Document of the OECS Secretariat
and the
United States Agency for International Development (USAID)

PROJECT DOCUMENT

ON

CLIMATE VARIABILITY, CHANGE AND ADAPTATION

SEPTEMBER 2010

CURRENCY EQUIVALENTS

CURRENCY UNIT = EASTERN CARIBBEAN DOLLARS
US$1 = EC$ 2.67

FISCAL YEAR
JULY 1 – JUNE 30

ABBREVIATIONS AND ACRONYMS

CARICOM	Caribbean Community
COMET	Cooperative Program for Operational Meteorology, Education and Training
CROSQ	Caribbean Regional Organisation for Standards and Quality
CZMU	Coastal Zone Management Unit
EOP	End of Project
EPC	Environment Policy Committee
ESDU	Environment and Sustainable Development Unit
GHG	Green House Gas
IPCC	International Panel of Experts on climate change
ISM	Island Systems Management
KAP	Knowledge, Attitudes and Practice
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
NEMS	National Environmental Management Strategies
OECS	Organisation of Eastern Caribbean States
PMS	Participating Member State
PS	Participating States
PSC	Project Steering Committee
TAC	Technical Advisory Committee
SAR	Search and Rescue
SGD	St. George's Declaration of Principles for Environmental Sustainability in the OECS
SIDS	Small Island Developing States
UN	United Nations
USAID	United States Agency for International Development
WBS	Work Breakdown Structure

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TABLES, FIGURES AND ANNEXES

1.0 BACKGROUND

The countries of the OECS have a heightened vulnerability to many of the economic and environmental pressures that are evolving globally. This vulnerability, coupled with unique natural and cultural assets and inherent social strengths presents a special urgency to the pursuit of sustainable development goals within the region. The dynamic and mutually reinforcing linkages between economic development and environmental management have been recognized and are well articulated in reports, declarations, and policy position statements throughout the OECS. Globalisation and trade liberalisation have had negative effects on the major commodity exports of sugar and bananas while the countries have experienced several devastating hurricanes, floods and volcanic eruptions over time. Accordingly, the member countries must strengthen, as well as create new arrangements to meet these challenges.

The Organisation of Eastern Caribbean States through the implementation of its Economic Union seeks to complete the process of integration, as initiated by the original Treaty, by addressing the new circumstances which now confront the Member States. It addresses directly the weakness in implementing OECS-wide policies by instituting legislative and executive procedures. The new Treaty has as its purpose (Article 4), an overriding objective, that is, *"the establishment of an Economic Union of the Organisation of Eastern Caribbean States as a single financial and economic space"* and identifies the Organisation as *"an institutional forum to discuss and facilitate constitutional, political and economic changes which would be necessary for the successful participation of Member States in the regional and global economies."*

Significant progress has been achieved in many areas; most notably among these is the precedent-setting *St. George's Declaration of Principles for Environmental Sustainability in the OECS* (SGD) which was adopted through signature by Member States in April of 2001, and its implementation instruments, the *National Environmental Management Strategies(NEMS)*. The Declaration is based on the premise that the efficient and effective management of natural resources is essential to sustainable development, and recognizes the need for an integrated approach to managing environmental resources in the OECS. The development and adoption of the SGD illuminates the conviction of Member States in their shared commitment to processes of sustainable development that seek to minimise environmental vulnerability while optimising social and economic benefits.

The alignment of this project to the SGD is articulated specifically in Goals one and three which respectively target, *inter alia*, firstly the initiation of sustainable development strategies, the establishment of a coordinating framework for sustainable development, and the creation of data management systems to provide baseline data on the status of natural resources;(Goal One). and in and secondly, policies and strategies to address water resources management, land development and marine and coastal resources management. In the pursuit of this latter target Member States also agree to commit resources to maintain or increase water availability, supply and quality, as well as to halt pollution in fresh water supplies and coastal waters. A number of supportive actions have also been identified towards these ends.

The Millennium Development Goals (MDGs), are also conversant on the theme of environmental sustainability (MDG 7), zooming in on integrating the principles of sustainable development into country policies and programmes; in addition to, halving the proportion of the population without sustainable access to safe drinking water. These two significant instruments provide the backdrop against which the Organisation of Eastern Caribbean States (OECS) and Barbados seek to address their special needs as small island developing States (SIDS: see also MDG Goal 8).

2.0 SECTOR ISSUES

There is growing concern over the degradation of fragile ecosystems that are particularly associated with *inter alia* poorly-planned coastal development, population growth, tourism, pollution, over-exploitation of living resources, accelerated sedimentation associated with changes in upstream land use, rapid unplanned and uncontrolled expansion of coastal developments, and the introduction of exotic species. Unless brought under control, the loss of these ecosystems will severely compromise their ability to provide services and functions vital to the sustainable development of island economies.

Recognizing the importance of the sustainable management of its natural resources, the Governments of the OECS have made significant commitments to protecting their countries' resources as signatories to international conventions, and through policy statements, legal and institutional instruments, recent environmental programs, and financial support of conservation activities through budget allocations. At the international level, Member States were some of the first countries to ratify the UN Framework Convention on Climate Change. In the wider Caribbean, five of the six countries have ratified the Cartagena Convention6, an environmental treaty that serves as a vehicle for the implementation of global initiatives and legal instruments. At the OECS regional level, Member States signature of the SGD embraces the commitment to the sustainable management of these resources that would better the quality of life of the peoples of the region.

Stakeholder consultations in both St. Lucia and Barbados identified fresh water and coastal zone resource management as their top two priorities. These two issue areas have strong ties to the economic base of the region, through their roles in supporting tourism and other sectors of the regional economy.

The coastal area is considered to be the geomorphic area on either side of the seashore in which the interaction between the marine and land parts occurs in the form of complex ecological and resource systems. These systems are made up of biotic and abiotic components coexisting and interacting with human communities and relevant socio-economic activities. Although OECS Member States have espoused the concept of island systems management (ISM) in which entire small islands are considered "coasts", , the consideration for interventions in this project will be restricted to the administrative jurisdiction of contiguous areas on either side of the shoreline.

This area is very important for communities that have traditionally relied upon its resources for food, social and cultural purposes. The variety of activities that take place in the islands' coasts point to interventions being necessary to address potential or realised environmental imperatives related to pollution control, waste management, physical planning, flood mitigation, eutrophication of near-shore marine areas, intellectual property rights and benefit sharing, in addition to a plethora of other issues.

Freshwater is a fragile, finite and vulnerable resource vital to human, economic and environmental sustainability and influences national prosperity and quality of life. The water sector is a cross cutting sector and plays an important role in all sectors in of the Participating States. It is a catalyst for economic development and a vehicle for empowerment and poverty alleviation. Therefore any impact of climate change on the water sector could have far reaching repercussions on the economy of these countries and affect life in general,

It is widely suggested that, in some Participating States, present water demand is exceeding the available supply and that the potential increase in future demand can only serve to exacerbate this deficit. While the available data does not allow for an exact determination of supply/demand dynamics, data of the potential supply/demand situation within various sectors and zones and for the islands as a whole may point more to a suppressed demand than a real deficit. While it is thought that some islands currently have sufficient freshwater to meet all demands, a key concern is that the resources are unevenly distributed temporally and spatially.

Freshwater supplies are highly susceptible to normal climate variability. This results in periods of excess rainfall which can lead to flooding as well as periods of below normal rainfall which leads to drought conditions. During periods of heavy rainfall watercourses are susceptible to siltation which impacts significantly on raw water quality. In addition there are a number of anthropogenic activities currently affecting the quality of rivers and freshwater systems. These include: housing, agriculture, water abstraction, sewage disposal, solid waste disposal, tourism, fishing, river sand mining, manufacturing, river bathing and picnicking, and river alteration.

For SIDS like those of the Eastern Caribbean, a thorough understanding and response to climate change is critical, especially in light of the limited resources. Although Eastern Caribbean States' contribution to the source of this anthropogenic change is minimal, due to characteristics such as geographic location and small land masses with significant proportion of low lying coastal areas, they are vulnerable to the anticipated impacts of climate change.

A recent vulnerability assessment for the coastal sector of one of the proposed Participating States suggests vulnerability of:

- hotels and restaurants - medium to high;
- marinas - medium;
- human settlements - medium to high;
- coastal protection structures and sea defences - high;
- ports - medium to high;
- fisheries infrastructure - medium;,
- fisheries – high; and,
- coastal ecosystems - medium.

Adaptation options for the Water Sector include, but may not be limited to: reductions in line losses; accurately reflecting costs of water supply; restoration of riverbanks and wetlands water conservation; public awareness; improved management of forest resources including private forests; strengthening data collection; and, development of a national water management plan

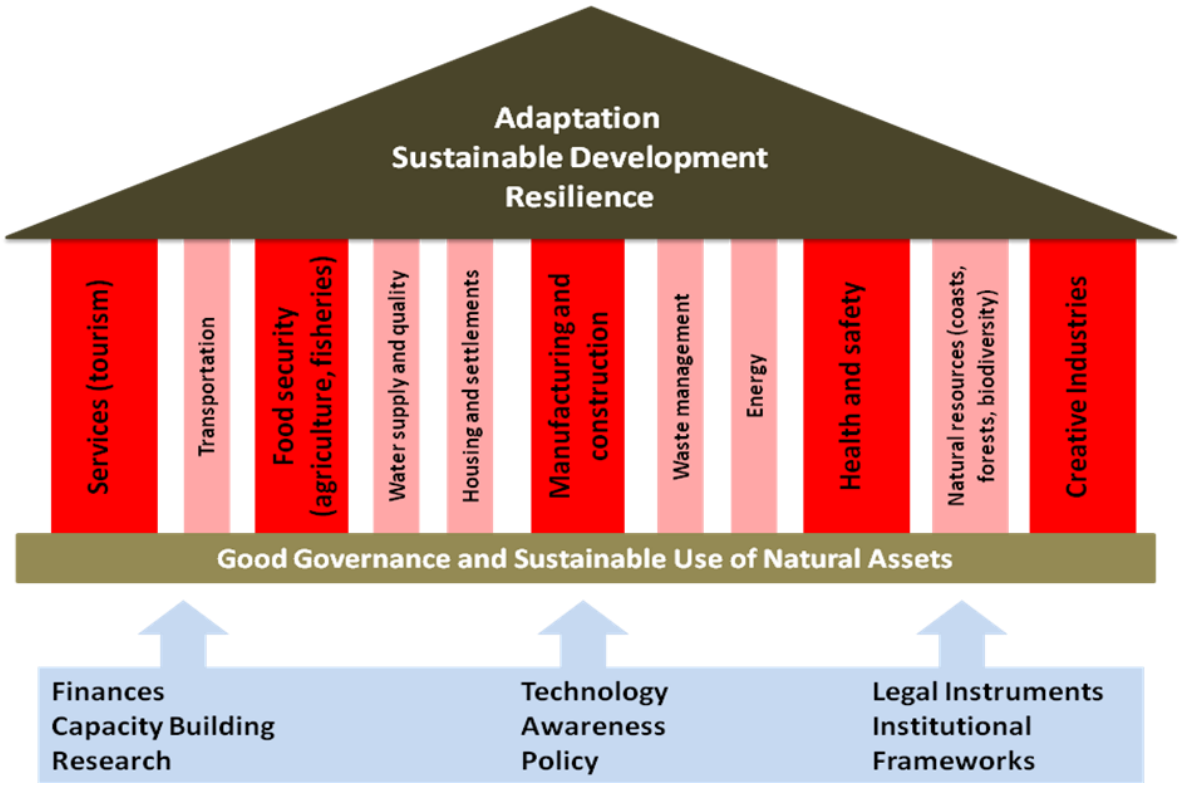
3.0 STRATEGIC CONTEXT

On 12 July 2010 in St. Lucia and 14 July 2010 in Barbados the United States Agency for International Development (USAID), the Environment and Sustainable Development Unit (ESDU) of the Organisation of Eastern Caribbean States (OECS), and the Barbados Coastal Zone Management Unit (CZMU), convened one-day stakeholder meetings on Climate Variability, Change, and Adaptation in the Caribbean region. The objective of these meetings was to begin to formulate a five-year (2011-2015) framework for the USAID climate change adaptation strategy for the Caribbean region to be implemented using "fast-start" financing as part of the U.S. commitment at the December 2009 UN climate negotiations in Copenhagen.

Drawing from regional and national climate change plans and building on preliminary consultations in February 2010, the meetings were convened to ensure that the strategy addresses high priority vulnerabilities in sectors key to the region's development and economic growth. The meetings engaged individuals from national governments, nongovernmental organizations, the private sector, and donor agencies.

Participants identified economic drivers and development priorities for their country or the region as a whole, the elements and inputs necessary to support those priorities, and related climate and non-climate stressors. National focal points presented recent climatic trends, and recent and projected climate impacts for the Caribbean region. Local, national, and regional organization representatives presented their current climate-related activities and discussed their potential value-added to a regional adaptation strategy. Finally, participants identified specific interventions that could contribute to greater resilience in the Eastern Caribbean. The model below prioritises areas and sectors at risk and provides clear inputs for building an economically viable portfolio of adaptation initiatives designed to increase the resilience of this region to climate variability and change.

Figure 1. Model of Interventions to build resiliency.



The service industry (especially tourism and financial services), agriculture, manufacturing, and construction were identified as key drivers for economic growth in the region. Of these, tourism and financial services are suggested as the foremost contributors to gross domestic product. Construction and manufacturing are strong drivers of employment and income, and agriculture, though a relatively small contributor to the region's economies is important for food security and national character.

The growth and sustainability of each of these economic sectors relies on a number of inputs, particularly water, energy, transportation, coastal and other ecosystem services. Participants assessed which of these inputs might be most constrained by climate variability and change. There was broad agreement that water resources and coastal resources represent immediate priorities that cut across each of the key economic sectors, and that by addressing vulnerabilities in these sectors the USAID program could help build resilience into the region's economies.

Capacity building, including policy, institutional strengthening, improved climate data systems and legislative and regulatory changes, are all critical foundations for effective long-term adaptation responses. These bases must be strengthened to enable the flexible, proactive response that long-term, non-linear climate change impacts require. They also underpin the ability to generate and execute effective sectoral responses, whether in the energy, health, housing or food security sectors. In these sectoral responses, the focus shifts more to concrete, on-the-ground activities that can be scaled up or replicated from a demonstration project. Some resources also would be dedicated to strengthening key capacities in focal sectors.

The long list of specific actions recommended for OECS Member States to adapt to climate change impacts can be summarised into five components:

- Strengthen the enabling environment to build understanding and support for policies and laws that enable changes to reduce vulnerability
- Address information gaps that constrain capable practitioners in regional universities, government departments and civil society from addressing vulnerabilities
- Facilitate interventions in freshwater and coastal management in order to begin building resilience and demonstrating results
- Increase the awareness of Eastern Caribbean States' publics on issues related to climate change and improving capacities to facilitate climate change adaptation
- Manage the programme to ensure that monitoring and evaluation of activities takes place, results are assessed, adjustments as necessary are made, deliverables are attained.

4.0 JUSTIFICATION

Over the years the OECS member countries have created pivotal institutions that have provided for regional stability and socio- economic advancement. In the process, they have constructed a regional integration arrangement based on compromise, pragmatism and the observance of some fundamental rules-based principles. These inherent strengths are essential to the implementation of process and programmes that will build on the aforementioned foundation to enhance the resilience of these States to exogenous factors and shocks.

Member States have limited resources for growth and development. This important factor will determine what sort of responses are considered absolutely vital if proactive responses to climate change are to be successful. Climate change impacts will have serious deleterious environmental, social and economic consequences for Member States. The impact on small islands has been explored by many scientists and in general it is expected that sea level rise is expected to lead to greater coastal flooding and damage to shorelines and infrastructure from storm surge, erosion and threats to livelihoods. The region is already experiencing the effects

with warmer seas, weather patterns changes and which affect watersheds and water resources, and the invasion of non-native species is already creating serious problems on islands (IPCC, 2007). Small island states like the OECS countries account for less than 1% of global greenhouse gas (GHG) emissions and understandably are among the most vulnerable to the potential adverse effects of climate change and sea-level rise, maintaining stable economies and providing for economic development therefore will constitute the most critical concern of the island states of the OECS.

The countries anticipate that rising sea levels will lead to more salt water intrusions into ground water such as aquifers that supply fresh water, a resource that is already reduced in supply. Reefs, which provide the habitat for fish and other marine life, are already being affected by elevated sea temperatures leading to coral bleaching and death affecting food production and livelihoods. It must be expected that as a result of these changes all over the world, that global trade will be affected, and it will not be to the benefit of some of our island states. The Islands have been warned that the frequency and intensity of storms will increase causing more widespread damage than ever before. Already the painful and devastating impacts of hurricanes in recent times are now indelibly etched in the minds, journals and economies of the entire region

More frequent and extreme droughts will also be a feature of Caribbean weather, notwithstanding the greater periods of heavier precipitation. The impacts of such drought conditions will increase heat stress, particularly for the more vulnerable such as the elderly and worse sanitation conditions from reduced water supplies. Too much water or too little can be devastating to the health of populations. These situations provide favourable conditions for the spread of water or vector borne diseases such as malaria, dengue fever, cholera, leptospirosis and others. Already public health systems are hardly able to handle current situations under normal conditions. Water is already in short supply in many islands, because many of those which are drought prone are heavily reliant on rainwater from small catchments or limited fresh water lenses. Arable land for agriculture is often in short supply and the likelihood of the loss of land from salinisation as a consequence of sea water rising and moving inland, will further compromise many of those agricultural lands that are at or near sea level.

The impacts of climate change on coastal and marine areas are of particular concern to the region's countries. For example the potential impacts in the tourism sector stemming from the loss of recreational value and carrying capacity of beaches, loss of property value resulting from declining amenity value, loss of land use, deterioration of landscape and visual amenities, and protecting coastal property will seriously compromise the ability of countries that are struggling under global economic conditions to chart paths of sustained growth. In most of the eastern Caribbean States more than 50% of the population reside within two kilometres of the coast. Projected sea level rise, which may conceivably be accompanied by inundation, increased flooding, coastal erosion with consequential losses especially during extreme events, places most of the coastal infrastructure at risk. Significant damage to fish landing sites, fish markets, fishermen's locker rooms, and other onshore facilities, could result from any increase in the frequency of intensity of extreme events such as floods, tropical storms and storm surges.
With limited resources and low adaptive capacity, these islands face the considerable challenge of meeting the social and economic needs of their populations in a manner that is sustainable, yet, at the same time, are forced to implement appropriate strategies to adapt to increasing threats resulting from climate change. But to survive the ravages of a changing climate, OECS Member States would have no choice but to make climate change responses an utmost priority. In order to deliver optimal benefits to Member States, adaptive responses must be multi-sectoral in implementation in order to ensure maximum benefits from the measures taken.

Sustainable management of water resources has become urgent in light of increasing demands and pollutant loading from different users that have put significant pressure on this natural resource. As a result water security is a growing concern. A number of pathologies also threaten the Region's water resource including: unregulated and unmanaged water abstraction; industrial, agricultural, and pharmaceutical by-products entering the hydrologic system; and changing demographics, increases in the standard of living, industrial development, increases in inappropriate disposal of black and grey water from settlements and other sources, and the growth of the recreational industry. These are exacerbated as a consequence of climate change and climate variability and limitations in institutional capacity. These threats affect availability, sustainability, and sanitation and health (potability) of water. Development of mitigation and adaptation strategies to protect water resources from the above factors is required if national socio-economic goals are to be attained. Because of the limited resources available on each island, mitigation and adaptation strategies must be designed and implemented in a cost-effective manner to reflect the limited funds available.

The high vulnerability of coastal communities to global climate change and sea level rise leads to increased inundation of coastal areas; loss of land, habitat, and ecosystem as well as ecosystem services and consequently economic losses; reduction of access to communities; abandonment of community infrastructure; reduced investment on coastal areas; loss of life and livelihoods; and, loss of traditional values and resources, from climate induced disasters (c.f. problem/objectives analysis). Currently, the island States of the eastern Caribbean are beginning to see these effects on their communities where, in most cases, coastal areas comprise the major human settlements and centres of economic activity. This situation makes it necessary that urgent efforts be made to obviate these effects.

Overall, adaptation actions would include increasing knowledge-base of coastal and natural processes; revising building codes; improving enforcement of appropriate/revised coastal development set-back policies; introducing appropriate coastal protection infrastructure (e.g. breakwaters, groynes, sea walls, living shorelines etc.); determining and implementing appropriate habitat protection and rehabilitation measures; improving/strengthening/adapting port infrastructure; developing/introducing cultivation of more salt resistant crops; improving/strengthening/adapting/relocating fisheries and fisheries-related infrastructure; developing/introducing cultivation of more salt resistant crops; and, improving/strengthening/adapting/relocating housing infrastructure. Land use prioritisation would also need to be considered as a management tool for these resources and, pursuant to this commitment, there would be need to provide human and financial resources.

5.0 PROJECT GOAL

The goal of the project is to reduce vulnerability of Participating States to climate change.

6.0 PROJECT PURPOSE

The purpose of the project is to carry out climate change adaptation and actions in the tourism and agriculture sectors.

7.0 PROJECT OBJECTIVES

The lines of work described in this document seek to enhance the overall, long-term capacity of the OECS region to respond to climate change, while strengthening their near-term resilience to climate change impacts through concrete, on-the-ground actions. This will be achieved by: i) reinforcing the policy, legislative and institutional framework that the region needs as a foundation for effective adaptation, especially in coastal zone and freshwater management; ii) direct, targeted actions that improve freshwater management in OECS member countries and in Barbados; iii) concrete activities that improve the near-term resilience of OECS member countries coastal zone to climate change impacts; iv) supporting the development of critical, unaddressed climate change information needs. Special attention will be paid throughout to building the technical and institutional capacity needed to sustain successful adaptation efforts. As a final programmatic element, the OECS will organize and maintain the program support capacities (staff and systems) needed to manage the activities planned

Project objectives are to:

1. Build the enabling environment in support of policies and laws to reduce vulnerability
2. Address information gaps that constrain addressing vulnerabilities
3. Making interventions in freshwater and coastal management to build resilience and demonstrate results
4. Increase awareness on issues related to climate change and improve capacities for climate change adaptation

7.1 Project Description Summary

Table 1 – Budget components showing in kind contributions

Component Budget	USAID	OECS In-kind	Total
1.1 Improve enabling environment	546,860	101,780	688,640
2.1 Improve water management	2,638,670	200,520	2,839,190
2.2 Improve coastal management	4,410,000	510,960	4,920,960
2.3 Address data gaps	827,180	144,380	971,560
3.1 Public Awareness	967,000	163,460	1,130,460
3.2 Capacity Building	1,623,000	286,400	1,909,400
4.1 Project Administration	1,534,994	42,500	1,577,494
4.2 Project Management	1,195,000	50,000	1,245,000
Total	13,742,704	1,500,000	15,242,704

8.0 PROJECT COMPONENTS (see also table 2 and figure 2)

8.1 Component 1.

Build the enabling environment to reduce vulnerability

This component seeks to build the enabling environment for reducing vulnerability to climate change by improving regulatory (institutional and operational) framework in support of national adaptation strategies. To this end the project will develop a clear policy statement on Participating States approach to climate change adaptation. This harmonised statement will be customised for at least five Participating States (PS)

The importance of support, by decision makers, to climate change adaptation cannot be overemphasised. To this end, the project will organise a series of consultations with national level decision makers to spur the completion of national adaptation strategies.

It has been recognised that the mainstreaming of climate considerations into sectoral legislation and/or development of comprehensive climate change legislation is integral to effective adaptation. In light of this, the project will facilitate meetings between and among practitioners to facilitate mainstreaming efforts.

The issue of the insufficiency of human resource capacity to guide the process of climate change adaptation is an ever growing concern. Therefore, the project will support the building of technical capacity at the local and government levels. This will be done primarily through training courses and workshops.

8.2 Component 2.

Implement sectoral interventions to increase resilience

a. Water

Tourism and agriculture have been identified as the economic sectors that should be the primary focus of activities on this project. It is the view that by making strategic interventions related to coastal and water resources management the resilience of these sectors to climate change impacts will be significantly increased. In light of this, the project will promote and support rainwater harvesting and improved drainage in selected areas in the PS. These interventions and their locations will be identified based on criteria to be developed in the earlier months of the project. Initiatives related to sewage treatment and recycling, especially in hotels and commercial establishments will also be undertaken. These could include, though not limited to, encouraging use of low water flush toilets, automated taps, and development of fiscal incentives programmes.

It has been recognised that the development of spatially defined integrated water and watershed management strategies are essential to ensure effective adaptation of all parts of the economy to the likely impacts of climate change on water resources. Thus, the project will conduct economic and social analyses of the water sector, develop water budgets and analyse current water systems and based on these inputs develop and support the implementation of spatially defined integrated water and watershed management strategies in at least four PS. Based (in part) on the economic and social analyses of the water sector the project will also support small business development for work related to water management The aforementioned analyses will also serve to inform an economic incentives programme accompanied by an awareness campaign to encourage home and tourism sector use efficiency and technology interventions.

Mindful of the imperatives of establishing effective data systems on which to base the determination of adaptive measures, the project will support development of national water information systems, a regional drought monitoring network with early warning capabilities in addition to aquifer-level and water chemistry monitoring.

b. Coastal sector

The ability of the sectors that operate primarily in coastal areas to adapt to climate change can only be as good as the knowledge of physical characteristics of coast resources including coastal water quality and coastal dynamics. The project will conduct assessments of coastal resources, coastal water quality and dynamics in at least four PS.

Regional efforts to enact regional water quality standards have been initiated, however for a number of reasons these initiatives have foundered. The project will support this enactment through the development and promulgation of guidelines in CARICOM regional protocols such as CROSQ, as well as the further development of a regional protocol to govern development in coastal areas. In support of this the project will conduct vulnerability assessments and hazard mapping, especially related to storm surges, in at least four PS.

It has been recognised the current legal framework for coastal construction is inadequate, in light of this the project will support the review of existing planning laws on coastal construction in at least four PS. The project will also support improvements in management and protection of ports, marinas and other coastal settlements. In addition, the project will support the implementation of vulnerability reduction and resilience building activities in selected coastal areas. This would include, but not be limited to coastal setback planning and management; development and implementation of restoration plans for degraded coastal habitats; and, benchmarks, such as that which will allow us to monitor sea level rise. In the latter instance, where appropriate and feasible the project will seek to promote ecosystem management through coral rehabilitation, monitoring programmes and sharing of best practices among local fisherfolk and tourism operators.

c. Assessing data gaps

The project will support the development of a regional marine monitoring and forecasting system with up-to-date monitoring stations.

Over the years, the coast guards of OECS Member States have had to perform marine search and rescue operations targeting vessels, in particular fishing vessels, which were lost at sea. The OECS Heads of Government have expressed concern about what it considers to be an unacceptably high incidence of distress cases and loss of life at sea. The abnormally high expenses incurred as a result of the extended SAR missions have led to consideration being given to downscaling such activities owing to the inability of some PS to finance such operations. With the anticipated increase in extreme weather events anticipated as a consequence of climate change, it becomes even more imperative to have in place a surveillance system for lost vessels. The project will support development and implementation of such a system.

The project will also seek, to the extent possible, to support development of regional climate centers to provide climate data services. This will also include establishing additional monitoring stations for dust and aerosol atmospheric monitoring.

The need for capacity building in the context of reducing data gaps cannot be overemphasized, in light of this the project will support the development of modules on tropical meteorology for

the COMET on-line training facility. This will be supported, as appropriate, by the recruitment of monitoring and forecasting experts to train local practitioners.

There is a dearth of information related to marine ecological issues in the context of climate change. The project will, to the extent practicable, provide support to conducting marine research, including collecting coral ecosystem data, providing new instrumentation for real-time nutrient monitoring and CO_2 concentration levels, and conducting ecosystem / habitat mapping

8.3 Component 3.

Improve awareness and build national capacities for coastal area climate change adaptation

a. Improving stakeholder awareness

Noting that improving awareness should be predicated on an understanding of the current level of knowledge, attitudes and practices (KAP) related to climate change and adaptation, a KAP will be carried out by mid Y1. This will serve as the basis for a communications plan for improving public awareness and environmental education to be developed. Implementation of this plan will commence soon thereafter and will continue to the end of project (EOP). It is envisaged that the plan will be so developed that its implementation can/will be continued even after the project has come to an end. Related to and in support of this communications plan, stakeholder awareness and education on natural interactions and human activities impacts on coastal areas will be promoted in all PS up to EOP.

Recognising the importance of construction to climate change adaptation, linked to the development of regional protocol for development in coastal areas and the support to be given to coastal setback planning and management via component one, and based on the results of the KAP study the project will develop and implement an eeducation and public awareness strategy for raising on strengthened building codes in PS. Implementation of this strategy will be ongoing through to EOP. This will be supported by a media campaign on climate change targeting all publics, in particular senior decision makers and members of the "political directorate".

There is a growing recognition of the need to guarantee the rights of access to information, public participation in decision-making, and access to justice in environmental matters. Only an informed community and its informed citizens can make environmentally-sound choices and provide meaningful input to decisions, or can exercise their rights for the public good. Undoubtedly, information on the state of the environment is a prerequisite of both scientifically well-based and effective decision-making. This emphasises the need for clearly enunciated policies on information management. Mindful of this, the project will support the development of policy and strategies for information management in at least four PS

b. Facilitate capacity building

In keeping with the development and regionalisation of building codes to be implemented by this project, at least 3 building code enforcement officers from each PS will received training related to enforcement of these codes by EOP. The project will also support the building of capacity through training programs in water resources management, university scholarships, and on-line University training programs. This will also include efforts to strengthen capacity for drought management

A sea level rise "impact educational campaign" will be developed by mid-project and the project will endeavour to have this incorporated into the national education systems of at least four PS by EOP. This may be further facilitated through the regional educational facilities and

programmes as appropriate. Further to this and in support of the media campaign on climate change mentioned earlier, educational material for decision/policy makers will be developed and disseminated in all OECS Member States by EOP

8.4 Component 4.

Ensure effective project administration and management
Services of a project coordinator, water resources specialist, coastal specialist and an administrative assistant will be procured within 6 months of project effectiveness. In anticipation of these staff members, project equipment will procured within 4 months of project effectiveness.

Effective and efficient project management activities will be carried out for the duration of project in keeping with USAID guidelines and pursuant to the project document. It will also be ensured that project monitoring, evaluation and oversight will be timely and appropriate

9.0 INSTITUTIONAL ARRANGEMENTS

On behalf of Member States, the OECS Secretariat (located at Castries, St. Lucia) will be the Grant Recipient and the Executing Agency (through its existing Environmental and Sustainable Development Unit - OECS/ESDU) for the implementation of the project. The OECS Secretariat is a not-for-profit, developmental, inter-governmental organisation of the Member States of the Eastern Caribbean established under the Treaty of Basseterre on 18 July 1981 and enjoys tax-exempt status relating to its member countries (all project participating countries are OECS member countries). It will execute the project under the guidance of USAID and the Project Steering Committee (PSC) that will comprise the participating States and key stakeholders.

9.1 Partner Roles and Responsibilities

USAID
USAID through its Barbados office will monitor physical/technical progress, financial progress, and procurement progress through the various quarterly/six-monthly reports prepared by the OECS-ESDU, every three months, USAID will conduct supervisory missions to review and evaluate overall progress, and to discuss specific management issues with OECS-ESDU.
USAID will also:

- Provide funds in a timely manner based on the Sub-Grant Agreement and on the quality of outputs and the thoroughness of the financial and progress reporting;
- Review and assess project activity and financial reports;
- Monitor project implementation and key performance indicators for compliance with existing criteria or agreed standards;
- Review project execution to ensure that requirements are met and satisfied;
- Provide approval of key personnel to be hired under the project whose technical skills and expertise are essential to the successful implementation of the program, on a no-objection basis subject to agreed upon Terms of Reference;
- Ensure that the external audits are carried out in accordance with generally accepted standards; and
- Attempt to ensure that all terms of the Sub-Grant Agreement are met by all parties.

OECS Secretariat

The OECS Secretariat will be the Executing Agency on behalf of the participating Member States and will provide direction and supervision through its Environment and Sustainable Development Unit (ESDU), which has been designated the Secretariat's "Implementation Unit" in matters pertaining to environmental management and sustainable development. The Secretariat's project responsibilities/tasks will consequently be delegated to the ESDU. These are the following: (i) co-ordination, participation and assistance to national implementation of project activities; (ii) coordination of project activities with participating Member States; (iv) implementation of specific tasks in accordance with the project work plan and budget; (v) coordination of Member States support to the Project, including trainees, counterparts, in-country temporary office space, and transport; and (vi) promotion of the Project.

These responsibilities will be achieved through the provision of: (i) a full time professional officer dedicated to the Project (the Project Coordinator), a project officer for water resources, a project officer for coastal resources a project officer for communications, an administrative assistant and an accounting assistant; (ii) office space and related office equipment for use by project staff; (iii) technical services provided by the Unit's other function managers; (iv) additional consultation and advisory services of senior management personnel to the Project; and (v) administrative services to the Project, including secretarial support, accounting, reception, travel and meeting arrangements, network management, photocopying, and messenger and driver services. The Head of ESDU will function as the Project Director.

9.2 OECS Participating Member States

Specific responsibilities of each participating State will include the following: (i) identification of sites for project supported interventions; (ii) provision of national staff to collaborate and coordinate project activities at the local site and national levels; (iii) identification and provision of trainees; (iv) provision and funding of counterpart personnel salaries, local administrative and other in-kind expenses; (v) provision of temporary office and meetings space in addition to reasonable use of office equipment during periodic visits by project personnel; (vi) provision of ground transportation of project personnel and equipment to project sites; (vii) provision to project personnel of information and reports related to the project; (viii) participation, co-operation and support in and to the Project and its team; and (ix) commitment to adopt and apply recommended policies, legislation, institutional arrangements, and best practices, as developed through the Project.

10.0 MONITORING AND EVALUATION

Monitoring and Evaluation: Monitoring and evaluation (M&E) of project activities will be the responsibility of the Secretariat in conjunction with the USAID and relevant stakeholders. Monitoring will be carried out in accordance with an agreed upon *Monitoring and Evaluation (M&E) Plan*. The M&E planning process will follow the *Guidelines for Monitoring and Evaluation for Biodiversity Projects* prepared by USAID's Global Environment Division in 1998.

The M&E system will encompass a broad range of subjects to be monitored, including landscape or species dynamics, socioeconomic factors and community involvement and institutional and regulatory factors. No universal set of indicators will apply to all sites but most will be measuring a range of indicators. The specific indicators chosen for any individual site will be the particular objectives and goals of that protected area and the activities that are proposed to meet those goals.

11.0 COUNTERPART CONTRIBUTION

The OECS Secretariat will be responsible for reporting at least annually in a format to be agreed upon with USAID on its cash and "in-kind" contributions, which are highlighted in the program budget.

12.0 PROGRAM BUDGET

USAID will provide resources for five and a half years under this Agreement to specifically fund the activities outlined in Section 8. A program budget which includes the OECS's contribution to the program is shown in Appendix A.
Estimated budget: US$15.2M (USAID - $13.7M; OECS Member States and OECS Sec, - $1.5M in kind: see table 2)

12.1 Measures to promote effective project management

- Ensure stakeholder "buy-in" and involvement
- Rigorous selection of project management team
- Ensure effective institutional arrangements (including high-level "Champion")
- Determine baseline situations
- Regular progress reporting
- Ongoing monitoring and evaluation
- Thorough documentation
- Discrete accounts
- Transparent procurement practices
- Annual financial audits
- Implement acceptable environmental and social safeguard policies
- Ensure high project visibility

12.2 Promoting project sustainability

- Ensure continued stakeholder "buy-in", outreach and involvement
- Implement institutional measures for ensuring continuity of seed funding arrangements
- Ensure national budgetary allocation for maintenance of infrastructure works
- Ensure ongoing capacity building
- Replicate approaches in other States/sites based on lessons learned in the project
- Establish systems for continued improvement of knowledge base

13.0 PROJECT DURATION - 5.5 years

TABLE 2 - LOGICAL FRAMEWORK MATRIX

Narrative summary	Expected results	Performance indicators	Assumptions
Project Goal The resilience of coastal communities in OECS Member States is enhanced	Impacts Vulnerability of OECS Member States to climate change is reduced	1. Quality of life index is improved. 2. Poverty is reduced	The vision for development of the sub-region is long-term and is socially and ecologically sensitive. Member States ratify the new OECS Treaty and its Protocol on Economic Union Donor community continues to provide development aid.
Project Purpose Climate change adaptation actions across tourism and agriculture sectors of the economy are carried out	Outcomes The ability of OECS Member States to adapt to climate change is increased	1. Improved land use planning regulations, guidelines and/or codes are promulgated in at least four OECS Member States by EOP 2. Public awareness related to coastal climate change adaptation is increased in all Member States by EOP 3. Member States have improved capacities to enforce coastal land management regimes by EOP	Member States are committed to the sustainable use and management of their natural resources. Member States are convinced that the adoption of climate change adaptation mechanisms is vital to the economic sustainability of the region
Proposed Activities 1. Enabling environment 1.1 Improve institutional and operational frameworks for adaptation strategies	Outputs 1.1 Enabling environment for adaptation to climate change impacts is improved	1.1.1 Developing a concise adaptation policy statement 1.1.2 Organizing a series of consultations with national-level decision makers to spur the completion of national adaptation strategies 1.1.3 Facilitating practitioner meetings to mainstream climate considerations into sectoral legislation and develop comprehensive climate change	Member States are committed to mainstreaming climate change adaptation mechanisms Appropriate macro-economic and fiscal policies are in place to stimulate economic opportunities Sufficient and suitable capacities are available at the national level for repositioning sectors to respond to climate change impacts

		legislation 1.1.4 Building technical capacity of local and national government officials through training, workshops and policy development.	Project financing is available for all the critical areas on a timely basis. All Project Partners undertake project activities in a timely and efficient manner.
2. <u>Sectoral interventions</u> 2.1 Improve water sector management	2.1/2.2 Resilience of tourism and agriculture sectors to climate change impacts is increased	2.1.1 Promoting and supporting rainwater harvesting and other water management initiatives 2.1.2 Improving drainage 2.1.3 Supporting small business development for work related to water management 2.1.4 Conducting economic and social analyses of the water sector 2.1.5 Developing water budgets and analyzing current water systems, toward a forward-looking management strategy 2.1.6 Developing and implementing spatially defined integrated water and watershed management strategies 2.1.7 Initiating an economic incentives program accompanied by an awareness campaign to encourage home use efficiency and technology interventions 2.1.8 Establishing data systems, such as a national water information system, a Caribbean drought monitoring network with early warning capabilities, aquifer-level monitoring, and water chemistry monitoring	
2.2 Improve coastal area management		2.2.1 Conducting assessments of coastal resources, coastal water quality and coastal dynamics 2.2.2 Enacting regional coastal water quality standards along the guidelines in CARICOM regional protocols	

		2.2.3 Reviewing existing planning laws on coastal construction 2.2.4 Sound management and protection of ports, marinas, and other coastal settlements 2.2.5 Developing a regional protocol to govern development in coastal areas 2.2.6 Conducting vulnerability assessments and hazard mapping, especially related to storm surges 2.2.7 Implementing vulnerability reduction and resilience building activities 2.2.8 Supporting coastal setback planning and management 2.2.9 Developing and implementing restoration plans for degraded coastal habitats *2.2.10* Reducing anthropogenic stressors on marine ecosystems 2.2.11 Promoting ecosystem management through coral rehabilitation, a monitoring program, and sharing best practices among local fisherfolk and tourism operators	
2.3 Address data gaps	2.3 Climate information gaps are addressed	2.3.1 Developing a regional marine monitoring and forecasting system with up-to-date monitoring stations, a surveillance system for lost vessels 2.3.2 Jump start the development of regional climate centers to provide climate data services 2.3.3 Establishing additional monitoring stations for dust and aerosol atmospheric monitoring 2.3.4 Developing modules on tropical meteorology for the COMET on-line training facility 2.3.5 Recruiting U.S. monitoring and	

		forecasting experts to train local practitioners	
		2.3.6 Conducting marine research, including collecting coral ecosystem data, providing new instrumentation for real-time nutrient monitoring and CO_2 concentration levels, and conducting ecosystem / habitat mapping	
3.. Public awareness and capacity building			
3.1 Public awareness	3.1 OECS publics are more aware of issues related to climate change	3.1.1 Knowledge, attitude and practice (KAP) study on climate change and adaptation carried out by mid Y1	
		3.1.2 Communications plan for improving public awareness and environmental education developed and implementation commenced by EOP	
		3.1.3 Stakeholder awareness and education on natural interactions and human activities impacts on coastal areas promoted in all OECS Member States by EOP	
		3.1.4 Education and public awareness strategy raising on strengthened building codes developed and implementation	
		3.1.5 ongoing by EOP	
		3.1.6 Media campaign on climate change targeting all publics	
		3.1.7 Policy and strategy for information management developed	
3.2 Capacity building	3.2 Capacities to facilitate climate change adaptation are improved	3.2.1 At least 3 building code enforcement officers in each OECS Member States trained by EOP	
		3.2.2 Building capacity through training programs in water resources,	

		university scholarships, and on-line University training programs 3.2.3 strengthening capacity for drought management 3.2.4 Sea level rise "impact educational campaign" developed by mid-project and incorporated into the national education system by EOP 3.2.5 Educational material for decision/policy makers developed and disseminated in all OECS Member States by EOP	
4. <u>Project administration and management</u>			
4.1 Project administration 4.1.1 Project staff (Project Coordinator, 2 Technical officers, administrative assistant) 4.1.2 Project equipment	4.1 Project is effectively administered	4.1.1 Project staff services procured within 6 months of project effectiveness 4.1.2 Project equipment procured within 4 months of project effectiveness	
4.2 Project management 4.2.1 Travel and per diems 4.2.2 Communications 4.2.3 Utilities and office supplies 4.2.4 Monitoring and evaluation 4.2.5 Project Steering Committee 4.2.6 Contribution to TAC and EPC	4.2 Project is efficiently managed	4.2.1 Project management is effective and efficient for duration of project 4.2.2 Project monitoring, evaluation and oversight is timely and appropriate	

Figure 2 - Logic Model

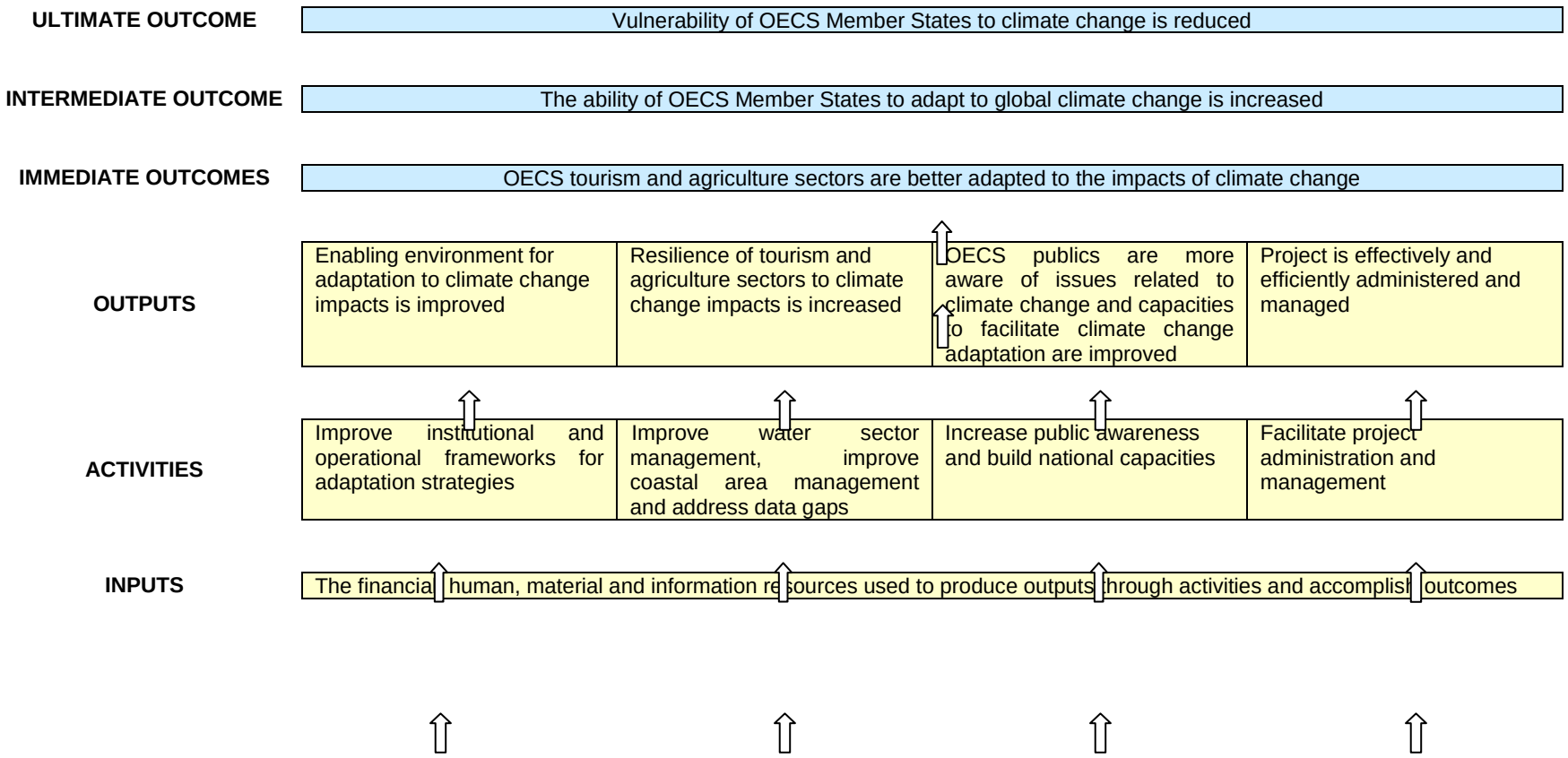


Table 3. **Critical risks and possible controversial aspects**

Risks	***Risk Rating (scale 1 – 5: Lowest - Highest)***	***Risk Mitigation Measures***
Weaknesses in public institutions and legislative frameworks	3	To address the institutional and judicial weakness, USAID has- and will continue to- engage in a dialogue – at the technical and strategic levels – with the relevant players in the sector in each of the project Participating States countries and with donors engaged in climate sector dialogue.
Countries ability to provide in-kind resources.	2	Project's demands on Participating States resources are minimal
Regional complexity of the project.	3	Guidance on project implementation will be provided by Project Steering Committee, OECS Technical Advisory Committee on Environment and the Environment Policy Committee. Presence of National Technical Focal Points in Participating States
Delivery of project outputs is untimely	3	Project supervision will focus on securing an adequate level of highly qualified staff for the project, as well as rigorous formulation of the project components, in particular management of consultants (preparation of Terms of Reference, hiring of legal and technical consultants).
Complexities of coordinating/implementing activities in 6 participating States	4	Each country will have to sign an individual participation agreement and fiduciary management will be centralized in the OECS Secretariat. The ESDU will handle accounting, financial reporting and disbursement for all of the individually signed agreements.
Participating States do not provide adequate support to project activities	3	project activities will need to be reflected in the workplans of participating States
Overall risk rating	3	

TABLE 4: DETAILED BUDGET						
Budget / WBS		**Unit cost**		**Total external**	**Total in kind**	**Total**
Component 1 – Enabling Environment						
1.1.1	Development of common adaptation policy	50,000		50,000	7060	57,060
1.1.2	4 consultations each per (6) PMS	6,750		162,000	25,580	187,580
1.1.3	4 meetings each per (6) PMS	5,250		126,000	22,240	148,240
1.1.4	Building technical capacity through training, workshops and policy development (programme)	208,860		208,860	46,900	295,760
	Total WBS 1.1			**546,860**	**101,780**	**688,640**
Total Component 1				**546,860**	**101,780**	**688,640**
Component 2 Sectoral Interventions						
Sub component 2.1 – Improve water sector management						
2.1.1	At least 6 water harvesting initiatives supported	65,000		390,000	29,340	419,340
2.1.2	At least 6 drainage systems improved	89,778		538,670	40,550	579,220
2.1.3	At least 6 small water sector-related business initiatives supported	35,000		210,000	15,600	225,600
2.1.4	At least 6 social and/or economic analyses of the water sector	60,000		360,000	27,150	387,150
2.1.5	At least 6 water budgets/water system analyses	60,000		360,000	27,150	387,150
2.1.6	At least 6 integrated water and watershed strategies	35,000		210,000	18,000	228,000
2.1.7	At least 6 awareness campaigns on economic incentives	45,000		270,000	20,320	290,320
2.1.8	At least 6 interventions in support of improved data systems	50,000		300,000	22,410	322,410
	Total WBS 2.1			**2,638,670**	**200,520**	**2,839,190**
Sub component 2.2 – Improve coastal area management						
2.2.1	At least 2 coastal resources assessments supported	250,000		500,000	52,400	552,400
2.2.2	Programme for coastal water quality standards development and promulgation in at least 4 PMS	150,000		150,000	21,780	171,780
2.2.3	At least 6 legal reviews	40,000		240,000	31,490	271,490
2.2.4	Programme support to management and protection of coastal settlements and structures	600,000		600,000	59,040	659,040
2.2.5	1 protocol on coastal development produced	160,000		160,000	21,000	181,000
2.2.6	At least 6 vulnerability assessments/hazard mappings (esp. storm surge related)	100,000		600,000	47,230	647,230
2.2.7	Implementing vulnerability reduction/resilience building activities in at least 6 PMS	160,000		960,000	120,270	1,080,270
2.2.8	Programme of support to coastal setback planning and management	300,000		300,000	39,360	339,360

2.2.9	Programme for development and implementation of at least 4 restoration plans for degraded coastal habitats	300,000		300,000	39,670	339,670
2.2.10	Programme to reduce anthropogenic stresses	300,000		300,000	39,360	339,360
2.2.11	Programme related to ecosystem management	300,000		300,000	39,360	339,360
	Total WBS 2.2			**4,410,000**	**510,960**	**4,920,960**
Sub component 2.3 Addressing data gaps						
2.3.1	Regional marine monitoring and forecasting system	300,000		300,000	52,940	352,940
2.3.2	Development of regional climate centres for climate services (“jump start”)	37,160		37,160	6,560	43,720
2.3.3	Establishment of at least 6 monitoring stations for dust and aerosol atmospheric pollution	16,670		100,020	16,650	116,670
2.3.4	Recruitment of trainers for training of local monitoring and forecasting practitioners (100 person hours)	600		60,000	10,000	70,000
2.3.5	Programme for the development of tropical meteorology modules	130,000		130,000	22,940	152,940
2.3.6	Programme of provision of instrumentation in support of marine research	200,000		200,000	35,290	235,290
	Total WBS 2.3			**827,180**	**144,380**	**971,560**
Total component 2				**7,263,850**	**855,860**	**8,119,710**
Component 3 – Public Awareness and Capacity Building						
Sub component 3.1 Public awareness						
3.1.1	Knowledge, Attitude and Practice study	240,000		240,000	35,293	275,293
3.1.2	Communications plan	60,000		60,000	10,590	70,590
3.1.3	Stakeholder awareness on impacts in coastal areas promoted in at least 6 PMS	32,000		192,000	33,881	225,881
3.1.4	Regional public awareness strategy on building codes developed and implemented	130,000		130,000	22,940	152,940
3.1.5	1 regional media campaign on climate change	200,000		200,000	35,293	235,293
3.1.6	Harmonised policy and strategy for information management developed and customised for at least 6 PMS	145,000		145,000	25,463	170,463
	Total WBS 3.1			**967,000**	**163,460**	**1,130,460**
Sub component 3.2 Capacity building						
3.2.1	At least 3 building code enforcement officers trained in each of at least 6 PMS	16,000		288,000	50,810	338,810
3.2.2	Training programme in water resources related fields	327,000		327,000	57,350	384,350
3.2.3	Programme of capacity building for drought management	328,000		328,000	57,350	385,350
3.2.4	Impact education campaign for sea level rise	340,000		340,000	60,445	400,445

3.2.5	Programme for development and dissemination of educational material for decision makers	340,000		340,000	60,445	400,445
	Total WBS 3.2			**1,623,000**	**286,400**	**1,909,400**
Total Component 3				**2,589,290**	**449,860**	**3,039,150**
Component 4 – Project Administration and Management						
Sub component 4.1 Project administration						
4.1.1	Project staff Project Coordinator Project Officer - Water Resources Project Officer - Coastal Resources Project Officer - Communications Administrative Assistant Accounting Assistant			1,359,994	33,375	1,393,369
4.1.2	Project equipment			175,000	9,125	184,125
	Total WBS 4.1			**1,534,994**	**42,500**	**1,577,494**
Sub component 4.2 Project management						
4.2.1	Travel and per diems			600,000	0	600,000
4.2.2	Communications			110,000	0	110,000
4.2.3	Utilities & Office Supplies			160,000	0	160,000
4.2.4	Monitoring and Evaluation (mid-term & end of Project) Audits	45,000		90,000	15,000	105,000
4.2.5	PSC (1 per year)	20,600		103,000	17,000	120,000
4.2.6	Contribution to TAC and EPC (1 per year)	22,000		132,000	18,000	150,000
	Total WBS 4.2			**1,195,000**	**50,000**	**1,245,000**
Total Component 4				**2,729,994**	**92,500**	**2,822,494**
Total Climate Change Project				**13,742,704**	**1,500,000**	**15,242,704**