into policy and regulatory frameworks. This involves in-depth understanding and conversation with policy makers and stakeholders responsible for the implementation and enforcement of policy, as well as substantial investment in awareness raising activities. This component will include a carefully designed outreach and dissemination strategy on the relevance of ecosystem services to policy makers and their mandates. It will also include a wide reaching dissemination strategy aimed at the private sector in order to invite participation, build and strengthen partnerships and develop new approaches and packages for responsible business. Finally, a communication and mainstreaming strategy aimed at ensuring the participation of decision makers tasked with development policy and poverty alleviation programs will be built and implemented in order to ensure alignment of their programs with the aims of sustainable ecosystem service management, as well as highlighting opportunities for win-win scenarios. Civil society engagement will include informal presentations and media communications on the project and its relevance to society at large.

340. Component 3 will target international processes and programmes geared at biodiversity conservation, ecosystem management and ecosystem services approaches, as well as human wellbeing goals. Here the communication process will include traditional scientific publications to demonstrate the credibility of the project, as well as participation in these global processes to inform their activities and to receive feedback and further guidance.

3.11. Environmental and social safeguards

341. ProEcoServ's strategy and approach aim at achieving both positive environmental and social impacts, already throughout the project's lifespan, due to its focus on developing and testing tools and methodologies that will facilitate the valuation and integration of ecosystem services into sectoral and developmental planning and policy processes.

342. Factoring ecosystem services into planning and decision making at multiple scales will contribute to raising the value that can be attributed to ecosystem use and thus increase the appreciation of biodiversity conservation by multiple stakeholders. Mapping tools, scenarios of possible futures, supply-response functions or trade-off matrices add to the arsenal of instruments that allow for a further integration of environmental considerations into sectoral and developmental policies.

343. ProEcoServ aims at developing capacities of decision makers, users and beneficiaries of ecosystem services to assess trade-offs and development choices that contribute to strengthened biodiversity and ecosystem resilience, and to develop and apply appropriate ecosystem management tools within sectoral planning frameworks and macroeconomic planning models.

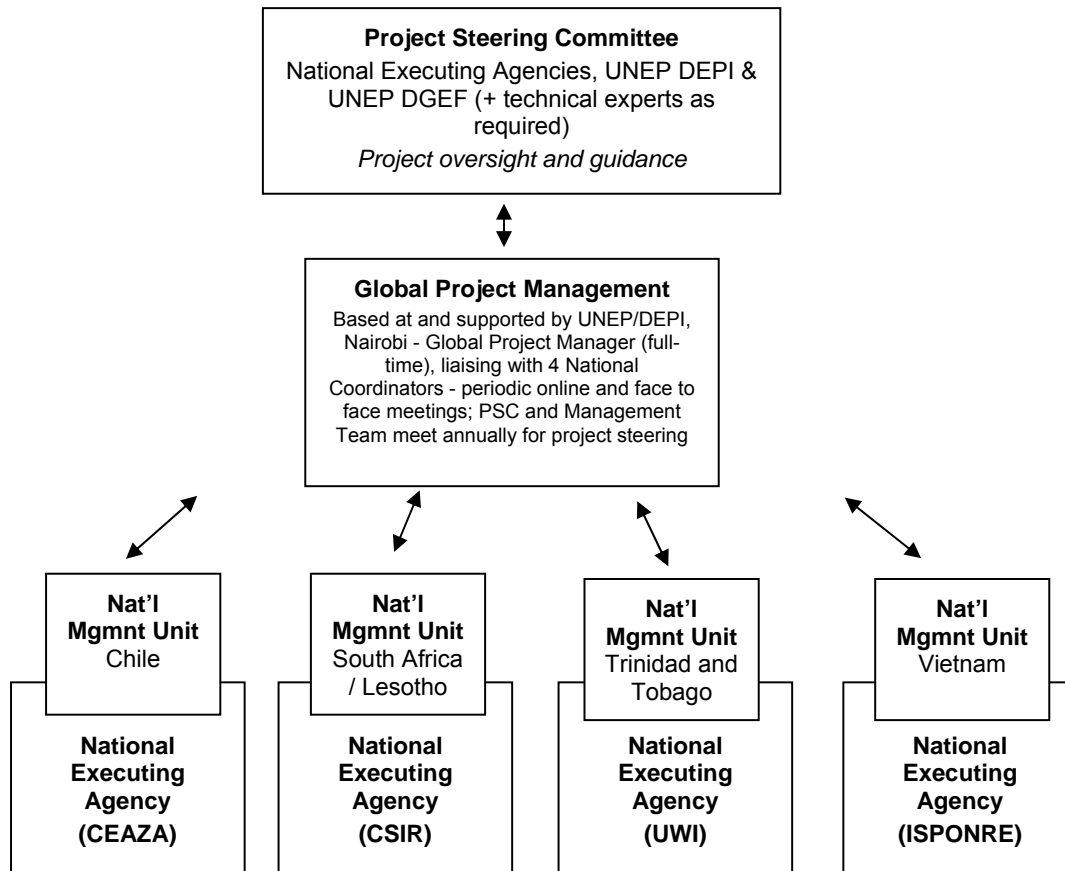
344. The targeted ecosystem services promise to strengthen local constituencies' resilience to natural hazards through enhanced awareness of risks, uncertainties and climate change adaptation prospects and they can marshal financial support for the conservation of globally significant ecosystems. These services present mostly untapped opportunities to increase the sustainability projection of conservation efforts, in view of already stretched protected area and conservation budgets and the mixed record of integrated development and conservation projects.

345. The multi-scale approach of the project will be further guided by considerations of equitable access to ecosystem services. Unless equity and fairness issues are explicitly addressed, response strategies have a high likelihood of failing to meet the objectives of reversing ecosystem services decline. Institutional reforms and incentives might be required so as to minimise the risk to equity and fairness. Trade-off analyses and matrices guiding decisions on ecosystem use options will take into account the values of all services for the various dimensions of human well-being across the entire stakeholder landscape, so as to develop equitable and pro-poor development choices that incorporate sustainable ecosystem usage concerns.

SECTION 4: INSTITUTIONAL FRAMEWORK AND IMPLEMENTATION ARRANGEMENTS

PROECOSERV AT THE GLOBAL LEVEL

346. The project's overall institutional framework can be depicted as in the organigram below.



UNEP's Division of Environmental Policy Implementation (DEPI) will be the Executing Agency of this project. DEPI's Ecosystem Services Economics Unit brings with it a body of scientific and practical experience of critical relevance to the objectives of the project, particularly with regard to ecosystem management, valuation of ecosystem services as well as involvement in and coordination of national and global programmes on ecosystem services. DEPI's Ecosystem Services Economics Unit has been playing a key role in implementing many of the key activities of UNEP on ecosystem service-related issues. For example, since 2008, DEPI's Ecosystem Services Economics Unit has been coordinating the MA Follow-up initiative, which involves not only other Divisions of UNEP but also a wide range of partner institutions involved in the activities which range from further building the knowledge base, development of tools and methodologies, mainstreaming of ecosystem service considerations into planning processes, and to outreach and dissemination of the concept of ecosystem services. DEPI also plays a major role in facilitating the ongoing intergovernmental and multi-stakeholder discussions on strengthening the science-policy interface on biodiversity and ecosystem services, including the possibility to establish an intergovernmental science-policy platform on biodiversity and ecosystem services (IPBES). 347. UNEP has a long standing programme of work in the areas of ecosystem management, economic instruments, subsidies systems reforms and creation of markets for payments of environmental services. In fact, ecosystem management is one of the thematic areas for the programme of work of UNEP for 2010-2011, and UNEP/DEPI is in charge of coordinating the planning and implementation of this sub-programme 3 on ecosystem management for 2010-2011. ProEcoServ will be one of the core activities to be implemented under this programme of work.

348. UNEP/DEPI will be responsible for all aspects of project execution, while UNEP/DGEF as the GEF Implementing Agency will have a supervisory and oversight role, formally participating in the Project's Steering Committee meetings, organising external evaluations with UNEP's external Evaluation and Oversight Unit, reviewing and clearing semi-annual technical and financial reports and the annual PIR (Programme Implementation Reports) for the GEF. UNEP/DGEF will also seek to ensure synergies and cross-fertilisation between ProEcoServ and other similar UNEP GEF projects.

349. The project will establish a Steering Committee (SC) composed of UNEP/DEPI as the project Executing Agency and UNEP/DGEF as the GEF Implementing Agency, as well as (a) representatives from the national executing agencies from each of the countries, i.e. CEAZA (Chile), CSIR (South Africa and Lesotho), UWI (Trinidad and Tobago) and ISPONRE (Viet Nam), and (b) external experts with relevant experience in ES studies, MA sub-global assessments and economic valuation worldwide, identified through UNEP/DEPI's international network. The Steering Committee will meet physically once a year and will be set-up and supported by the Project Management team that will act as the Secretariat to the SC. The Chair of the SC will be nominated by UNEP/DEPI and the nomination will be endorsed by UNEP DGEF. The SC will aim at operating by consensus and with clear TOR as provided in Appendix 11 to this project document. If necessary SC operational guidelines may also be developed prior to SC establishment by the Project Management team, and cleared by UNEP DEPI and UNEP DGEF. SC functions will mainly be to provide overall project oversight, to evaluate the progress of the project relative to the products expected, to provide strategic directions for the implementation of the project – both at national and global level – and to maintain and promote the necessary inter-institutional coordination outside of the project, so as to promote the dissemination and adoption of ProEcoServ findings. Continuous exchange of information and circulation of all relevant project reports through electronic means will be established from the outset and coordinated by the SC secretariat, and steering committee meetings via telephone conference or other electronic means may also be organised if and when required, at the discretion of the SC Chair and Project Manager (acting as the Secretary of the SC).

350. Independent technical advisory groups may, as and when required, be constituted by the project management team in consultation with the SC, consisting of eminent experts in the arena of Millennium Ecosystem Assessment and follow-up, economic valuation of ES, as well as ecosystem services approaches, to provide substantive peer review to tools and approaches used and developed by ProEcoServ.

351. The Executive Project Management Team will be composed of the Project Manager, hired by and responding directly to UNEP/DEPI, leading a team of representatives of each the four national project management units. These will usually be the national project managers. The project management team, led by the Project Manager, will be responsible for overall project management and all day-to-day operational, technical, reporting, administrative and financial aspects of the project.

352. The global project manager will be based in UNEP DEPI, Nairobi, Kenya. He/she will be responsible for day-to-day management of the project, coordinating activities, ensuring exchange of information within the global project team, managing the project's financial and administrative aspects, preparing consolidated semi-annual financial and technical progress reports and PIRs for the UNEP/DEPI and UNEP GEF, setting-up and supporting the project Steering Committee and leading the project's global science-policy interface for outreach and engagement with the international biodiversity and ecosystem management community. He/she will be responsible for the overall management, coordination and reporting functions of the ProEcoServ. S/he will draft TOR and oversee the issuance of sub-contracts by

UNEP/DEPI for each of the project's national implementing partners and international consultants. S/he will supervise the operations of each national project management unit, through regular site visits and by reviewing and clearing the national semi-annual progress and financial reports. The project manager will, in addition to the above tasks for the overall project, also support the Vietnamese project activities through specific technical and managerial inputs that will complement existing capacity in the Vietnamese team (ref Project Manager TOR). The Project Manager will report directly to the Chief of the Ecosystem Services Economics Unit of UNEP/DEPI, who will provide overall supervision to the activities coordinated by the Project Manager. The operation of the Project Manager will be supported by the administrative assistant and other staff members of the Ecosystem Services Economics Unit of UNEP/DEPI as needed. In particular, the MA follow-up coordinator and other professional staff of the Unit will support the Project Manager in implementing activities, through providing technical support in order to ensure that there are synergies between the ProEcoServ and other ongoing activities of the Unit.

353. UNEP Regional Offices, particularly, Regional Office for Latin America and the Caribbean (ROLAC), Regional Office for Asia and the Pacific (ROAP), and Regional Office for Africa (ROA) will be engaged throughout the implementation of the project. Focal points from each Regional Office will be identified before the commencement of the project, who will be kept informed of the progresses of the ProEcoServ and provide technical advice when needed to ensure synergies between the ProEcoServ and other ongoing activities of the region. Those focal points will also ensure the alignment of the ProEcoServ with other activities implemented in the pilot countries by other international agencies, through establishing close contacts with UN Country Teams.

354. These implementation arrangements are designed so as to ensure adequate project management functions, and a constant exchange of information and experiences among the countries involved, as well as interested multi- and bilateral donors and agencies involved in ecosystem management worldwide. The interweaving of national and international representation in the project's steering and executive team will allow for a broad outreach and engagement strategy (project component 3) that is well embedded in the overall project approach and responsive to national needs, priorities and experiences.

355. The respective national-level implementation arrangements are summarised hereafter. Further reference and organisational diagrams can also be found in Appendix 10.

CHILE

356. Three levels can be identified in the project institutional framework and management arrangements. There will be i) the consortium of institutions responsible for the implementation of project activities, ii) an advisory group to the project where main stakeholders (ecosystem services users) will be represented, and iii) a project steering committee which will provide project oversight. The table below describes this arrangement.

Table 5: ProEcoServ Implementation Arrangements, Chile

Level	Institutions	Description	Responsibility
Management team for project implementation – consortium of institutions	Center for Advanced Studies on Arid Zones, CEAZA (Universidad de La Serena and Universidad Católica del Norte), based in La Serena, Chile	CEAZA's main strengths are on the analysis of ecosystem services from dry areas. They have solid experience doing applied and participatory research on dry areas, including the interaction with indigenous people. Among there competencies are spatial mapping, GIS and remote sensing.	It is expected that CEAZA will be responsible for the implementation of most of the project activities; therefore CEAZA will be sub-contracted by UNEP/DEPI with clear TOR and budget based on the ProEcoServ document. The in-country project management and coordination team will be placed at CEAZA, and other implementing partners and consultants will be further sub-contracted by CEAZA.
	Energy and Sustainability Center, Universidad Diego Portales, Santiago, Chile	The Center, and the University's, main strengths are on environmental economics and environmental law (particularly related to water).	The Center will be commissioned by CEAZA to carry out pieces of work that are related to its strengths. In particular, it is envisaged that PES (payment for ecosystem services) related work as well as legal and regulatory reviews will be carried out by the Center.
	Hydrogeology consultants	The area is highly complex in hydrologic and hydrogeologic terms. Being water a critical issue, it is of outmost importance to include solid support on this. The SGA relied on the work of Aquaconsult. These are hydrogeologists with much experience on this particular ecosystem.	They will be in contracted by CEAZA to assist and advise on all the activities related to water (particularly underground water).
	Others to be identified	The work team will likely include one or more institutions which are local (from the project area/region) and which can convey relevant inputs on i.e. the importance of traditional knowledge for sustainable habitat management.	Provide specific advice on i.e. traditional knowledge.
Advisory Group	It is envisaged that the main stakeholder groups (ecosystem services users) will participate in the advisory group.	Similarly to the SGA, the AG will include representatives from: indigenous people, miners, tourism sector, municipality (local government), relevant public agencies (subnational, regional level), irrigators association, main community organisations, etc.	The AG will be set-up and managed by CEAZA and will accompany the project implementation all along its duration. It will be a channel to inform about the project and take in feedback in the way of advice for key project decisions.
Steering Committee	Project management team (acting as the secretariat to the SC), CEAZA (high-level rep.), Environmental Agency CONAMA (two representatives: one from the regional office and the GEF focal point), Water Agency DGA (regional office), Tourism Agency SERNATUR (regional tourism office), Agriculture and Livestock Agency SGA (regional office), Forestry and Protected Areas Agency CONAF (regional office), Indigenous People Atacameños representative, and Municipality representative	This committee includes the most strategic stakeholders for this project. It is envisaged as a key component of the project institutional arrangement. It is envisaged that the Committee will be a way to i) deal constructively with the contentious issues involved (water, mining and tourism), ii) facilitate coordination between the number of diverse initiatives that each agency is planning and carrying out, and iii) guarantee proper and sustainable implementation of project results and concrete instruments.	It will provide overall project oversight. Project management team will annually report to this committee, which in a way will act as the project political and technical supervisory board. The Steering Committee may also request periodic feedback and advice from the AG on specific project outputs and will, in turn, have to communicate its decision to them.

SOUTH AFRICA AND LESOTHO

357. The South African Council for Scientific and Industrial Research (CSIR) will be the national executing body sub-contracted by UNEP/DEPI for the South Africa & Lesotho component of the project. The CSIR was established by the South African Parliament in 1945 as the central scientific research and development (R & D) resource for South Africa. Today the CSIR is among the largest, oldest and most-respected research organisations on the African continent with research and development that supports its mandate of improving the quality of life of Africans. The Project Manager hired by CSIR will be responsible for in-country project management, coordination, execution, monitoring and financial/technical reporting requirements and will consistently liaise with (as part of the overall project management team), and respond to the overall ProEcoServ Project Manager.

358. The project will establish a national steering committee - termed the User Advisory Group (UAG). This group will be drawn from research, implementing and bridging organisations. Bridging organisations are defined as those with a mandate to mainstream scientific knowledge and tools into implementation; in Southern Africa these are mostly from the Non Governmental Organisation Community. The UAG will therefore be composed of national and provincial government departments responsible for environmental, water and natural resource management in South Africa and Lesotho, the South African National Biodiversity Institute, leading researchers in this field of biodiversity and ecosystem service assessment, Non Governmental Organisations including WWF (SA), as well as representatives from the National Grasslands Program and the Gouritz Initiative of the Eden District Municipality.

359. The role of the UAG will be three fold: to advise and review; to design the outputs and processes; and finally to implement or pilot the tools and processes designed in the project in the members' respective duties. Within this UAG the project will form a small team of technical advisors responsible for technical guidance, execution and review of the project components.

360. These formal implementation arrangements are designed to ensure that the tools and outputs developed during the project are user-friendly and user-driven. Ensuring that the project is stakeholder-led while empowering stakeholders in the use and implementation of these tools will aim to bridge the gap that was a major obstacle during SAfMA. This design is maintained at national as well as sub national scales, and makes use of and enhances the bridging role that organisations like WWF and other NGOs already play between researchers and implementing organisations.

TRINIDAD AND TOBAGO

361. The Trinidad and Tobago country project will be executed and coordinated by the University of the West Indies (UWI) that will be contracted by UNEP/DEPI as the in-country project executing agency. The project will also be implemented in collaboration with The Cropper Foundation (TCF) as well as in partnership with the Buccoo Reef Trust, Tobago, the Environmental Management Authority (EMA), the Institute of Marine Affairs, the Department of Natural Resources and Environment (DNRE) of the Tobago House of Assembly (THA), the Green Fund Unit of the Ministry of Planning, Housing and the Environment and the National Herbarium. Other collaborators are the Caribbean Natural Resources Institute (CANARI), Environment Tobago and the Pointe-a-Pierre Wildfowl Trust.

362. The UWI is a regional public university of higher learning and research which has as its functions training, research, the dissemination of knowledge and service to the community. It was established by Royal Charter on the 2nd day of April, 1962. Technical

matters in the project will be coordinated by the UWI Department of Life Sciences which has 25 Ph.D. level staff. Financial matters will be overseen by UWI's Business Development Office and its Bursary. The Cropper Foundation, a not-for-profit organisation established in August 2000, under The Companies Act, 1995 of Trinidad and Tobago. It comprises of 3 full time programme officers on the permanent staff, 2 senior associates, a President, and Board of Trustees. The Cropper Foundation's key mandate is to advance the understanding and implementation of sustainable development practices in Trinidad and Tobago.

363. Other Institutional Support: The World Bank has provided technical assistance in developing plans for the Nariva Swamp Restoration and Carbon Sequestration Project. The World Resources Institute has assisted by leading research on the valuation of coral reefs in Tobago. The National Herbarium and Oxford University through its Department of Plant Sciences have provided technical inputs through research providing a complete floristic analysis of Trinidad and Tobago. However, these institutions will not be involved in the implementation phase of this project.

364. Trinidad and Tobago Green Fund (GF) for reforestation and remediation projects: This approximately US\$ 300 million environmental fund managed by the Ministry of Planning, Housing and Environment has recently been made operational. The Green Fund has expressed a specific interest to develop and implement a pilot pro-poor Payment for Ecosystem Services scheme as a complement to ProEcoServ, and has recently approved (Feb 2010) a US\$ 10 million project to restore the Nariva Swamp, which has strong synergies with ProEcoServ.

VIET NAM

365. At national level, the Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE), an agency under the Ministry of Natural Resources and Environment (MONRE) will be contracted by UNEP/DEPI as in-country executing agency, and will work in close collaboration with other relevant line ministries including the Ministry of Agriculture and Rural Development (MARD), Ministry of Finance (MOF), Ministry of Planning and Investment (MPI), as well as the Mekong River Commission in Viet Nam.

366. At provincial level, the project will mobilise the participation of People Committees, DONRE and DARDs of pilot provinces in Mekong Delta River. Further, a technical advisory group will be established to support the implementation of the project, and to provide technical guidance for facilitating the project implementation.

367. The project management arrangements were decided on the basis of the existing management capacities of MONRE and specifically ISPONRE. The different advisory and management provisions are as follows:

- Project Steering Committee (PSC)
- Project Management Unit (PMU)
- Technical Working Group (TWG)

368. The PSC will consist of high-level representatives from MONRE, MPI, MARD and MOF. It will be chaired by the Vice Minister of MONRE in charge of Environment. The primary roles of the PSC are as follows:

- To provide overall guidance to the implementation of the project;
- To ensure good coordination among participating agencies, sectors and international organisations.

369. The project management unit (PMU) will be responsible for managing and coordinating the activities of the project and for ensuring that the project delivers the intended outputs in a timely fashion. The Vietnamese PMU will consist of the following members:

- The National Project Director (NPD)
- The National Project Manager (PM)
- National Project Accountant/Interpreter (PAI)
- Provincial Project Coordinator (based in Ca Mau province)

370. The Technical Working Group (TWG) will consist of senior technical staff from (i) MONRE Departments; (ii) other Government agencies (i.e. MARD, MPI and MOF). The TWG members will be officially nominated as representatives of their departments in performing their responsibilities. The TWG may also include representatives of the most relevant ecosystem services programmes that operate in Vietnam under the various ministries, and will be responsible for enhancing cooperation between MONRE and other ministries – both at the central and regional level - and between departments within MONRE at the operational level. The TWG will have the following primary roles:

- To provide technical guidance and inputs into the implementation of the project activities;
- Members of the TWG from relevant departments will each take on specific responsibilities for advising, coordinating, facilitating, and monitoring certain activities toward specific outputs and targets as per their institutional mandates.

Table 6: ProEcoServ Implementation Arrangements, Viet Nam

Level	Description	Responsibility
Executing Agency ISPONRE/MONRE	The Institute has the following functions: research socio-economic policies relating to natural resources and environment; propose and develop strategies and policies in the areas of MONRE's mandate; conduct science and technology research, and provide consultancy services and training courses on natural resource management and environmental protection	<ul style="list-style-type: none"> • To manage and coordinate the activities of the project • To facilitate the mainstreaming of ES into national and local planning process
Participating agencies MARD, MPI, MOF, PPCs	Various roles and mandates relating to Wetland Management in their management sector	<ul style="list-style-type: none"> • Ensure ES are considered in their sectoral management planning processes
Institute of Geography Ha Noi National University	Experiences on ecosystem service related studies	<ul style="list-style-type: none"> • Ensure that the project contributes to SGA • Participate in ES study and valuation
The project management unit (PMU)	The PMU will consist of: The National Project Manager (PM). Project Secretary/Interpreter (PSI). Project Accountant (PA) Provincial Project Coordinator	<ul style="list-style-type: none"> • responsible for managing and coordinating all the activities of the project to ensure that the project will deliver the intended outputs
Steering Committee	High-level representatives from MONRE, MPI, MARD, MOF. Chaired by the Vice Minister of MONRE in charge of Environment	<ul style="list-style-type: none"> • To provide overall guidance to the implementation of the Project; • To ensure good coordination among participating agencies, sectors and international organisations.
Technical Working Group (TWG)	Senior technical staff from (i) MONRE Departments; (ii) other Government agencies (i.e. MARD, MPI, MOF) and relevant ES projects in Vietnam	<ul style="list-style-type: none"> • To provide technical guidance and inputs into the implementation of the project activities; • Channel to inform about the project and source of feedback and advice for key project decisions.

SECTION 5: STAKEHOLDER PARTICIPATION

371. Key globally active stakeholders in furthering and promoting ecosystem services and their integration into development planning and policy making are already identified in Section 2.7. ProEcoServ will actively seek to engage them in its project activities, particularly with regard to the science-policy interface of Component 3, as well as in its Steering Committee and Advisory Body.

CHILE

372. As presented in Section 2.5, main stakeholders (users of ecosystem services and decision-makers) in the project area include:

- Indigenous people (the Atacameños)
- Mining companies
- Local government authorities
- Public agencies at the regional level (subnational)
- Tourism operators and entrepreneurs, and
- Regional universities.

373. These stakeholders were involved in project preparation and will be directly and continuously involved in the project through their participation in tool development and pilot implementation, recurrent workshops, seminars, feedback and surveys and through participation in the project Advisory Committee and Steering Committee (Section 4).

374. Additionally, from the outset the project will implement an outreach strategy to the general public at the different geographical scales (local, regional and national). This strategy will make use of different media and formats to disseminate project information and results. The strategy will follow a systematic approach to the definition of key messages to targeted public. Crucial in this strategy will be the detailed knowledge that already exists about the human (social, cultural, economic, etc.) characteristics of the diverse stakeholders, particularly at the local level. It is expected that this knowledge will inspire innovative and appropriate means for participation in project implementation itself and for the dissemination of information. The Advisory and Steering Committees will be, in themselves, an opportunity to capture and disseminate relevant information.

375. Initiatives that the project will carry out with specific community groups (such as local schools and SMEs) will be an additional opportunity for participation of the interested stakeholders.

376. At the regional and national level, efforts will be deployed in order to disseminate information through the media (regional, cable TV channels, regional newspapers, etc.). Internet will also be used, particularly through the project website and partners' institutional websites (University of La Serena and University Diego Portales).

SOUTH AFRICA AND LESOTHO

377. The stakeholder mapping and analysis in section 2.5 highlighted the stakeholder groups of relevance which are summarised below, including the roles they will play in the project and their position in the project team. The project team will include a User Advisory Group (UAG) which will include representatives from relevant government departments at all levels of government, researchers, and NGOs, as well as representatives from the National Grasslands Biodiversity Program and the Gouritz Initiative Forum of the Eden District Municipality. The role of the UAG will be threefold: to advise, to contribute to the design the outputs and process, and finally to implement the tools and processes designed in the

project in their respective duties. Within the UAG will be a small team of technical advisors, forming the Technical Advisory Group (TAG), responsible for the execution of the project.

Table 7: Stakeholders and their involvement in project execution, South Africa

Scale	Stakeholder group	Name	Role	Team
National	Government	DWEA	Policy maker	UAG
National	Government	NDA	Policy maker	UAG
National	Government	SANBI	Policy and research coordination	UAG and TAG
National	Civil society	WWF-SA	NGO	UAG and TAG
National	Research community	Universities, science councils	Advisory and research	UAG and TAG
National	Private sector	Wine industry, supermarket retail, mining industry, ostrich farming industry, breweries, other	Potential mechanism for mainstreaming	UAG
Regional	National Grasslands Biodiversity Program*	NGBP (and their stakeholder group)	Project implementer, researcher and mainstreaming body	UAG and TAG
Provincial	Government	Dept. Agriculture	Policy maker & enforcer	UAG
Provincial	Government	Dept. Water, Environment	Policy maker & enforcer	UAG
Provincial	Government	Conservation	Policy maker and enforcer	UAG
Local	Government	Eden District Municipality official and councilors	Decision maker	UAG
Local	Civil society	Gouritz Initiative Forum*	NGO and citizens	UAG

* These programs represent a broad stakeholder group from government, civil society and business and will help enhance the stakeholder engagement process

378. These stakeholders were consulted during the preparation of the project in order to both ensure buy-in into the project and to inform the design of the project and its outputs. In addition to representation on the project team, stakeholder participation, workshops and communication are elements of all project components. The design of this engagement is systematic and designed to cater for particular groupings or stakeholders at different scales.

TRINIDAD AND TOBAGO

379. The National Environmental Policy of Trinidad and Tobago recognises that 'if the ethic sustainable development is to be widely adopted, people must re-examine their values and alter their behaviour'. In order to do so, the GOTT has identified several mechanisms for building awareness and developing capacity, including:

- Local communities, environmental NGOs and CBOs which provide the easiest channels for people to express their concerns and take action to create sustainable societies, and need the power to act
- Communities should be given an opportunity to share in managing their local resources and the right to participate in decisions
- Local government bodies, communities, businesses, NGOs and CBOs and other interest groups should become partners with Central Government in decisions and projects, which affect them, their environment, and the resources on which they depend. The co-management of natural resources is essential to the success of any efforts to protect and conserve

380. This project provides an opportunity to develop the mechanisms and approaches which best facilitate a co-management approach to the protection and effective management of ecosystems and their services. The following table outlines the areas of collaboration

previously agreed by the technical partners at the two stakeholder meetings and subsequent consultations.

Table 8: Stakeholder collaboration in Trinidad and Tobago

Collaborator	Areas of collaboration
Green Fund Unit, Ministry of Planning Housing and Environment (MPHE)	<ol style="list-style-type: none"> 1. General support of project; member of Project Steering Committee 2. Access to international technical expertise 3. Development and implementation of pilot pro-poor Payment for Ecosystem Services model 4. Evaluation of decision support software 5. Assistance in design of interventions 6. Dissemination of PES model to stakeholders and policy makers, especially through advocacy of project with the Ministry of Planning, Housing and Environment
Chief Secretaries Office and Department of Natural Resources and Environment, Tobago House of Assembly (THA)	<ol style="list-style-type: none"> 1. General support of project; member of Project Steering Committee 2. Access to local knowledge and technical expertise. Design and implementation of interventions 3. Advocate with MPHE for inclusion of project policy recommendations in National Planning Framework 4. Dissemination and advocacy of lessons learned especially with regard to coral reef ecosystem services and benefits to fisher-folk, hoteliers and other coastal users as well as policy makers.
Environmental Management Authority (EMA)	<ol style="list-style-type: none"> 1. General support of project; member of Project Steering Committee 2. Expertise of senior technical officers in all stages of project implementation especially the Nariva Swamp Restoration and Carbon Sequestration Project which EMA is coordinating 3. Assistance in design of policy interventions 4. Assistance in design of monitoring and evaluation procedures 5. Review of draft Environmental Code for opportunities to introduce ecosystem services. 6. Analysis of data for opportunities for inclusion of project results in the State of Environment Report to be laid in Parliament. 7. Advocacy for inclusion of policy and legal recommendations in National Environmental Policy and national legislation
Institute of Marine Affairs (IMA) and the University of Trinidad and Tobago (UTT)	<ol style="list-style-type: none"> 1. General support of project; member of Project Steering Committee 2. Expertise of Research Officers in project implementation especially in the Northern Range Project, which they will lead with funding from UNEP 3. Assistance with further refinement of coral reef, disturbance protection response function which they have pioneered along with WRI 4. Assistance with mangrove swamp disturbance protection valuation
Buccoo Reef Trust	<ol style="list-style-type: none"> 1. General support of project; member of Project Steering Committee 2. Expertise of senior technical officers in all stages of project implementation especially with regard to the further use of the IWCAM coral reef and other watershed data, which they have generated in Tobago with GEF funding
Caribbean Natural Resources Institute	<ol style="list-style-type: none"> 1. General support of project; possible member of Project Steering Committee 2. Expertise of partners in meeting facilitation, training and mass media campaigns
Sustainable Economic Development Unit (SEDU), UWI Environment Tobago	<ol style="list-style-type: none"> 1. General support of project; possible member of Project Steering Committee 2. Expertise in ecological economics especially payment for watershed ecosystem services and coral reef ecosystem service valuation 3. Leading all the economic valuation work in the project
Environment Tobago	<ol style="list-style-type: none"> 1. General support of project; possible member of Project Steering Committee 2. Expertise in environmental education

	<ol style="list-style-type: none"> 3. Development of materials for dissemination of lessons learnt through the school education system. 4. Access to local knowledge and technical expertise on wetlands and coastal ecology.
Pointe-a-Pierre Wildfowl Trust, Trinidad	<ol style="list-style-type: none"> 1. General support of project; possible member of Project Steering Committee 2. Expertise in environmental education 3. Development of materials for dissemination of lessons learnt through the school education system. 4. Expertise in wetland ecology.
Association of Caribbean States (ACS)	<ol style="list-style-type: none"> 1. General support of project 2. Advocacy in the Caribbean Sea Commission for uptake of project results related to Caribbean Sea ecosystem services 3. Advocacy at the United States General Assembly for uptake of project results related to advancing the UN Resolution on the sustainable management of the Caribbean Sea

VIET NAM

381. As presented in Section 2.5, main stakeholders (users of ecosystem services and decision-makers) in the project area include:

- Ministry of Natural Resources and Environment (MONRE)
- Ministry of Agriculture and Rural Development (MARD)
- Ministry of Planning and Investment (MPI)
- Ministry of Finance (MOF)
- General Department of Tourism (GDT)
- The people's committee of provinces
- Department of Natural Resources and Environment (DONRE)
- Department of Planning and Investment (DPI)
- Research Institutes/Universities
- NGO (IUCN, WWF)

Table 9: Stakeholders and their involvement in project execution, Viet Nam

Scale	Stakeholder group	Name	Role	Team
National	Government	MONRE	Policy maker	SC
National	Government	ISPONRE	Technical Unit	Coordinator
National	Government	MARD	Policy maker	SC
National	Government	MPI	Policy maker	SC and TWG
National	Government	GDT	Policy maker	SC and TWG
National	University/Institute	Institute of Geography Ha Noi University	Advisory and research	SC and TWG
National	NGO	IUCN WWF	Advisory and research	TWG
Local	Government	Provincial People Committee	Policy maker	SC and TWG
Local	Government	Department of Natural Resources and Environment	Advisory and research	TWG

These stakeholders will be involved in the project through their participation in tool development and pilot implementation, workshops, seminars, training courses, etc.

SECTION 6: MONITORING AND EVALUATION PLAN

382. The project will follow UNEP standard monitoring, reporting and evaluation processes and procedures. Substantive and financial project reporting requirements are summarised in Appendix 7. Reporting requirements and templates are an integral part of the UNEP legal instrument to be signed by the UNEP/DEPI and sub-contracted executing agencies and UNEP DGEF.

383. The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in Appendix 4 includes SMART indicators for each expected outcome as well as mid-term and end-of-project targets. These indicators along with the key deliverables and benchmarks included in Appendix 6 will be the main tools for assessing project implementation progress and whether project results are being achieved. The means of verification and the costs associated with obtaining the information to track the indicators are summarised in Appendix 7. Other M&E related costs are also presented in the Costed M&E Plan and are fully integrated in the overall project budget.

384. The M&E plan will be reviewed and revised as necessary during the project inception workshop to ensure project stakeholders understand their roles and responsibilities vis-à-vis project monitoring and evaluation. Baselines, indicators and their means of verification may also be fine-tuned at the inception workshop. Day-to-day project monitoring is the responsibility of the project management team but other project partners will have responsibilities to collect specific information to track the indicators. It is the responsibility of the Project Manager to inform UNEP/DEPI, UNEP/DGEF and, if necessary, the project Steering Committee of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.

385. The project Steering Committee will receive and review periodic reports on progress and will make recommendations to UNEP/DEPI concerning the need to revise any aspects of the Results Framework or the M&E plan. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility of UNEP DGEF through its assigned Task Manager and Fund Manager. The UNEP DGEF will also review the quality of draft project outputs and financial/technical progress reports, participate and provide feedback to the project partners through the Steering Committee, and assess the peer review procedures put in place by the project team to ensure adequate quality of scientific and technical outputs and publications.

386. At the time of project approval approximately 70% of baseline data is available. Baseline data gaps will be addressed during the first year of project implementation, particularly in Viet Nam. A plan for collecting the necessary baseline data is presented in Appendix 7. The main aspects for which additional information are needed are ecosystem data in the respective pilot sites, as well as opportunities and gaps in national policy and regulatory instruments as entry points for mainstreaming ecosystem services.

387. Project supervision will take an adaptive management approach. The UNEP DGEF Task Manager will develop a project supervision plan at the inception of the project which will be communicated to the project partners during the inception workshop. The emphasis of the UNEP DGEF supervision will be on outcome monitoring, as well as project financial management and implementation monitoring. Progress vis-à-vis delivering the agreed project global environmental benefits will be assessed with the Steering Committee at agreed intervals. Project risks and assumptions will be regularly monitored both by project partners UNEP/DEPI and UNEP DGEF. Risk assessment and rating is an integral part of the Project Implementation Review (PIR) prepared by the UNEP/DEPI project team in collaboration with project partners and UNEP DGEF, for submission to the GEF Secretariat on an annual basis. The quality of project monitoring and evaluation will also be reviewed and rated as part of the

PIR process. Key financial parameters will be monitored semi-annually to ensure cost-effective use of financial resources.

388. A mid-term management review or evaluation will take place on or about month 24 of project implementation, as indicated in the project milestones. The review will be coordinated by the independent Evaluation and Oversight Unit (EOU) of UNEP. It will include all parameters recommended by the GEF Evaluation Office for external mid-term and terminal evaluations and will verify information gathered through the GEF tracking tools, as relevant. The review will be carried out using a participatory approach whereby parties that may benefit or be affected by the project will be consulted. Such parties were identified during the stakeholder analysis (see section 2.5 of the project document). The project Steering Committee will participate in the mid-term review and develop a management response to the evaluation recommendations along with an implementation plan. It is the responsibility of the UNEP DGEF Task Manager to monitor whether the agreed recommendations are being implemented.

389. An independent terminal evaluation will take place at the end of project implementation. The independent Evaluation and Oversight Unit (EOU) of UNEP will manage the terminal evaluation process. A review of the quality of the evaluation report will be done by EOU and submitted along with the report to the GEF Evaluation Office not later than 6 months after the completion of the evaluation. The standard terms of reference for the terminal evaluation are included in Appendix 9. These will be adjusted to the special needs of the project.

390. The relevant GEF tracking tools are attached as Appendix 15. These will be updated at mid-term and at the end of the project and will be made available to the GEF Secretariat along with the project PIR report. As mentioned above the mid-term and terminal evaluation will verify the information of the tracking tool.

SECTION 7: PROJECT FINANCING AND BUDGET

7.1. Overall project budget

	<i>Project Preparation a</i>	<i>Project b</i>	<i>Total c = a + b</i>	<i>Agency Fee</i>	<i>For comparison: GEF and Co-financing at PIF</i>
GEF financing	67,000	6,296,637	6,363,637	636,364	6,296,637
Co-financing	45,000	19,620,551	19,665,551		14,000,000
Total	112,000	25,917,188	26,029,188	636,364	20,296,637

Project framework

Project Components	GEF Financing*		Co-financing*		Total (\$)
	(\$) a	%	(\$) b	%	c=a+b
1. Policy Support Tools	2,859,474	26%	8,290,238	74%	11,149,712
2. Policy Environment	2,228,163	19%	9,449,954	81%	11,678,117
3. Science-Policy Interface	580,000	36%	1,044,359	64%	1,624,359
4. Project Management	629,000	43%	836,000	57%	1,465,000

Total Project Costs	6,296,637	24%	19,620,551	76%	25,917,188
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7.2. Project co-financing

Cash		
CSIR, South Africa	1,000,000	5.1
TCF, Trinidad and Tobago	150,000	0.8
Government of Viet Nam	426,250	2.2
RCFEE, Viet Nam	80,000	0.4
Sub-total	1,656,250	8.4
In-kind		
CONAMA, Chile	92,237	0.5
CONAF, Chile	80,000	0.4
DGA, Chile	80,000	0.4
SAG, Chile	80,000	0.4
Sernatur, Chile	80,000	0.4
CEAZA, Chile	400,000	2.0
UDP, Chile	50,000	0.3
Aquacons., Chile	80,000	0.4
Escondida, Chile	100,000	0.5
SQM, Chile	100,000	0.5
IEB, Chile	274,285	1.4
CSIR, South Africa	800,000	4.1
SANBI, South Africa	70,000	0.4
UWI, Trinidad and Tobago	489,915	2.5
TCF, Trinidad and Tobago	144,500	0.7
The Green Fund, Trinidad and Tobago	10,828,674	55.2
ISPONRE, Vietnam	300,000	1.5
PPG, Vietnam	200,000	1.0
RCFEE, Viet Nam	300,000	1.5
IOG, Vietnam	200,000	1.0
IUCN, Vietnam	300,000	1.5
UNPEI	25,000	0.1
NCP	45,000	0.2
UNU	80,000	0.4
UNEP	2,764,690	14.1
Sub-total	17,964,301	91.6
Project Co-financing total	19,620,551	100.0

7.3. Project cost-effectiveness

391. ProEcoServ will work closely with existing government structures, national organisations and local stakeholders to better understand direct and indirect drivers of ecosystem change and to jointly develop more efficient policy responses in order to address these challenges. The project will also link up with and build upon ongoing and relevant global initiatives. This approach is adopted to generate greatest possible synergies at the national and global level, and therefore maximise cost-effectiveness. This approach will generate global benefits in terms of (a) positively contributing to the enhanced conservation status of globally important ecosystems, and (b) positively contributing to the ongoing international dialogue on the uptake of ES tools and considerations into national and international decision making. The coordinated approach among project activities at the national and global level, facilitated by the UNEP/DEPI and Project Steering Committee, will avoid duplication of activities and investment, maximise synergies with other relevant initiatives and improve cost-effectiveness.

392. Cost-effectiveness measures include:

- Building on existing programmes and grassroots efforts at the national and international level;
- Building on prior experience and data generated through the SGAs;
- Using national demonstration projects in well-established institutions to (a) contribute to the conservation of globally important ecosystems in the project areas of intervention, and (b) provide a solid contribution, based on good examples of practical ES applications to decision making, to the ongoing global dialogue on how to improve the science-policy interface for a better uptake of ES considerations into political decision making (therefore also contributing to globally relevant conservation effort at the level of international conventions);
- Harmonising activities and creating synergies with the MA Follow-up Network (with UNEP/DEPI and several project partners being involved in both processes); and
- Targeting a broad range of stakeholders through existing national and global networks, so as that maximise impacts at various governmental and societal levels.

393. The scoping for innovative international markets for ecosystem services will also offer potential new mechanisms for PES financing instruments beyond the local or national levels. The Green Fund of Trinidad and Tobago for example has expressed a special interest in the PES approach that is included in ProEcoServ, and has recently approved funding for a project proposal that provides substantial support for the restoration of the Nariva swamp. This considerable co-funding source provides a viable avenue for follow-up and expansion of the approaches and tools developed in the framework of ProEcoServ, not only for Trinidad and Tobago, but for scaling-up and replication at a broader scale.

APPENDICES

- Appendix 1: Budget by project components and UNEP budget lines**
- Appendix 2: Co-financing by source and UNEP budget lines**
- Appendix 3: Incremental cost analysis**
- Appendix 4: Results Framework**
- Appendix 5: Workplan and timetable**
- Appendix 6: Key deliverables and benchmarks**
- Appendix 7: Costed M&E plan**
- Appendix 8: Summary of reporting requirements and responsibilities**
- Appendix 9: Standard Terminal Evaluation TOR**
- Appendix 10: Decision-making flowchart and organisational chart**
- Appendix 11: Terms of Reference**
- Appendix 12: Co-financing commitment letters from project partners**
- Appendix 13: Endorsement letters of GEF National Focal Points**
- Appendix 14: Draft procurement plan**
- Appendix 15: Tracking Tools**
- Appendix 16: Additional national data sets on stakeholder engagement and ecosystem services studies**
- Appendix 17: Linkages with other relevant interventions and activities**