Contracting Authority: Ministry of Economic Development

GCCA Belize

Grant Application Form (Reference: CRIS No: 2010/22545)

Title of the action:	**Enhancing Belize's resilience to adapt to the effects of climate change**
[Number and title of lot]	N/A
Location(s) of the action:	National Coverage (Belize, Central America)
Name of the applicant	United Nations Development Programme in Belize
Nationality of the applicant	International Organization

EuropeAid ID	US-2008-FIB-2702949105
Ongoing contract/Legal Entity File Lumber (if available)	6000055554
Legal status	International Organization
Partner(s)	Ministry of Forestry, Fisheries, and Sustainable Development; Ministry of Natural Resources and Agriculture; Ministry of Finance and Economic Development

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1.1. SUMMARY OF THE ACTION

Title of the action:	**Enhancing Belize's resilience to adapt to the effects of climate change**
Location(s) of the action: - *specify country(ies), region(s) that will benefit from the action*	National Scope (Belize, Central America)
Total duration of the action (*months*):	28 Months
Amount of requested EU contribution	2,9 M€/ $7,540,000 BZD (1€ = 2.60 BZD)
Objectives of the action	**Overall Objectives:** a) The development of a resilient water sector through the promotion of interventions consistent with national priorities and direction. b) Enhanced GOB institutional capacities for effective climate change governance. **Specific Objective:** **a)** To enhance adaptive capacity and resilience to climate change in national policies and demonstrate action in support of effective governance of climate change and climate change related impacts in the water sector.
Target group(s)[1]	The proposed initiative targets directly climate change governance structures, positioning the Government of Belize to effectively plan for and manage the effects of climate change on Belize's Development. The primary target group includes GOB planners, decision makers and functionaries with responsibility for climate change management. Individual communities are set to directly benefit through project adaptation pilots.
Final beneficiaries[2]	It is expected that the country's entire population will be directly positively affected from interventions supporting effective governance and from best practices and lessons generated from project supported pilots. Belize and Stann Creek district communities buffering the Belize and North Stann Creek Rivers as well as communities of the Placencia peninsula are expected to benefit directly from the proposed adaptation pilots. In total in excess of 7,500 individuals will directly benefit from mitigation and adaptation pilots.

[1] "Target groups" are the groups/entities who will be directly positively affected by the action at the action purpose level.

[2] "Final beneficiaries" are those who will benefit from the action in the long term at the level of the society or sector at large.

Estimated results	**Result 1 A:** Increased climate change resilience in the water sector of Belize as demonstrated by the existence of an improved framework for planning and coordination **Result 1 B:** Belize's Adaptation portfolio reflects recommendations and lessons gained from the implementation of adaptation pilots **Result 2:** Enhanced national capacities to plan for and to coordinate a national response to the threats of climate change
Main activities	*Activity 1A.1 Support the institutionalization of the National Integrated Water Resources Authority within the Ministry of Natural Resources and Agriculture structure* *Activity 1A.2 Provide TA in the areas of Institutional Development and Institutional Financial Sustainability to the newly established, National Integrated Water Resources Authority* *Activity 1A.3 Elaborate and widely socialize By-laws and regulations necessary for the enabling of the National Integrated Water Resources Authority* *Activity 1A.4 Conduct water resource assessment (Ground Water Reserves) to inform Master plan for integrated water management* *Activity 1A.5 Prepare National Water Resources Vulnerability profiles and associated Water Safety Plans for the Country of Belize* *Activity 1 B. 1 Execute 5 Climate Change adaptation pilots which demonstrate the integration of climate risk and resilience in water sector planning* *Activity 2.1 Support the expansion and capacitation of the National Climate Change Office* *Activity Result 2.2 Map existing national climate change actors, roles, and capacities* *Activity Result 2.3 Draft and seek national endorsement of an organizational framework supporting national climate change governance* *Activity Result 2.4 Implement campaign to support decision makers at different levels in improving their knowledge and skills on climate change adaptation and mitigation, and allowing their integration of CC into*

	various ministerial/ constituency portfolios and social development planning processes. *Activity Result 2.5 Provide public servants and civil society representatives the opportunity for training/ development in the areas of Climate change negotiations ; improved participation in UNFCCC processes; planning for climate change; climate change transformations in land cover; climate change education; risks and opportunities for the finance sector; integration of CC policies into national economic and social development planning activities* *Activity Result 2.6 Craft national CC adaptation planning and response strategies for three vulnerable sectors (Agriculture, Tourism and Fisheries)* *Activity Result 2.7 Facilitate Belize's transition toward low-carbon development pathway, primarily through the provision of training sessions and workshops to enhance the capacity of relevant agencies/institutions on the use of the Low carbon growth modeling framework for planning purposes* *Activity Result 2.8 Develop and implement effective public education, information, and awareness activities on disaster risk reduction and climate change*

1.2. RELEVANCE OF THE ACTION

1.2.1. Relevance to the objectives/sectors/themes/specific priorities

The proposed initiative is consistent with the European Consensus of 2005 which states that "*the Community will focus its efforts on the implementation of the EU Action Plan on Climate Change in the context of development cooperation, in close collaboration with the Member State"* (Part 2, Art. 76). Assisting third countries in addressing climate change is not only part of the larger goal of striving for environmental sustainability but also to ensure poverty alleviation through adaptation so that the implications of climate change do not undermine progress towards the Millennium Development Goals.

Actions proposed in this programme are complementary to existing international climate change initiatives, in particular those established under the United Nations Framework Convention on Climate Change and the Kyoto Protocol (e.g. Special Climate Change Fund, Least Developed Countries Fund, Adaptation Fund, Climate Change window of GEF trust fund, CDM).

1.2.2. Relevance to the particular needs and constraints of the target country/countries, region(s) and/or relevant sectors (including synergy with other EU initiatives and avoidance of duplication)

'Adopting an appropriate response to climate change will increasingly be considered as a normal component of what "good governance" at the national level entails." …World Bank 2010

Climate change is now regarded globally as an overarching development challenge that can have serious adverse effects on the economic growth of countries, affecting food security, public health, social stability, and population vulnerability. Belize has contributed minimally to emissions resulting in global climate change, however, the country as a developing state, is expected to be disproportionately impacted by the negative impacts of climate change. Belize as a SID is considered to be highly vulnerable and is expected to be negatively impacted as the country sees increases in the frequency and intensity of natural disasters such as cyclonic systems, droughts, floods and in the variability and unpredictability of rainfall patterns, increase in temperature and sea level rise impacting Belize's natural heritage as well as the country's productive sectors.

Belize's vulnerability to climate change is closely linked to the country's low adaptive capacity and the country's increasing dependence on resources sensitive to changes in climate. Apart from undermining national development efforts, there is growing concern that climate change can threaten or reverse the country's advances towards the MDG's and achievements towards human development should measures not be taken to mainstream climate change into national decision making and development planning.

In responding to the challenges of climate change, the country of Belize has committed itself to defining its institutional and legal landscape for climate change adaptation and mitigation, focusing on the roles of various actors, existing institutional capacities and governance issues relating to institutions. In essence the political and administrative systems are being adopted to handle emerging national issues of climate change mitigation and adaptation.

As the potential impacts of climate change on Belize's development become more broadly socialized into the mandates of national decision makers, the country has sought to undertake several key base initiatives in addressing the issue. Instrumental among these is the preparation of national communication reports to the UNFCCC which outlines national circumstances, greenhouse gas inventories and vulnerability assessment reports. The Government of Belize, with the support of the United Nations Development Programme in Belize has committed itself to updating Belize's National Adaptation Policy and to put in place a related adaptation strategy which provides a road map for Belize's development in the context of climate change. There is also underway, the development of a National Human Development Report for the country of Belize which hopes to highlight how national development plans and their drivers are influenced by climate change. This report is expected to provide concrete recommendations to national authority as to how to reinforce national plans by including climate risk assumptions. Belize's large movement of environmental NGO's have also been very active in the socialization of climate change and climate change vulnerabilities at the community levels.

Despite national efforts to formalize a National Climate Change Advisory Body through Cabinet decree, ongoing national efforts at this time can only be described as uncoordinated and ad hoc. The Belize Climate Change Survey undertaken by independent consultants supporting the National Communication process indicates that 46% of Government ministries and departments cite inadequacies of current policies and strategies to address the effects of climate change. Most interviewed felt that inadequate

importance was given to climate change related matters within their scope of work. This survey also hinted to inadequate understanding of climate change links to sustainable national/ human development and brought to the forefront the deficiencies within the national framework for climate change and the need for investments in national institutional and operational capacities to address the threat of climate change.

The GCCA programme operates as a part of a larger portfolio of initiatives being organized by the newly created climate change office within the Ministry of Forestry, Fisheries and Sustainable Development. Interventions are written to complement activities financed under the GCCA 10th EDF Intra-ACP regional programme which has allocated €8 M for the Caribbean region, which supports priority areas of action identified in the Caribbean Regional Climate Support Strategy by way of institutional support, regional cooperation and creating an enabling environment for natural resources management and agriculture diversification. The Caribbean Community Climate Change Centre (CCCCC), based in Belize, is responsible for implementation of the regional GCCA component and will closely interact with the implementers of the planned intervention through their participation on the Project Board/ Project Execution Group.

Other Approved Climate Change Portfolio actions include:

1. *'Capacity Building for the Clean Development Mechanism*' implemented through the National Meteorological Service with support from the European Union (EU) and the United Nations Environment Programme (UNEP).
2. '*Strengthening Institutional Capacities for Coordinating Multi-Sectoral Environmental Policies and Programmes*' implemented by the Ministry of Natural Resources and Environment (MNRE)with support from the United Nations Development Programme (UNDP) and the Global Environment Facility (GEF).
3. *'Belize's Third National Communication Exercise'*, implemented by the Ministry of Forestry, Fisheries and Sustainable Development with the support of UNDP - GEF.
4. *'Belize National Human Development Report: Think Change',* implemented through a joint Government Task Force and supported by UNDP.
5. *'Belize's Solid Waste Management Facility Carbon Initiative'* supported by UNDP/MDG Carbon Facility.
6. *'The Preparedness for Climate Change in the Caribbean Programme'* implemented by the National Red Cross Society and supported by the European Commission (EC).
7. *'REDD Readiness*' implemented by the Central American Commission on the Environment and Development (CCAD) and supported by the German Cooperation Programme (GTZ).

There are several other pipeline projects expected to be initiated during the proposed timeline of the planned initiative which offer directly complementary support to actions proposed one such initiative is the UNDP/GEF supported 'Capacity Building for the Strategic Planning and Management of Natural Resources in Belize'. In order to minimize project overlap and to ensure project synergies the above mentioned project will all have representation by the National Climate Change Advisory Body and the National Climate Change Office on their national execution boards.

1.2.3. The target groups and final beneficiaries, their needs and constraints and how the action will address these needs

The adaptive capacity of any country is dependent on the policies and strategies that are put in place to respond to the needs of the country while considering the resilience of the country's most vulnerable systems and population subsets. Initial surveys suggest that Belize lacks a coherent framework for climate change governance. Current trends suggest a positioning of climate change within the environmental sector, without a framework which allows for its effective integration/ decentralization into productive sector and human development planning. The absence of such a framework is reflected in limited coordination among climate change actorsand disjointed actionsresulting in sub-optimal gains for the country.

The proposed initiative aims to increase Belize's ability to respond to the threats of climate change as a means of ensuring its goal for sustainable economic and human development. The building of national capacities, both institutional and operational, is expected to stimulate improved effectiveness of national actions and investments and ensure better organization and coordination of stakeholders addressing climate change adaptation in Belize.

The proposed initiative supports capacity enhancement within the national government structure (both central and local governments) as well as capacities within supporting non-state institutions. The primary aim of proposed interventions is the creation of an enabling environment for effective climate change governance. The project targets public sector employees, decision makers and climate change technicians in its creation of the critical mass required to advance the national climate change agenda.

The projects targets more specifically actors within the water sector as adaptation approaches and best practices will demonstrated through piloted initiatives linked to this sector this sector.

The value of the process is expected to result in widespread national benefits. Adaptation pilots are expected to target communities in the Belize and Stann Creek Districts, in particular the communities of the Placencia Peninsula, communities bordering the Belize and North Stann Creek Rivers and free standing communities such as Maypen, Bomba, Gracie Rock, Rancho Dolores, and Lemonal that are without adequate access to secure water sources. Beneficiary groups were selected by Project Implementation partners based on assessed needs and opportunity for demonstration of adaptation features.

1.2.4. Particular added-value elements

The development of adaptation policies and strategies is often highly dominated by state actors. The approach being proposed by project implementers makes use of participation platforms for non-state/ civic engagement developed under the UNDP/GEF supported national capacity development project and the National Climate Change Committee which allows for direct involvement of non-state actors in national policy dialogue ensuring the preservation of the key governance principles of equity, stakeholder participation and inclusiveness, accountability, and transparency of action.

The project will utilize pilot component as a means of investigating and reinforcing best practices for further adaptation into a national response portfolio. The proposed mechanism and inclusiveness of the process is expected to better forge linkages between the local experience and needs of communities and higher level policy making. Belize is also one of 10 pilot countries implementing the Millennium Development Goals Accelerated Framework (MAF) with emphasis on MDG 7C to increase access to potable water. The MAF is an innovative approach to fast track countries' achievement of the MDGs, and specifically for Belize, access to potable water through a specific focus on regions of the country that are

lagging behind, inclusion of gender in water systems management, and participation of indigenous populations.

1.3. DESCRIPTION OF THE ACTION

The proposed action is as a result of extensive consultation with national counterparts and responds directly to those gaps and priorities identified within this process. To increase the impact and sustained benefits resulting from planned interventions, it is essential that the project employ a robust feedback mechanism allowing lessons learnt and best practices to be incorporated within the project execution framework and mainstreamed into other project deliverables. The project will be implemented over a period of 28 months and will be coordinated through a project management team with persons strategically positioned within the United Nations Development Programme, the Ministry of Economic Development, the Ministry of Forestry, Fisheries and Sustainable Development and the Ministry of Natural Resources and Agriculture.

Result 1A: Increased resilience of the water sector in Belize as demonstrated by improved planning, coordination and adaptive capacities. (€521,414/ BZD $ 1,355,676.40)

The costs of adaptation in the water sector are defined as "the cost of providing enough raw water to restore future industrial and municipal water demand to the levels that would have existed without climate change". The proposed intervention recognizes fresh water as being vital and finite and as a resource very vulnerable to climate change. Its linkages to economic growth, livelihoods, social cohesion and political stability of states require that special attention be paid to the effective management of this resource.

According to FAO statistics Belize is one of the most water rich countries within the Central American context. Climate change scenario modelling however threatens this position as downscaled models suggest significant decrease in annual precipitation rates as well as disruption in local precipitation patterns.

Result 1A of the proposed intervention is supported by actions which targets effective water governance, as effective water management is seen to be integral to the adaptation of the sector. The actions under this result will operationalize within the national framework the Integrated Water Resource Management Act through the installation of supporting structures and mechanisms for IWRM. Key to the acts operationalization is the establishment of the establishment of the National Integrated Water Resource Authority.

Result 1 of the proposed initiative also allows the opportunity for the showcasing of pilot programmes supporting effective water resource management and best practices for adapting to the effects of climate change.

Result 1 B: Belize's Adaptation portfolio reflects recommendations and lessons gained from the implementation of adaptation pilots. (€1,379,438 / BZD $3,586,538.80)

The GCCA initiative in Belize allows the country to demonstrate practical adaptation response to climate change impacts, particularly on the water sector. Five Adaptation pilots have been selected to demonstrate adaptation options in a variety of developmental situations and piloting various approaches to adaptation. The primary purpose of this exercise is to inform Belize's adaptation strategy as well as to initiate the development of national response portfolio based on lessons learnt and best practices recorded during implementation of pilots.

1. National Emergency Management Organization– Building Resilient Communities: Preparing Communities to Adapt to the Impact of Hazards and Climate Change (€ 242,107/ BZD $629,478.20)
2. Southern Environmental Alliance – Social Partnership in Adaptation as a means of securing Community Wellbeing (€ 184,380/ BZD $479,388)
3. Ministry of Natural Resources and Agriculture - CC and Food Security: Responding to Drought (€231,073/ BZD $600,789.80)
4. Ministry of Labour, Local Government, Rural Development and NEMO - Water For All: Piloting Innovative Solutions in Securing Local Water Supply Sources (€484,073/ BZD $1,258,589.80)
5. Ministry of Forestry, Fisheries and Sustainable Development – Applied Forest Management: Building Capacities for the Restoration of Watersheds Impacted by Natural Disasters (€237,805/ BZD $618,293)

Result 2: Enhanced national capacities to plan for and to coordinate a national response to the threats of climate change (€627,601/ BZD $1,631,762.60)

Activities implemented under result 2 support the defining of national capacities to manage climate change as well as support the development of a strategic national framework for responding to the challenges that climate change poses for sustainable human and economic development. Under this component, support will also be provided for capacity building in support of the national governance framework and in setting up of a knowledge management system for climate change. An important component of this result is the mobilization of the Belizean public in support of climate change action. To this end sensitization campaigns are to be designed and implemented for Belizean Policy makers, public officers, community groups and the broader general population.

Adaptive Management/ Monitoring and Evaluation: Adaptive management within the context of the UNDP Project management framework is defined as a structured and systematic process for continually improving decisions, management policies, and practices by learning from the outcomes of decisions previously taken. As a means of achieving planned project outcomes, the project will be supported by a robust project management structure which ensures the preservation of project timelines, quality in delivery as well as well as ensuring synergies between planned project actions and other like or complementary interventions within national portfolios. (€483,675/ BZD $1,257,555)

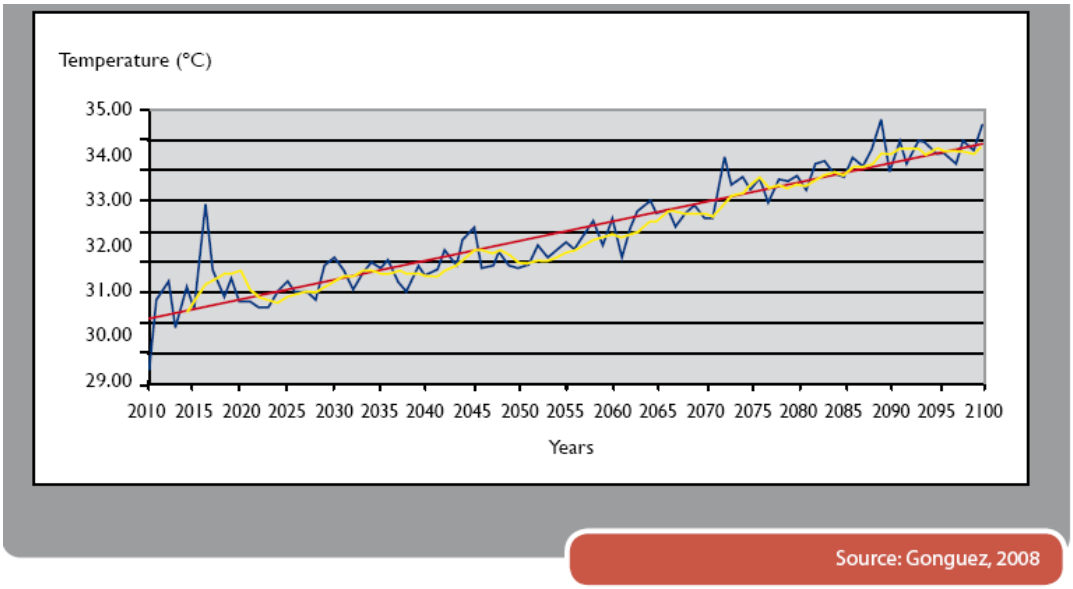
DESCRIPTION OF THE ACTIVITIES & RESULTS

Result 1 A: Increased climate change resilience in the water sector of Belize as demonstrated by the existence of an improved framework for planning and coordination (€521,414)

"Climate change is projected to adversely impact water resources and water supply. Additional water stressors, including population growth and increasing per capita demand, will exacerbate these impacts. Therefore, substantial adverse impacts to the water sector are unavoidable".[3]Belize's vulnerabilities due to predicted changes in temperature and precipitation was in 2008 verified through the application of country specific climate change scenario modeling associated with sector vulnerability assessments. Predicted changes are expected to result in significant impacts on water availability and safety across the country.

According to the 2008 limited sector assessment, average temperature projections (based on IPCC's A2 scenario) for 2010-2100 reveals a 3.5°C increase in average temperatures over the 90-year period. This information is presented in Figure 1 below.

Figure 1: Temperature Projections based on CC Modeling

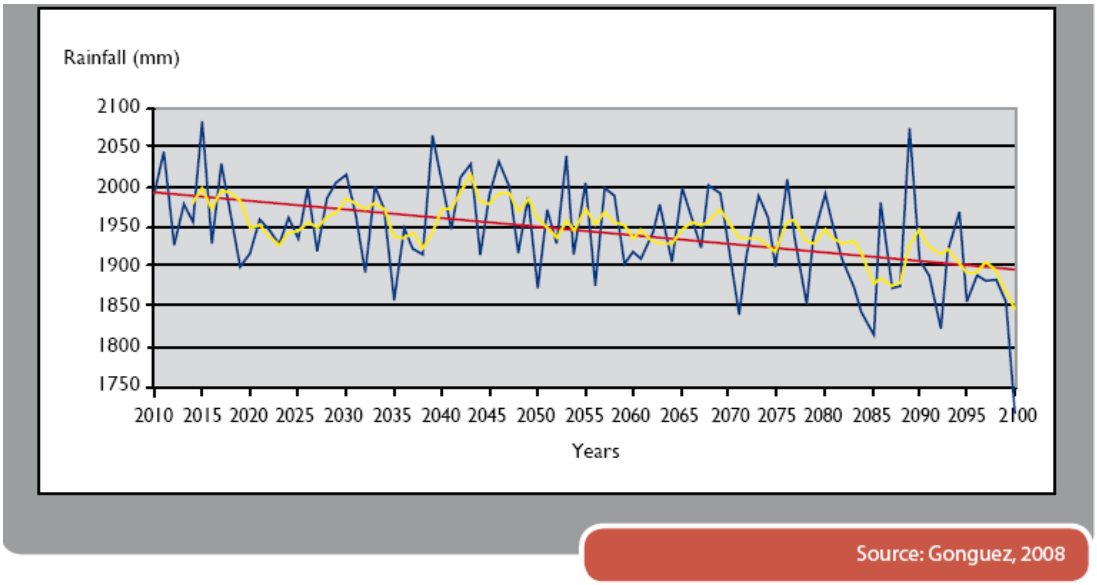


The temperature in Belize is rising faster than the global average. The Intergovernmental Panel on Climate Change (IPCC) estimates the rate of global temperature rise per decade has been 0.23 degrees Fahrenheit for the past 50 years and 0.32 degrees for the past 25 years. The rate of increase in Belize for the past 40 years has been 0.40 per decade along the coast and 0.45 in the interior, exceeding both the global 50-year and 25-year trends.

The associated trending pattern of rainfall (based on the IPCC's A2 scenario) for 2010-2100,suggests a 100mm decrease in annual rainfall over the 90-year period, but with significant fluctuations, likely owing to variability commonly attributed to El Niño-Southern Oscillation (ENSO), which occurs at irregular intervals.

[3]Pachauri, R. (2010) Chairman of IPCC, Opening of the 16th session of the Conference of the Parties (COP 16) Cancun - Mexico,

Figure 2: Predicted Precipitation based on CC Modeling



The importance of climatic variability and change is only now being mainstreamed into national development discussions. Water sector adaptation is now being recognized for its importance as a cross cutting theme to adaptation. Adaptation within this sector facilitated adaptation of most productive and social sectors. Integral to increasing national resilience in the water sector and in avoiding maladaptation is the effective management of the water sector which includes the promotion of climate resilient development of this sector.

As the magnitude and location of climate change impacts to Belize's water sector are uncertain, it is suggested that the country employ "no regrets" adaptation strategies as these are expected to generate net social and/or economic benefits irrespective of whether or not climate change occurs. Integrated Water Resource Management (IWRM) is one such option and is broadly supported as an overall decision making framework for climate change adaptation in water resources. IWRM is complemented by Water Safety Plans (WSPs) which provide an approach for climate change adaptation in water quality and water supply. Component 1 of the project institutionalizes measures to ensure water resources continue to be sufficient through climate change, providing a basic resource for livelihoods, agriculture and local industries. It addresses capacity to provide the services and ensure the national water supply is in line with growing demands, and that water is not a constraint to development, tourism and poverty reduction.

In April 2011 the Country of Belize adopted the National Integrated Water Resources Management Act. The proposed action addresses priority capacity development of water governance mechanisms to facilitate coordination among water resource managers and users as well as provide the legal basis for responsible management of the country's water resource base. The act calls for the establishment of Water Resource Authority and the elaboration of enabling regulations which will allow for the operationalization of the Act. Component 1 focuses on the strengthening of capacities at several levels to undertake integrated water resource management planning. With the support of the proposed GCCA project, the institutions and individuals involved in managing the water sector will have the capacity to direct the sectors adaptation to climate change. This Project will develop national capacities in terms of policy, plans and planning, information systems as well as demonstrate capacities necessary for local adaptation through the piloting of a series of climate change adapting technologies and practices at

vulnerable and affected sites. It is anticipated that these demonstrated practices will feed up into the national learning and capacity development processes.

Activity 1A.1 Support the institutionalization of the National Integrated Water Resources Authority within the Ministry of Natural Resources and Agriculture structure (€233,179/ BZD $606,265.40)

This project will address priorities identified by the country of Belize and lay the foundation for a sustainable use and management of water resources through climate change. Project proponents will work to establish a secretariat structure which facilitates the works of a newly established National Integrated Water Resource Management Authority. This temporary structure will coordinate measures associated with the enabling of the newly passed act and will be formalized into the national structure by 2014, with staff and operations fully funded through government budgetary allocations and through sustainability features enabled under the GCCA project.

Activity 1A.2 Provide TA in the areas of Institutional Development and Institutional Financial Sustainability to the newly established, National Integrated Water Resources Authority (€40,250/ BZD $ 104,650)

To support the creation and institutionalization of the IWRM Authority, the GCCA project will provide short term technical advisors (18 months) in the areas of institution development and financial sustainability to guide the elaboration of an appropriate support structure for integrated water resource management and to define and elaborate plans for resource generation and institution sustainability. The specific outputs linked to this intervention include (i) recommendations on appropriate institutional framework for IWRM; (ii) detailed work plan to establish the recommended organizations, functions, and legal and regulatory basis. (iii) the development of appropriate planning tools, including a decision support system (DSS) for efficient water management.

Activity 1A.3 Elaborate and widely socialize By-laws and regulations necessary for the enabling of the National Integrated Water Resources Authority (€43,305/ BZD $112,593)

This activity recognizes the need for complete stakeholder buy-in to the principles of IWRM and the articles elaborated within the IWRM Act; and propose a fully participatory process to be utilized in the development of enabling regulations associated with Act implementation. These regulations include those dealing with the leveraging of fees on water resource users as well as with the establishing of water quality standards and standards governing the exploitation of water resources.

Activity 1A.4 Conduct water resource assessment (Ground Water Reserves) to inform Master plan for integrated water management (€193,840/ BZD $503,984)

While it is recognized that coordinated management of water resources is required for resource sustainability there is an assumed need for adaptation measures to respond to the effects of climate change, it is difficult to create concrete adaptation plans as the existing capacities remain unchecked. For a sustainable development of water resources, it is imperative to make a quantitative estimation of the available water resources. The project proposes the assessment of available ground water reserves as a first step in the development of an Integrated Water Resource management Master plan. This Inventory of ground water stores will be conducted by applying hydrologic budget techniques to basins which support major population centres. Wherever possible, existing borehole data will be utilized in the exercised however it is expected that the available information will need to be augmented.

Activity 1A.5 Prepare National Water Resources Vulnerability profiles and associated Water Safety Plans for the Country of Belize (€10,840/ BZD $28,184)

Water safety plans are designed for the management of drinking water from catchment to consumer. Primary to its development is the conducting of a system assessment which identifies the hazards and

assesses the risks to water supply systems. The plan determines and proposes control measures to the identified risks. Such a plan is integral to the securing and provision of water to Belize's population and supports the adoption of an IWRM framework.

*** ***Implementation schedule of Result 1A is reflected in section 2.2.3 of the submitted document.***

Result 1 B:
Practices for water resource and watershed management piloted and tested in selected project sites. (€1,379,438/ BZD $3,586,538.80)

Water sector adaptation initiatives are defined by the functions to which technologies and practices contribute. Most initiatives fit into multiple typologies as they contribute to various facet of climate change adaptation. The six most widely accepted classification typologies include:

1. Diversification of Water Supply
2. Groundwater Recharge
3. Preparation for Extreme Weather Events
4. Resilience to Water Quality Degradation
5. Storm water Control and Capture
6. Water Conservation

Activity 1 B. 1 Execute 5 Climate Change adaptation pilots which demonstrate the integration of climate risk and resilience in water sector planning

The proposed GCCA project incorporates five projects which demonstrate action according to the typologies stated above. The proposed pilot initiatives are meant to inform national preventative and adaptation responses through lessons learnt during their implementation.

Pilot 1: NEMO – Building Resilient Communities – Preparing communities to effectively mitigate the impact of hazards associated with their changing climate *(Preparation for extreme weather event/ storm water control and capture)*

E***xecuting Partner:*** National Emergency Management Organization (NEMO)

Project Duration: 24 months

Budget: (€ 242,107/ BZD $629,478.20)

Climate change will have a large effect on the hydrology and water resources of Belize. Community risks associated with localized floods is expected to increase. The vulnerability to these events relates not only to the natural hydro meteorological events but to inadequate physical planning, inappropriate land use and settlement patterns in marginal and hazardous areas, environmental degradation, as well as design and maintenance of critical infrastructure. The communities in the Stann Creek and Belize district are particularly susceptible to flood events during Belize's rainy season. During the past decade unprecedented flood events have disrupted lives, livelihoods and economic growth of the country.The TD 16 event of October 2008 is reported to have affected 36,000 persons and agricultural losses are substantial. Indeed the widespread impact and sustained flooding has been described by several citizens as the worst disaster to have affected Belize in living memory.

The inability of channels to carry off the floodwater discharge resulted in overtopping, and storm water spread across adjacent areas. Reduced channel capacity and land use change in the watersheds have been suggested as contributory factors. Changes in land use have triggered accelerated erosion,increased runoff and speedy peak flows. Soil erosion has in turn increased sediment laden runoff and channel deposition reducing channel depth and capacity. Inadequate maintenance through desilting and river training aggravated the already reduced capacity. Lessons learnt from the TD16 event for interagency disaster risk management planning must include the need to support the relevant Government of Belize agency and communities in the implementation of prevention and mitigation measures long before an event occurs.

The proposed community based flood mitigation project applies a community resilience-based approach which is characteristic in its sharing of preparation and response responsibilities among government (NEMO), communities, households and individuals. The primary aim is to deliver sustained behavioural change; a realization that community members play an important role in developing their own disaster resilience and that of their communities; and that mitigation/ prevention is key in lessening community exposure to threats.

Expected Outputs:

1. Some 3,000 plus individuals enjoy the security provided by community sustained mitigation projects (drainage, construction of berms etc.)
2. Functioning community based monitoring and response systems in place in 5 participating communities
3. National framework for community vulnerability assessments developed and endorsed by national authority
4. Equipment depot managed by NEMO to support community mitigation projects

Proposed Actions:

1. Formalize and socialize community vulnerability assessment tools/ methodologies
2. Complete community vulnerability assessments and contingency plans for 5 participating communities, each plan establishing a community organizational framework and identifying cost-effective mitigation strategies to be implemented and maintained by the communities with the support of the national structure
3. Support two Community Volunteer River Keeper Programmes (Belize and North Stann Creek rivers)for the continued monitoring of flows and water levels within these surface drainage systems
4. Establish joint NEMO/ Community Flood Mitigation Teams
5. Provision of strategic large earth moving equipment to support community drainage, levee / berm/ flood release constructions
6. Train community members in early flood detection and early warning techniques

Implementation Plan:

	Month																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Activity 1: Formalize and socialize community vulnerability assessment tools/ methodologies																								
Develop CVA Tool																								
Conduct verification test of Toolkit and Methodology in 2 communities																								
Socialize Toolkit among village leaders																								
Activity 2: Complete community vulnerability assessments and contingency plans for 5 participating communities																								
Roll out CVA methodology in remaining 3 participating communities																								
Activity 3: Support two Community Volunteer River Keeper Programmes (Belize and North Stann Creek rivers)																								
Introductory meeting with communities regarding river keeping																								
Select and train River Keepers																								
Determine most appropriate river mitigation strategies																								
Support river keeping																								

	MONTH																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Activity 4: Establish joint NEMO/ Community Flood Mitigation Teams																								
Community consultation to sensitize Community members (Flood Risk Management)																								
Procure support materials for chainsaw/ mitigation gang																								
Support Flood Mitigation actions																								
Activity 5: Provision of strategic large earth moving equipment to support community drainage, levee / berm/ flood release constructions																								
Procure Large earth moving Equipment																								
Utilize Equipment in river and flood mitigation actions																								
Activity 6: Train Community members in early flood detection and early warning methodologies																								
Conduct community training sessions																								
Install flood / river level gauges																								
Install Flood warning sirens																								

Pilot 2: SEA – Community Response to the Increasing Impacts of Climate Change *(Resilience to water quality degradation/ water conservation)*

Implementing Organization: Southern Environmental Alliance (NGO)

Project Duration: 28 months

Budget: (€ 184,380/ BZD $479,388)

The risk of climate change-induced damage to human and economic development in coastal areas is a concern within the Belizean setting. Some 45% of the national population lives along the country's low lying vulnerable coasts, a large number of whom have livelihoods directly dependent on the health of coastal ecosystems. The combined effects of sea-level rise and subsidence, changes in upstream river discharge, increased frequency and intensity of tropical cyclones, and erosion of coastal embankments pose a serious threat to the natural resource base and livelihood opportunities of coastal communities. Belize's Barrier Reef Complex, mangrove and sea grass ecosystems are recognized for their importance in providing protection to coastal communities and in supporting of artisanal and commercial fishing as well as Belize's Tourism industry. Fisheries ecosystems and fishing-based livelihoods are subject to a range of climate-related variability, from extreme weather events, floods and droughts, through changes in aquatic ecosystem structure and productivity. Increasing pressures from human settlement, reclamation for resort development and aquaculture development have resulted in large losses of mangrove and water resources along the southern Placencia peninsula.

The **Barrier Reef** provides the first defence against storm surges; breaking the force of waves before they enter the coastal lagoon. **Mangroves and sea grass,** provide protection from storm events and coastal and caye erosion, as well as acting as an important nursery area for many commercially important species. The United Nations Environmental Programme has estimated that the annual values of ecosystem services (including fisheries, other extractive uses, shoreline protection) for mangroves at US$ 200,000-900,000 per km^2.

The proposed initiative focuses on building the resilience of communities and the ecosystems upon which they rely in the face of climate change impacts. The project seeks to diagnose the real problem by Belize's coastal communities and propose methods aimed at reducing the negative impact of climate change vulnerabilities within selected coastal communities. The project applies an ecosystem based approach to climate change adaptation. It promotes enhanced community land use management for greater resilience to soil erosion and coastal degradation as well as engages community members directly in the management of their natural resource base over the long term thereby strengthening community and individual resilience to the negative effects of climate change.

The project will utilize a unique Red Mangrove Planting System tested in the Caribbean which combines a wrack protector with a "Reef Ball Armored Cultivator Pot" (See Picture below). Reef Balls are made by pouring concrete into a fiberglass mold containing a central polyform buoy surrounded by various sized inflatable balls to make holes. This system can be used for direct planting of propagules in high wave energy areas. The restoration effort conducted under this project will contribute toward a) increasing coastal resilience to storms and floods, protecting coastal infrastructure that provide revenues for local livelihoods (e.g., aquaculture farms, hotels, marinas); b) restoring and maintaining the ecosystem services

provided by mangroves and by the other coastal ecosystems leading to increased resilience of coastal resource dependent livelihoods.

The above mentioned actions will be accompanied by a strong awareness and outreach campaign to motivate active participation among various community actors. It will also systematize and disseminate a set of best practices for management of water resources supporting community development. Additionally, the project seeks to develop a process for institutionalizing conservation as an adaptation option, done through the active involvement of the actors, under the leadership of community leaders.

The project serves to reduce the vulnerability of both critical habitats and the people who depend upon them, while also providing avenues for building resiliency in the social-ecological system. These actions contribute to the creation of sustainably managed 'bioshields' which buffers the local communities from the worst effects of these storms through both shoreline protection and providing 'climate resilient' livelihoods.

Project Objective: To build southern coastal communities' social and economic resiliency to the increasing impacts of climate change

Expected Outputs:

1. 50 hectares of reforestation also serving as 'seed banks' for continued mangrove planting efforts.
2. Water monitoring system within the Placencia lagoon and the Southern Belize Reef Complex managed through volunteer efforts of community women, youth and school groups
3. Enhanced resilience of coastal communities and protective ecosystems as a result of community-led adaptation interventions, focusing on coastal afforestation and effective water management
4. Increasing communities' economic and social resiliency through sustainable water supply and marine resource management
5. Ecosystem based adaptation knowledge products

Proposed Actions:

1. Development of SEA staff and community expertise in conservation initiatives and in ecosystem based adaptation to climate change
2. Development and socialization of ecosystem restoration guides
3. Implement a community outreach program to create greater awareness of the importance of mangroves in the face of climate change
4. Develop and implement a Field Directors training on mangroves in eight primary and secondary institutions in southern Belize
5. Establish community restoration teams from among youth and school groups and other community structures
6. Establish mangrove restoration and nursery site
7. Establish Community water monitoring programme
8. Application of Community Vulnerability and Capacity Assessment (CVCA), and other participatory planning tools in targeted communities

9. Development of community specific adaptation strategies to address coastal inundation, sea-level rise, drought, more frequent and intense coastal storms, and other impacts associated with climate change
10. Construct and/or retrofit existing infrastructure in two coastal communities and the SBRC to support improved water supply and marine resource management

Implementation Plan:

	Month																										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Activity 1: Support staff's expertise in conservation initiatives and in ecosystem based adaptation to climate change																												
Activity 2: Development and socialization of ecosystem restoration guides																												
Consultancy to adapt techniques to fit local situation																												
Socialize Guide/ methodology with environmental managers, community leaders, community members																												
Activity 3: Implement a community outreach program to create greater awareness of the importance of mangroves in the face of climate change																												
Develop communication strategy and supporting education toolkits																												
Utilize components in community outreach programme																												

	MONTH																											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Activity 4: Develop and implement a Field Directors training on mangroves in eight primary and secondary institutions in southern Belize																												
Develop training curriculum																												
Train minimum of 35 field directors																												
Activity 5: Establish community restoration teams from among youth and school groups and other community structures																												
Establish team																												
Train teams																												
Activity 6: Establish mangrove restoration and nursery site																												
Conduct site assessment and selection exercises																												
Carry out restoration actions																												
Ongoing Monitoring of restored sites																												
Activity 7: Establish Community water monitoring programme																												
Activity 8: Application of Community Vulnerability and Capacity Assessment (CVCA), and other participatory planning tools in targeted communities																												
Utilize NEMO methodology to conduct Community																												

vulnerability/ Capacity assessment																											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Develop Community Adaptation plans/																											
Based on adaptation strategy conduct works in water sector adaptation																											

Pilot 3: MNRA- CC and Food Security: Building resilience among cattle producers of the Belize District (Diversification of Water Supply, Preparation for Extreme Weather Events, Water Conservation)

Implementing Partner: Ministry of Natural Resources and Agriculture

Project Duration: 24 Months

Budget: (€231,073/ BZD $600,789.80)

Managing water resources is one of the most pressing challenges of our times. Agriculture is extremely important to Belize's economy. In 2010 Agriculture accounted for 12% GDP and employed over 31% of the country's workforce. Agriculture, however, is also inherently sensitive to climate. The negative impacts of warmer temperatures and shifting moisture availability have been predicted within national agriculture sector vulnerability assessments. If left unchecked national productivity is expected to decrease within rates of 6 to 25%, dependent of the produce. Changes in the frequency and intensity of extreme events (e.g., droughts, floods and storms) are probably the greatest challenge that faces the agricultural industry as a result of climate change; as farmers find it difficult to predict and prepare for the associated impacts.

Adaptation within the agriculture sector is focused on strategies designed to mitigate future water shortages. Local climate models suggest changes in national rainfall patterns and a general decrease of precipitation over the country of Belize. These changes have already become evident to local producers who provide empirical evidence supporting changing planting schedules, longer dries and hotter temperatures. The effects of climate variations have over the past decade impacted most severely small agriculture holders, i.e. those individuals whose livelihoods are more directly linked to the natural environment. Persistent and re-occurring drought conditions are expected to become a fixture to the agriculture sector and as such steps need to be taken to build the resilience and coping capacities of Belize's producers.

In 2011 these persisting conditions resulted in high mortality of cattle as a result of limited available feed stock and water supply. Most small scale livestock farmers as still reliant on pastures as primary supply of animal nourishment. These pastures are characterized by native non- drought resistant grasses which perished as a result of the extended dry season and unprecedented seasonal fires. The Ministry of Agriculture and Fisheries estimated that already in 2011 some $50,000 BZD was lost by small and medium-size farmers.

The proposed pilot finances small local works to help mitigate the impacts of climate change and reduce vulnerability of the livestock industry. It is anticipated that investments in farm production practices will contribute to reducing farm losses and enhancing small farmers 'capacities to cope with the prolonged, severe dry weather conditions. The project also aims to generate lessons that are expected to inform the design of similar works to be included within the Sector Adaptation Strategy.

Project Objective: To reduce the economic losses arising from the impacts of climate change among rural cattle producers of Belize District by 75% within next two years.

Methodology:

1. Establishment of strategically placed protein banks and pastures for the production of forages
2. Conducting of training workshops for cattle producers in the practices of extensive, semi-intensive and intensive livestock farming.
3. Establishment of reliable water sources to cope with severe drought.

4. Development of tool kit for good livestock production under conditions present in the district.

Expected Outputs:

1. Twenty-five forage, protein and energy banks (one acre) strategically placed throughout the district.
2. Twenty-five one acre model improved pasture for forage production established
3. Two major holding pens with a capacity of 250 heads of cattle established at safe location for temporary holding of animals in times of drought and flooding in the area.
4. Training of sixty cattle producers in good management practices in livestock (Extensive, semi-intensive and intensive livestock farming).
5. Twenty five water sources (wells and/or ponds) constructed.
6. Farmers Guide for good livestock rearing in the Belize District.

Proposed Actions:

Activity 1: Pasture Establishment & Forage Production:

1.1 Selection of the adequate sites for pasture establishment
1.2 Conduct land preparation, seed sowing and weed control program
1.3 Conduct the routine agronomical practices for pasture management (seed sowing, weed control, fertilization)
1.4 Conduct harvesting, drying and baling and storage of the hay

Activity 2: Conduct Workshops/ Training sessions to support programmed actions:

2.1 Training in pasture management GAP (2) (plant November)
2.2 Training in the production of forages & storage (2)
2.3 Training in effective water management (2)

Activity 3: Establishment of reliable water sources for rural agriculturalist

3.1 Site Selection
3.2 Drilling and digging of wells
3.3 Testing of wells Discharge and water quality

4. Construction of holding pens to protect livestock from extreme weather condition.

Implementation Plan:

	Month																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Activity 1: Pasture Establishment and Forage Production																								
Site selection for pasture																								
Land prep																								
Sowing of seeds																								
Weed control																								
Fertilization																								
Harvesting/ Drying								H						H						H				
Bailing																								
Storage																								
Activity 2: Conduct Workshops/ Training sessions to support programmed actions																								
PM and GAP																								
FP & S																								
WM																								
Activity 3: Establishment of reliable water sources for rural agriculturalist																								
Site selection begins																								
Drilling / digging starts and continue																								
Water Testing starts and continue																								
4. Construction of holding pens to protect livestock from extreme weather condition.																								
Holding pens construction																								

Pilot 4: MLLGRD- Accelerating Potable Water Coverage: Piloting Innovative Solutions in Securing Local Water Supply Sources (Diversification of Water Supply, Preparation for Extreme Weather Events, Resilience to Water Quality Degradation, Storm water Control and Capture, Water Conservation)

Implementing Partner: Ministry of Labor, Local Government and Rural Development and NEMO

Project Duration: 28 Months

Budget: (€484,073/ BZD $1,258,589.80)

"Water is the primary medium through which climate change will influence the Earth's ecosystem and, thus, human livelihoods and well-being".[4] Ensuring potable water supply under climate change scenarios is projected to require significant investment a goal largely unreachable by poor, vulnerable rural populations who represent some of the most resourced poor and remain unreached by supply network. The 2010 Millennium Acceleration Framework assessment of Belize's water sector conducted by the MLLGRD with the support of UNDP suggests that there are two regions in the country lagging behind in household coverage: Belize and Cayo Districts. In the case of the Belize District, households' potable water coverage is lower owing largely to the poor quality of underground water sources found in this area. Furthermore the Belize and Toledo Districts have characteristically many communities with small populations that are spread out across a wide geographic area. As a result, the cost of providing potable water to these communities using the standard infrastructure model for rural communities will be significant. The MDG Acceleration Framework identified communities not scheduled for water systems installation and the majority (10) are located in the Belize and Toledo Districts.

Adaptation is an essential element of human response to climate change. It is necessary that Belize develop a diverse array of adaptation options and practices that are appropriate and affordable for its vulnerable populations. The scale of these options should range from the individual household level (e.g. household water treatment), to the community scale (e.g. rainwater collection in small reservoirs), to large facilities that can. It is advisable that adaptation options incorporate diverse approaches to ensure resilience of water supplies to climate change. To this end diversification of the resources used for potable water supply can effectively reduce population vulnerability to climate change. This adaptation strategy suggests the use of technology to convert any water source as a source of potable water. Technologies and practices utilized as diversification options include:

- Desalination
- Post-construction Support for Community-managed Water Systems
- Rainwater Collection from Ground Surfaces—Small Reservoirs and Micro-catchments
- Rainwater harvesting from Roofs (RWH)
- Water Reclamation and Reuse

Project Objective: To demonstrate measures of adapting to climate change and securing water availability

Expected Outputs:

1. More than 500 rural households in communities not scheduled for water systems installation have access to secure water supplied from diversified sources
2. Varied adaptation technologies applied in eight communities
3. Water supply portfolio of best practices developed and disseminated to guide future investments by MLLGRD and SIF

[4]UN-Water (2009) UN-Water Policy Brief for COP15. "Climate change adaptation is mainly about water" Copenhagen.

Proposed Activities:

The proposed pilot supports the application of small scale household and communal options which are expected to greatly enhance the efficiency and effectiveness of adaptation. In select cases, baseline investments will demonstrate climate change proofing of existing water capture, storage and distribution systems. The overall small-scale investments will not only demonstrate appropriate approaches, they will also bring direct relief to some marginal and vulnerable communities in Belize. Finally, field knowledge and expertise on how to adapt to climate change will be greatly increased through these demonstration and action-research projects.

i. Boreholes/ Tubewells

Deep tubewells, which penetrate at least one impermeable layer, are generally more resilient to drought than traditional water supplies including springs, hand dug wells and surface water sources. The project will support the establishment of community boreholes/ tubewells in Toledo and Belize Districts. These communities have been found to have viable ground water reserves. The increasing access to groundwater is a key strategy for household water supply (both potable and non-potable) during drought and will serve as "relief boreholes" that remain capped when water supplies are adequate and are uncapped for use during drought.

Improving the Resilience of Protected Wells to Flooding

Predicted increases in rain intensities are expected to result in floods which can cause infiltration of contaminants into existing wells making them unusable. The Project proposes to rehabilitate existing community wells making them more resilient to floods. Wells will be fitted with concrete aprons meant to direct surface water away from the well and sanitary seals below ground to prevent infiltration of contaminants. Wells commissioned downhill from latrines and animal waste will be decommissioned. Membrane filters and chlorine treatment mechanisms will be annexed to local community wells allowing treatment and use of water even in the event of minor contamination breaches.

ii. Desalination

Over 97% of the water on earth is unsuitable for human consumption due to its salinity. Purification of this saline water holds the promise of nearly unlimited water resources for coastal communities. Desalination can greatly aid climate change adaptation, primarily through diversification of water supply and resilience to water quality degradation. The proposed initiative proposes to pilot the use of small community desalination plants (membrane processes) in the communities of Biscayne and Gardenia. Compact RO systems are less energy and maintenance intensive and will be used for the conversion of brackish water into potable water ready for community use.

iii. Household Drinking Water Treatment and Safe Storage (HWTS)

Under ideal conditions, all Belizean household should have access to piped drinking water supplies radiating from a protected and centralized treatment facility, however, this ideal condition is inhibited by a rural population characterized by a highly dispersed nature. This dispersed condition, coupled with the sometimes small sizes of communities, has made investments and sustainability of rudimentary systems or water connection network cost prohibitive. According to the UNDP MAF water resource assessment a large majority of communities still without water access have living within them less than fifty households. The need to identify technologies suited for individual household use is imperative to have these communities adequately serviced. These communities are also not scheduled for water systems installation in the next two years.

Household or point of use (POU), drinking water treatment and safe storage provides a means to improve the quality of water by treating it in the home. The proposed Project will pilot in the communities of Maypen, Punta Negra and Boom Creek various popular low cost HWTS utilized across Central America.

iv. Rainfall Collection Systems

In the communities of Indian Church, Gracie Rock and Freetown Sibun the project will pilot the collecting of water flows from a river through use of an earthen structure to collect the water forming a “small reservoir. Once in place, water collected within the reservoirs will be treated using small scale community treatment systems which utilize membrane filtering mechanisms coupled with chlorination systems. At a household level the project will also promote the collection and harvesting of water from roof tops. Rain water harvesting will be used to collect water for potable and other household uses. Collection and storage systems will be coupled with POU treatment systems as a means of incorporating water quality protection to these household systems.

The collection and storage of rainwater provides a convenient and reliable water supply during seasonal dries.

v. Post construction support (PCS) for community managed water systems

Post construction support increases the chances of sustainability of community managed water systems. High failure rates of rural water supply systems are as a result of the inability of systems managers to provide the required technical maintenance as well as the inability to recover basic operations and management costs of commissioned systems. To ensure continuity of support to community water managers, the project will utilized the centralized Model of PCS provision. Under this model, a series of small-scale investments will take place to increase water management capacities among rural development officers within the MLLGRD to support an ongoing community development programme set at training all new water boards and to provide technical backstopping to water boards during water board tenure. Capacity building within the MLLGRD will be guided by the commissioned institutional capacity assessment being carried out under the UNDP supported MAF initiative.

The extension/ training unit within MLLGRD will be able to provide assistance in areas including water system operations, financial and accounting systems for tariff tracking and setting, assessing supply needs, and supply quality monitoring. PCS programme personnel are expected to have a broad and holistic understanding of the issues impacting the success and sustainability of rural water supplies.

Project benefits will be delivered through the execution of two primary actions. These include:
Activity 1: Invest in Community Water Adaptation Technologies (boreholes, desalination systems, HWTS, rainfall collection systems)
Activity 2: Establish PCs Programme for community water managers

Implementation Plan:

	Month																										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Activity 1: Invest in Community Water Adaptation Technologies																												
Conduct detailed site assessments																												
Carry out community consultations as a means of socializing appropriate adaptation option																												
Procure/ Install/ Construct Technology options																												
Activity 2: Establish PCs Programme for community water managers																												
Consultancy to develop training curriculum and supporting toolkits for use by RDO's																												
Socialize Guide/ methodology with RDO as part of training of trainers programme																												
Formalize PCS unit in MLLGRD structure																												

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Conduct bi-annual community water managers training sessions																												
Support provided to MLLGRD PCS unit																												

P**ilot 5: FD- Applied: Forest Management- Building Capacities for the Restoration of Watersheds Impacted by Natural Disasters - Adaptation of Basins (**Watershed protection, Resilience to water quality degradation, water conservation)

Implementing Partner: Ministry of Forestry, Fisheries and Sustainable Development

Project Duration: 24 Months

Budget: (€237,805/ BZD $618,293)

Natural disasters such as hurricanes damage and destroy the land, sea, forest and other resources vital to peoples' livelihoods. In October 2010 Hurricane Richard made landfall in Belize impacting some 600,000 acres of forests (18% of total forests). Richard, a category 1 storm, tracked westward at 13 miles per hour sustaining winds of 90 mph. Damage to ecosystems was assessed with the assistance of CATHALAC (Centro Del Agua del Trópico Húmedo para América Latina y el Caribe) in Panama. CATHALAC used satellite-based metrics of the forest's greenness prior to and after the hurricane. High levels of deforestation occurred in hilly and mountainous areas consequently, a high degree of erosion, siltation and soil runoff is expected in the coming years compromising water sources. Riparian and gallery forests which are important refuge for fauna, and which play important protection functions are especially vulnerable to these system. Disturbance is an important factor in structuring ecological communities, exerting its influence through changes to the physical environment and to the trajectories of succession processes.

The impacts of tropical weather system are not unique to the Richard situation. In fact degradation of landscapes is perhaps the most under reported impact of tropical weather systems despite the long term effects of the degradation caused. Rehabilitation of these degraded forests along with sound concepts of sustainable management are needed urgently to abate possible secondary disasters including the disruptions to ecosystem services including the generative and protective properties of our watersheds.

The capacities to assess damages, monitor effects and to plan for recovery are important within the national response framework and require a multi-faceted landscape management approach. The Project proposes the building of capacities within national resource management agencies to effectively evaluate and plan for recovery as well as to execute effective forest restoration efforts. The Forest Department and partnering forest resource managers will develop national strategies/ methodologies for post disaster action, through the practical application and testing of various methodologies within the areas impacted by Hurricane Richard. Lessons learnt through this practical exercise will inform national policies and strategies for responding to lands degraded by storm events.

Project Objectives: To enable restoration activities in sensitive and flood prone forest systems proving for the effective management and recovery of damaged forest stands.

Expected Outputs:

1. definitive methodologies for salvaging, administrating and recovering hurricane damaged forests for proper watershed management
2. implementation strategy for restoration of impacted areas
3. trained national and community responders
4. Monitoring strategy for long term impacts on biodiversity and water resources

Proposed Activities:

1. **Consultancy to develop rapid impact assessment protocols and methodologies**
   The project will prepare a manual as a resource document for Environmental and Disaster Response Agencies. The manual is intended to provide the assessment team with meaningful information on damage to the natural environment, based on a standardized approach. The

manual seeks to ensure that activities undertaken in response to an event do not themselves create environmental problems.

2. **Use of GIS technology in Impact assessments.**
   Managers within the forest department will be trained on the application of GIS technology in the carrying out rapid impact assessments.

3. **Socialization of evaluation and rehabilitation techniques with forest resource managers and community managers.**

4. **Development of rehabilitation test plots within hurricane Richard impacted regions**
   The project aims at providing strategic information on which to base techniques to accelerate natural regeneration and for enrichment planting. The project will test techniques in forest patch improvement and enrichment planting through line planting and gap planting. These plots will be monitored over the long term to determine the most suitable method for rehabilitation in varying forest types.

5. **Prepare and implement a long term monitoring plan for biodiversity and water quality in selected watershed areas impacted by Hurricane Richard**

6. **Revision of forest management plans to reflect mitigation and recovery strategies**
   Over the medium and long term, actions such as revising management plans and developing recovery strategies with a focus on restoration and community involvement to encourage improve watershed management could be undertaken. There are implications for watershed integrity in the reduction of sedimentation in the rivers which eventually make way into the coastal and marine ecosystems.

******Detailed Project implementation plan will be elaborated during the inception phase of project implementation.***

Result 2: Enhanced national capacities to plan for and to coordinate a national response to the threats of climate change (€627,601/ BZD $1,631,762.60)

Until recently, climate change was viewed largely as an environmental concern in countries such as Belize. The recent realization that climate change represents a serious multifaceted challenge for the development of Belize has urged practitioners within the Government of Belize to strengthen links between the climate change and development. In a 2010 survey of climate change actors and stakeholders it was determined that only a very few of the government institutions interviewed had a clear picture of what actually comprises climate change management. Among those interviewed there seems to be a perception that climate change is a new issue which will require entirely new and different set of skills from those already existing in government. Supporting roles in climate change governance was not recognized. Outside of a few technical functionaries there is scant specific knowledge of how climate change will evolve and of its potential impact on social and economic development. There exists no structured or detailed work plan or terms of reference for climate change activities, and the prioritization of climate-change tasks seems to be dictated on an ad hoc basis.

An important initial step is to improve the basic knowledge among staff and government sector ministries of what mitigation of and adaptation to climate change comprises, and how it should be approached. To spear head this action and to coordinate other climate change initiatives in country the Government of Belize has established a of a Climate Change Office, it is the Government's intention to expand the capacities of this office to allow for national backstopping in the analysis of national circumstances, the creation of information and in to contribute to the overall national planning

processes. This unit is expected to perform the highly needed role as coordinator, informer and initiator of climate change adaptation initiatives. The drawing on human resources and expertise available outside the office is crucial for its successful management of a national climate change portfolio as well as for the design and implementation of national road map guiding the adaptation and mitigation needs of the country.

In support of the development of a national framework for climate change management the project will work alongside the national climate change office within the Ministry of Forestry, Fisheries and Sustainable Development in the undertaking of the underlying actions.

- The determination of national needs as it relates to a governance framework to be determined through a systematic consultative process which first determines the extent of existing capacities and highlights gaps within the national system. The needs assessment will be conducted in the context of the development of a national response to climate change. It will analyse the roles of actors and will describe the capacities necessary to fulfil roles. In the determination of best fit institutional arrangements resource availability will be key in approving final construct.
- On the basis of the above mentioned assessment, a realistic model of how climate change functions will be performed will be formulated and presented to the Government of Belize for their endorsement. The proposed framework will clearly indicate the most appropriate structure for the country taking into consideration the best utilization of national strengths as well as sustainability implications. The involvement of none state actors in this process are paramount to the design of this comprehensive structure.

The immediate need for capacity development of the staff from sector ministries, and to some extent civil society and the private sector in support of the national framework will be met by the GCCA initiative through the provision of shorter-term modular training courses developed among capacity development partners including the University of Belize, UNEP and UNISDR. Additionally, the Project will develop basic knowledge and tools, on vulnerability, risk and prioritisation assessments. In addition to the basic training course, there may exists a need to provide targeted capacity specific development courses as well as ensure the continued updating of the national knowledge base through meaningful participation in regional/ international meetings. Specialized areas of learning include national vulnerability assessments, sector adaptation planning, and interpretation of climate data, climate change financing, and costing of climate change.

Climate change governance in Belize will also be supported through the elaboration of policies and management tools guiding national actions in the areas of adaptation and mitigation. To date, narrowly-defined mitigation (lowering emissions) and adaptation (reducing vulnerability) projects have dominated climate change action policies being developed by countries such as Belize. This has resulted in the accumulation of many efforts, isolated in nature, despite the crosscutting nature of climate change. A comprehensive policy framework to support the integration of climate and development planning, policies, and action across multiple sectors and levels (national and local levels) will be developed to guide the works of the newly established climate change office

In order to meet the challenges and uncertainties of climate change, development processes must be rendered more climate resilient and contributing to the lowering of national carbon emissions. The formulation and implementation of a comprehensive national climate change policy and low-emission climate-resilient development strategies (LECRDS) is expected to respond more effectively to of sustainable development. Given the complexity of these products, the development exercise requires participation of multiple sectors, stakeholders, and levels of government, including high-level public and private authorities with decision-making authority. It also must ensure that planning activities and scientific assessments are coordinated and systematic. Both processes mentioned above will be undertaken with the support of technical assistance provided by UNDP global support teams.

Activities supporting the building of national capacities are stated below:

Activity 2.1 Support the expansion and capacitation of the National Climate Change Office

Activity 2.2 Map existing national climate change actors, roles, and capacities

Activity 2.3 Draft and seek national endorsement of an organizational framework supporting national climate change governance

Activity 2.4 Implement campaign to support decision makers at different levels in improving their knowledge and skills on climate change adaptation and mitigation, and allowing the integration of CC into various ministerial/ constituency portfolios and social development planning processes.

Activity 2.5 Provide public servants and civil society representatives the opportunity for training/ development in the areas of Climate change negotiations; improved participation in UNFCCC processes; planning for climate change; climate change transformations in land cover; climate change education; risks and opportunities for the finance sector; integration of CC policies into national economic and social development planning activities

Activity 2.6 Craft national CC adaptation planning and response strategies for three vulnerable sectors (Agriculture, Tourism and Fisheries)

Activity 2.7 Facilitate Belize's transition toward low-carbon development pathway, primarily through the provision of training sessions and workshops to enhance the capacity of relevant agencies/institutions on the use of the Low carbon growth modeling framework for planning purposes

Activity Result 2.8 Develop and implement effective public education, information, and awareness activities on disaster risk reduction and climate change

PROJECT RESULTS FRAMEWORK:

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD:
3.2.1 Strengthened national capacity in dealing with legal and regulatory frameworks under Multilateral Environment Agreements, allowing for adequate mainstreaming of these conventions into national policies and strategies. **3.2.2** Increased national capacity to effectively address vulnerability and adaptation to climate change.

Country Programme Outcome Indicators: Identification of national vulnerabilities within various productive sectors ; Support development of National Climate change policy

Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): 1. Mainstreaming environment and energy
2. Promote climate change adaptation

EU Overall Objectives: a) The development of a resilient water sector through the promotion of interventions consistent with national priorities and direction.
b)Enhanced GOB institutional capacities for effective climate change governance.

EU Strategic Objective and Program: To enhance adaptive capacity and resilience to climate change in national policies and demonstrate action in support of effective governance of climate change and climate change related impacts in the water sector.

	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
Project Strategic Objective To enhance adaptive capacity and resilience to climate change in national policies and demonstrate action in support of effective governance of climate change and climate change related impacts in the water sector.	Increased capacity of the government and civil society to take informed action on climate change Level of National Adaptive Capacitylevel determined by: • Number of administrative areas where CC capacity building results in more effective use of existing budgets for activities that reduce disaster risk and enhance adaptive capacity • Extent to which government plans and budgets have been modified to reflect CC evidence generated • Level of community and non-state stakeholder engagement.	Belize is highly vulnerable to climate change, with low capacity to adapt. Models of future climate change suggest that The temperature in Belize is rising faster than the global average. The rate of increase in Belize for the past 40 years has been 0.40 per decade along the coast and 0.45 in the interior, exceeding both the global 50-year and 25-year trends. The baseline project consists of strengthening capacity at several levels to undertake integrated climate change adaptation/ mitigation planning and integrated water resource management planning	- Dedicated Government CC and Integrated Water governance structure is staffed in place and positions fully funded by GOB by 2014 - At least two types of resilience-enhancing measures effectively employed by the Government by project's completion - Minimum of 3 administrative areas have budgets which reflects activities to reduce disaster risk and enhance adaptive capacity	- Government fiscal year 2014 environment/ CC budget allocation - Approved organigram and TORs of National Authorities - Final Action report which includes information and data from End of Action Surveys and Workshops.	- There currently exists a political commitment to strengthen the current institutional framework climate change planning and management. This commitment is important for the sustainability of institutional reforms proposed under this initiative. - Political commitment to support dedicated CC and water governance institution persists after project completion - Community members willing to try and adopt new technologies. **Risks** Climate change is new area of work and linkages with national development not yet clearly understood by decision makers. Because of this the CC agenda is expected to struggle against other competing national priorities this may mean Climate Change does not get the visibility and support needed for success.
Outcome 1	Existence of	Current situation is one in which	- Creation and	- Question based surveys	- Water Data / planning

Increased climate change resilience in the water sector of Belize as demonstrated by the existence of an improved framework for planning and coordination	literature database National Circumstance document updated	water sector governance mandates are scattered across multiple ministries with very little coordination linkage. This presents difficulties in planning for and managing the sustainable use of the resource commonly resulting in duplication of efforts and confusion as to assigned roles and responsibilities	institutional strengthening of water management associations	- Progress reports of IWRM authority - Revenue generation reports IWRM authority	information available, accessible and reliable - Existence of political will to implement required tariffs - Major water sector stakeholders support the IWRM Act
Outcome 2 **Practices for water resource and watershed management piloted and tested in selected project sites.**	Increased knowledge of good practices on increasing resilience to CC –to – water related risks Number of project beneficiaries receiving training in implementation of specific adaptation measures or decision-support tools	National authorities agree on the need for concentration of efforts on Climate change adaptation and Belize like most SIDS is extremely vulnerable to the effects of climate change climate variation. Belize's vulnerability is exacerbated on its dependence on its natural resources base to drive its economic development.	- Water management technologies introduced and tested (water storagesystems, water canals/ drainage systems, watershed restoration, community adaptation best practices) - Minimum of 3,000 stakeholders (communities, households, individuals, agencies, etc.) engaged invulnerability reduction or improved adaptive capacity activities - 75% percent change in perceived vulnerability resulting from projects	- Project lessons captured in, and disseminated through adaptation strategy documents - MLLGRD rural water records - Community participatory review of pilots - Question based surveys applied during implementation period - End of Project surveys	- Ability of implementing partners to keep communities engaged in project actions and inspire behavioral change to complement use of technologies as an adaptation option
Outcome 3 **Enhanced national capacities to plan for and to coordinate a national response to the threats of climate change**	Capacity to assess, monitor, predict and interpret climate change – to-sector related risks in Belize Improved development conditions in relation to climate change stressors	Climate change interventions remained largely within the ex-Ministry of Natural Resources and Environment and the topic is not yet treated as a cross cutting theme impacting national development. This has resulted in a concentration of capacities for addressing climate change and climate change knowledge resources allowing the continued classifying of climate change as an environmental issue.	- Tools and methodologies for the identification, evaluation and mainstreaming of CC adaptation measures in the various sectors in Place - Inter-ministerial coordination mechanism in place for climate risk management - 35% Percent	- Public service Training records/ certification - Sector Plans reflecting climate change considerations - KAP assessment	- Continued government commitment to CC Mainstreaming - Capacities once developed are retained within the Public service for a minimum of 5 yrs - Ministry of Public Service supports the adoption of CC curricula as a part of its professional development programme

			improvement in stakeholders' capacities to manage climate change as measure by abilities to communicate climate change risks, disseminate information, or make decisions based on high quality information)		
INTENDED OUTCOMES	**OUTPUT TARGETS FOR (YEARS)**	**INDICATIVE ACTIVITIES**	**RESPONSIBLE PARTIES**	**INPUTS**	**RISKS AND ASSUMPTIONS**
Component 1/ Result 1A **Increased climate change resilience in the water sector of Belize as demonstrated by the existence of an improved framework for planning and coordination.** -	**Targets (year 1)** -IWRM Secretariat established within the MNRA - Institution Structure and phased development strategy clearly defined **Targets (year 2)** - 40 IWRM Secretariat staff and ministries support staff trained in integrating climate risks into IWRM - 15 state and non-state actors trained in climate risk modelling in the water sector - Regulations enabling fee collection endorsed by cabinet **Targets (year 3)**	**Activity Result 1A.1 Support the institutionalization of the National Integrated Water Resources Authority within the Ministry of Natural Resources and Agriculture structure** ▪ Action 1A.1.1 Hire coordination staff for IWRM Secretariat ▪ Action 1A.1.2 Provide systematic support in the establishment of the IWRM Secretariat. ▪ Action 1A.1.3 Conduct training on integrating climate risks into water resource management conducted for relevant agencies/departments (including IWRM Secretariat, MNRA, MLLGRD and meteorological agencies)	*Ministry of Forestry, Fisheries and Sustainable Development* *Ministry of Natural Resources and Agriculture* *UNDP Virtual College* *UNITAR*	***Personnel:*** ▪ Short term technical support- IWRM Coordinator (National: 28 months@ € 2,125 per month = €59,500) ▪ Short term Administrative Support (National: 28 months@ € 980 per month = €27,440) ***Premises: (***IWRM Authority- Rental and Maintenance 28 months @ €340per month = €9,520) ***Supplies:*** (Support to IWRM offices- 28 months @ €150 per month =€4,200) ***Training/ Workshops:*** ▪ Climate Risk Modelling Venue: €1,500; Modelling Software (2 units@ € 2,725 per software package= €5,450); Training Facilitation (International Consultant: 10 days at € 527 per day = €5,270; Travel: Round Trip Ticket = € 1,053; DSA: 10 days @ €100 = €1,000) ▪ Integrated Water Resource	- Governments Commitment to sustain the functions of the IWRM secretariat beyond project life cycle remains secure

	-By the end of project year 3 the IWRM Secretariat supports entirely the functions of the IWRM Authority - By end of project year national ground water inventory will be completed for priority waterbasins			Management (Semester course) Course Development And Delivery- 50 students:€10,526; Materials €1,053) **Furniture and Equipment:** ▪ 3 desktop units@ € 1,192 = €3,576 ▪ 3 prefab work cubicles @ €1251= €3,753 ▪ 2 filing cabinet @ €304 = €608 ▪ 6 remote access weather monitoring stations @ €16,000 per station =€96,000 ▪ 1 printer/Scanner @ €1,960=€1,960	
		Activity Result 1A.2 Provide TA in the areas of Institutional Development and Institutional Financial Sustainability to the newly established, National Integrated Water Resources Authority ▪ Action 1A.2.1 Reflect technical assistance needs in consultancy TOR ▪ Action 1A.2.2 Secure short term technical support for IWRM secretariat to establish pathways to institutional and financial sustainability	*Ministry of Forestry, Fisheries and Sustainable Development* *Ministry of Natural Resources and Agriculture* *Ministry of Economic Development* *Ministry of Labour, Local Government and Rural Development and NEMO*	***Personnel:*** ▪ Short term technical support- GoB/ UNDP staff for development of consultancy packages (15 days @ €163 per day = €2,450 **Consultancy:** Formulate Strategic Plan and development Road map to guide the short, medium and long term development of the new IWRM Authority ▪ Short term technical support- Institutional planner (National: 60work days@ € 210 per day = €12,600) Support the formulation of mechanisms for IWRM Authority Financial sustainability ▪ Short Term Technical Support- Financial Content Advisor (National 120 workdays @ € 210 per day = € 25,200)	- Financial Sustainability mechanisms are accepted by broad water stakeholder grouping - Capacities required exists within local consultancy pools

		Activity Result 1A.3 Elaborate and widely socialize By-laws and regulations necessary for the enabling of the National Integrated Water Resources Authority ▪ Action 1A.3.1Based on the Authority phased roll out strategy produce costing estimates supporting the operations of the authority ▪ *Action 1A.3.2* Prepare cabinet papers soliciting annual budget appropriation by the national assembly and MoF ▪ Action 1A.3.3Determine appropriate permitting and licencing mechanisms for abstraction and use of water, as well as its control and protection and ▪ Action 1A.3.4 Socialize enabling regulations, approved management processes and associated fee structures	*Ministry of Forestry, Fisheries and Sustainable Development* *Ministry of Natural Resources and Agriculture* *Ministry of Labour, local Government and Rural Development,* *Ministry of Economic Development* *MNRAPolicy Coordination and Planning Unit*	***Personnel:*** ▪ Short term technical support- GoB staff for preparation of Cabinet packages (15 days @ €181 per day = €2,715 ▪ Short term technical support- GoB/ UNDP staff for production of cost estimates supporting the operations of the authority (30 days @ €192 per day = €5,750 **Consultancy:** Elaborate enabling regulations required to usher the IWRM law into force ▪ Short Term Technical Support- Legal Expert (National: 40work days@ € 526 per day = €21,040) **Training/ Workshops:** National Consultations 8 sessions Venue: €1250 per session = € 10,000; Materials: €250 per session = € 2,000; Travel: Local Travel 6 months @ 75 gallons per month @€ 4 per gallon = €1,800	- Government's ability to assume responsibility for the functioning of the IWRM Authority is assumed by project proponents - There exists a risk that water stakeholders will not be supportive of fees/ tariffs levied through the IWRM Act

		Activity Result 1A.4 Conduct water resource assessment (Ground Water Reserves) to inform Master plan for integrated water management ▪ Action 1A.4.1 Determine scope of assessment exercise (It is expected that ground water resources servicing large population centres will be prioritized) ▪ Action 1A.4.2 Describe the occurrence and distribution of water-quality constituents in ground water of selected watersheds ▪ Action 1A.4.3 Collect, interpret and analyse existing data and review information related to groundwater availability and current and future sectoral demands ▪ Action 1A.4.4 From existing information identify gaps that need to be addressed to complete the groundwater assessment and drill exploratory boreholes in order to obtain missed data ▪ Action 1A.4.5 Provide a water balance for selected watersheds using the USGS Precipitation Runoff Modelling System Action or similar modelling software ▪ Action 1A.4.6 Input existing information into robust data base allowing for continued monitoring of aquifers systems	*Ministry of Forestry, Fisheries and Sustainable Development* *MNRAHydrology Department* *MNRA Geology and Mines Unit* *MESTPU Petroleum Unit* *Caribbean Community Climate Change Center/ INSMET* *Ministry Of Health* *International Groundwater Resources Assessment Centre (IGRAC)* *CATHALAC* *United Nations Development Programme*	**Consultancy:** Hydrologic assessment of Belize's Ground water resources (*This assignment should be undertaken by a team rather than an individual. This assessment team should ideally be comprised of established individuals within their field of specialization. It is expected that technical experts within the MNRA will lead the process and will be supported by international and local consultants in the final assessment delivery*) **Based on estimates provided by the MNRA: - € 180,000** Data base development (Water Resource Management) ▪ Short Term Technical Support- IT Expert (National: 60work days@ € 181 per day = €10,860) ***Equipment:*** ▪ 1 server @ € 2980	- Data requirements for a groundwater balance study can be adequately met by local sources - Governments Commitment to sustain the functions of the IWRM secretariat beyond project life cycle remains secure

		Result Activity 1A.5 Prepare National Water Resources Vulnerability profiles and associated Water Safety Plans for the Country of Belize Action 1A.5.1 Utilizing information from the water balance exercise prepare water vulnerability profiles to guide management of water resources.	*Ministry of Forestry, Fisheries and Sustainable Development* *Ministry of Natural Resources and Agriculture* *Ministry of Health* *National Emergency Management Center* *Caribbean Climate Change Center* *Pan American Health Organization*	**Consultancy:** ***Water vulnerability profiles and Water Safety plans for key provinces in Belize*** ▪ Short Term Technical Support- Experts in Hydrology, Public Health, Sanitation (National Team: 20work days@ € 542 per day = €10,840	- Capacities exist nationally to undertake consultancy
Component 2: Result 1 B: ***Practices for water resource and watershed management piloted and tested in selected project sites***	**Targets (year 1)** - Project Cooperation agreements in place for approved pilots. -Project Board Approved projects 1st year Work plan, M&E Plans and Inception Plan - 3 of 5 pilots initiated **Targets (year 2)** - Remaining pilots initiated - Approved year 2 AWP 250 households in rural Belize enjoy the benefits of secure water source **Targets (year 3)** - Pilots advanced in implementation and lessons learnt compiles in national portfolio document	**Activity Result Activity 1 B. 1 Execute 5 Climate Change adaptation pilots which demonstrate the integration of climate risk and resilience in water sector planning** **Pilot 1: NEMO – Building Resilient Communities – Preparing communities to effectively mitigate the impact of hazards associated with their changing climate (Preparation for extreme weather event/ storm water control and capture)** ▪ Action 1.1 Formalize and socialize community vulnerability assessment tools/ methodologies ▪ Action 1.2 Complete community vulnerability assessments and contingency plans for 5 participating communities, each plan establishing a community organizational framework and identifying cost-effective mitigation strategies to be implemented and maintained by the communities with the	*Ministry of Forestry, Fisheries and Sustainable Development* *National Emergency Management Organization* *United Nations Development Programme/ Bureau of Crisis Prevention and Recovery*	***Personnel:*** ▪ Short term technical support- NEMO Project Management Unit (2 years @ €9,500 per year- €19,000) ***Consultancies:*** Develop Standardized Climate Risk assessment/ Community Vulnerability Assessment Tool for use by national authorities and communities ▪ Short Term Technical Support- CC/DRR Expert (International 30 days @€526/day= €15,780) ▪ Short Term Technical Support- CC/DRR Expert -Completion ofcommunity vulnerability assessment and community plans (5 communities @ €2,731 per community = €13,655 ▪ Develop community guides for flood mitigation booklets (National 20 days @ € 181 per day = €3,620) **Training/ Workshops:** ▪ Community testing of tool (5 communities) Venue: €750 per session:- 2 sessions per community = € 7,500; Materials:	- Continued support/ follow up by NEMO - CBDRM accepted by policy makers and integrated into national policies - Communities accepting to proposed behavioral changes and adoption of risk mitigation actions.

		support of the national structure ▪ Action 1.3 Establish joint NEMO/ Community Flood Mitigation Teams ▪ Action 1.4Train community members in early flood detection and early warning techniques ▪ Action 1.5 Support two Community Volunteer River Keeper Programmes (Belize and North Stann Creek rivers) for the continued monitoring of flows and water levels within these surface drainage systems ▪ Action 1.6 Provision of strategic large earth moving equipment to support community drainage, levee / berm/ flood release constructions		€250 per session = € 2,500; Travel: Local Travel to communities 3 months @ 75 gallons per month @€ 4 per gallon = €900. ▪ Tool Socialization/ Training of Trainers on its application (1 two day session) Venue: €1,232; Materials: €250per session = € 2,000 ▪ Community Flood Risk Management Training Venue: €750 per session:- 2 sessions per community = € 7,500; Materials: €250 per session = € 2,500; Facilitator (DRM Expert) 20 days @ € 181 per day = € 3,620 ▪ Community Outreach/ Flood Mitigation teams Travel: Local Travel To communities 12 months@ 75 gallons per month @ € 4 per gallon= €3,600 ▪ Support of River Keepers mission Travel: Quarterly river assessments 8 quarters @ 50 gallons per quarter @€ 4 per gallon =€1,600 **Print/ Publication Cost:** ▪ Printing of Risk Assessment Tool kit/ Manuals 1000 copies @ €7.24 per copy = €7,240 Printing of flood mitigation booklets 1000 copies @ €7.24 per copy = €7,240 **Equipment/Materials:** ▪ Flat Bottom River Skiffs: 2 @ €6,425 = €12,850 Excavator (long reach Neck): 1 @ €78.000 ▪ Ride on trencher with Back fill blade: 1 @ €16,755 ▪ Backhoe: 1 @ €30,000	

				▪ Flood Gauges with remote alarm system 15 units @€ 475 = €7,125 ▪ 5 GPS units @€422 per unit = €2,110	

		Pilot 2: SEA – Community Response to the Increasing Impacts of Climate Change (Resilience to water quality degradation/ water conservation) ▪ Action 2.1 Development of staff's SEA staff and community expertise in conservation initiatives and in ecosystem based adaptation to climate change ▪ Action 2.2Development and socialization of ecosystem restoration guides ▪ Action 2.3 Implement a community outreach program to create greater awareness of the importance of mangroves in the face of climate change ▪ Action 2.4 Develop and implement a Field Directors training on mangroves in eight primary and secondary institutions in southern Belize ▪ Action 2.5 Establish community restoration teams from among youth and school groups and other community structures ▪ Action 2.6 Establish mangrove restoration and nursery site ▪ Action 2.7 Establish Community water monitoring programme ▪ Action 2.8 Application of Community Vulnerability and Capacity Assessment (CVCA), and other participatory planning tools in targeted communities ▪ Action 2.9Development of community specific adaptation strategies to address coastal inundation, sea-level rise, drought, more frequent and intense coastal storms, and other	*Ministry of Forestry, Fisheries and Sustainable Development* *Southern Environment Alliance* *United Nations Development Programme*	***Personnel:*** ▪ Short term technical support- Community Outreach and Education Officer (National: 28 months@ €903 per month = €25,284) ▪ Short term technical support – Marine Biologist/ Water Quality technician(National: 28 months@ € 903 per month = €25,284 ***Office Support :*** (Consumables- 20 months @ €88.2 per month= €1765) **Training/ Workshops:** ▪ Ecosystem based adaptation to climate change (3 communities) Venue: €550 per session: - 3 sessions per community = € 4,950; Materials: €250 per session = € 2,250; Travel: Local Travel to communities 3 months @ 75 gallons per month @€ 4 per gallon = €900. ▪ Validation/ Socialization of restoration guidelines Venue: €550 per session 2 sessions per community = €3,300; Materials €250 per session = €1,500 ▪ Community outreach/ Ecosystem services- Mangroves & climate change Travel: 12 months @ 75 gallons per month @€ 4 per gallon = €3,600. ▪ Training in Water monitoring (3 sessions per community) Venue: €550 per session: - 3 sessions per community = € 4,950; Materials: €250 per session = € 2,250; Travel: Local Travel 24 months@ 25 gallons per month @€ 4 per gallon = €2,400. ***Consultancies:*** Develop Community Ecosystem Restoration guides ▪ Short Term Technical Support- Ecologist/ Natural Scientist (National: 30 days @ € 181/day=	- Community interest in climate change adaptation is fostered and sustained beyond project actions - Technology easily transferable to Belizean setting - Community capacities are sufficiently built through their participation in training programmes and exposure to awareness campaigns. - Risk of derailment of project focus and timelines due to occurrence of natural disaster

		impacts associated with climate change ▪ Action 2.10 Construct and/or retrofit existing infrastructure in two coastal communities and the SBRC to support improved water supply and marine resource management		€5430) Community Vulnerability Assessment/ Community Adaptation Strategy (2 communities) ▪ Short Term Technical Support- DRM Expert (National: 40 days @ € 181/day= €7,240 ▪ **Print/ Publication Cost:** ▪ Printing of Mangrove Restoration Field Guides 500 copies @ €7.24 per copy = €3,620 ▪ Programme Visibility 1,500 posters @ €5 per poster = €7,500 **Materials/ Equipment:** ▪ Multiparameter Water Quality Meter with IntelliCal probes: 3 @ €2,440 = €7,320 ▪ Fiberglass Surveyors Rope: 5 @ €25= €125 ▪ Aqua Scope Viewing Scope: 10 @ €55 - €550 ▪ HACH Water Test Kits: 10 units @€ 200 = €2,000 ▪ Rite in the rain: 100 @ €12 per unit= €1,200 ▪ Quality Check 10 Parameter Water Test Kit: 20 @ €25 per kit = €500 ▪ LoPro Sized Reef balls with Mangrove planter: 350 @ €55 per unit = €19,250 **Grants:** ▪ Community Mitigation Grants €20,000 per community (2 communities) = €40,000 Travel supporting community mitigation projects and community vulnerability assessment exercises: €8,100	

		Pilot 3: MNRA- CC and Food Security: Building resilience among cattle producers of the Belize District (Diversification of Water Supply, Preparation for Extreme Weather Events, Water Conservation) ▪ Action 3.1 Establish demonstration drought resistant pastures and forage banks in targeted communities ▪ Action 3.2 Conduct Community capacity development workshops in the areas of pasture management GAP, Production of Forage and Storage and water management for livestock ▪ Action 3.3 Establishment of secure/ reliable water systems ▪ Action 3.4 Establishment of regional livestock holding pens for the protection of livestock from extreme weather conditions.	*Ministry of Forestry, Fisheries and Sustainable Development* *Ministry of Natural Resources and Agriculture (Livestock Department/ Extension Department)* *Livestock Association of Belize* *United Nations Development Programme*	**Contracts:** ▪ Land preparation, seed sowing/ weed control: 50 acres @ €267 per acre = €13,350 ▪ Establishment of deep bore wells: 15 well @ €4,687 per well = € 70,305 ▪ Establishment of livestock watering holes: 15 watering holes @ €3,606 per hole = €54,090 ▪ Construction of livestock holding pens (based on MAF estimates) : 2 pens @ €12,620 per pen = € 25,240 ***Travel:*** Monitoring of Contracts= €400 **Training/ Workshops:** ▪ Pasture management (3 communities) Venue: €550 per session: - 3 sessions per community = € 4,950; Materials: €250 per session = € 2,250; Travel: Local Travel to communities 6 months @ 75 gallons per month @€ 4 per gallon = €1800 ▪ Livestock farming (6 sessions/ field based) Venue: 6 sessions @ €250 per session = €1,500; Materials €250 per session = €1,500; Travel 3 months@ 75 gallons per month @€ 4 per gallon = €900 ▪ Production of Forages and storage (6 sessions/ field based) Venue: 6 sessions @ €250 per session = €1,500; Materials €250 per session = €1,500; Travel 3 months@ 75 gallons per month @€ 4 per gallon = €900 ▪ Water management (6 sessions/ field based) Venue: 6 sessions @ €250 per session = €1,500; Materials €250 per session = €1,500; Travel 3 months@ 75 gallons per month @€ 4 per gallon = €900 **Materials/ Equipment:** ▪ 2 drum mowers 2@€ 1650 per unit = €3,300 ▪ 2 haymakers @€2500 per unit =€ 5,000 ▪ 2 mini balers @ €4950 per unit = €9,900 ▪ 2 hay wagons @ €2,740 per unit = €5480 ▪ 2 Compact Tractors @ €11,654 per unit = €23,308	- Community capacities are sufficiently built through their participation in training programmes and exposure to awareness campaigns. - Risk of derailment of project focus and timelines due to occurrence of natural disaster

		Pilot 4: MLLGRD- Accelerating Potable Water Coverage: Piloting Innovative Solutions in Securing Local Water Supply Sources (Diversification of Water Supply, Preparation for Extreme Weather Events, Resilience to Water Quality Degradation, Storm water Control and Capture, Water Conservation) ▪ Action 4.1 Established tubewells/ boreholes to augment water systems already in existence within identified communities (Communities identified based on criteria matrix developed by MLLGRD and SIF) ▪ Action 4.2 Rehabilitate existing community wells making them more resilient to floods ▪ Action 4.3 Pilot the use of small community desalination plants (membrane processes) in the communities of Biscayne and Gardenia ▪ Action 4.4 Identify and pilot household or point of use (POU), drinking water treatment and safe storage technologies in dispersed rural communities ▪	*Ministry of Forestry, Fisheries and Sustainable Development* *Ministry of Labour, Local Government and Rural Development and NEMO* *Water Mission International* *Belize Social Investment Fund* *National Association of Village Councils* *United Nations Development Programme* *National Emergency Management Organization*	***Personnel:*** ▪ Short term technical support- Data technician (National: 24 months@ €710 per month = €17,040 ***Consultancies:*** Develop Rural Water and Sanitation Data management system ▪ Short Term Technical Support-IT Expert (National: 90 work days@ € 181 per day = €16,290 ▪ Update MLLGRD Organigram and associated RCDO ,WEC job descriptions (National: 20 work days@ € 181 per day = €3,620) **Contracts:** ▪ Establishment of deep bore wells: 15 well @ €4,687 per well = € 70,305 ▪ Community Well rehabilitation (based on UNDP/ MLLGRD estimates) : 15 wells @ €1,000 per well = € 15,000 ▪ Develop and commission DR 10 Desalination plant = €84,138 **Training/ Workshops:** ▪ Investment in capacity building (Training determined by Ongoing MLLGRD/ RCDO Capacity Assessment) = €30,000 **Materials/ Equipment:** ▪ 50 rotoplast vats – 1,360 gallons/5,000 litres- @€ 680 = €34,000 ▪ Roofing materials/ guttering systems for 50 households at €200 = €10,000 ▪ Piping and coupling for 50 households-at €200 each = €10,000 ▪ 25 POU Under the counter 5 stage RO Systems @ €280 = €7,000 ▪ 50 Household chlorinator systems @ €420 = €21,000 ▪ 50 Ceramic Pot filters @ €180 per unit = € 9,000	- Technology and expertise to support intervention readily available - Technology accepted within pilot communities - UNDP MAF Project deliveries which act as precursors to some proposed action remain on schedule

		Action 4.5 Establish rainfall collection systems for convenient and reliable water supply during seasonal dries. ▪ Action 4.6 Establish capacities (Centralized and decentralized) for post construction support (PCS) for community managed water systems		▪ 8 community water purification systems (LWTS) @ €16,900= €135,200 ▪ Construction material Vat platforms: 50 platforms @ €250 per platform = €12,500 ▪ 1 server @ **€ 2980**	

	Targets (Year 1) ▪ **Structure for climate change governance endosed by Government of Belize** ▪ **150 Public service staff receive basic training in CC Issues** **Targets (Year 2)** ▪ **GoB support 50% of functions of national climate change Office** ▪ **Minimum of 25 individuals gain specialized training in CC sector adaptaion** **Target (Year 3)** ▪ **CC Office and operations fully absorbed into national budgeting process** ▪ **CC Introductory course accepted as part of orientation programme of Public servants** ▪ **5 major sector/ ministerial strategy incorporate cc**	**Pilot 5: MFFSD FD-Applied: Forest Management- Building Capacities for the Restoration of Watersheds Impacted by Natural Disasters Adaptation at Basins (Watershed protection, Resilience to water quality degradation, water conservation)** ▪ Action 5.1 Develop/ Adopt protocols and methodologies for post disaster rapid environmental impact assessment ▪ Action 5.2 Natural Resource managers trained in the use of GIS technology in the conducting of REA's. ▪ Action 5.3Evaluation and rehabilitation methodologies socialized among forest resource managers and community managers ▪ Action 5.4 Development of rehabilitation test plots within Hurricane Richard impacted regions ▪ Action 5.5 Prepare and implement a long term monitoring plan for biodiversity and water quality in selected watershed areas impacted by Hurricane Richard	*Ministry of Forestry, Fisheries and Sustainable Development- Forest Department; Department of Environment* *National Emergency Management Organization* *CATHALAC* *United Nations Development Programme*	***Consultancies:*** Develop Protocols for post disaster REA ▪ Short Term Technical Support- DRR expert (National: 30 work days@ € 181 per day = €5,430) Revision of Forest management plans to reflect mitigation and recovery strategies ▪ Short Term Technical Support- Forestry expert (National: 30 work days@ € 181 per day = €5,430) **Contracts:** ▪ Establishment of rehabilitation plots based on FD estimates 4 plots @ €30,130 per plot =€120,520;Travel: Local Travel to plots12 months @ 75 gallons per month @€ 4 per gallon = €3,600.(Estimate includes establishment of nurseries and aerial preparation) ▪ Biodiversity/ Water Monitoring programme Based on FD Estimates= €19,260 (Estimate include field work for data gathering, water monitoring field training and select water monitoring equipment) **Training/ Workshops:** ▪ Utilizing remote imagery and GIS in REA's (International consultant facilitation 7 days @ €1753 = €12,271) ▪ Socialization workshop- REA tools 1 session Venue: €1250 per session = € 1,250; Materials: €250 per session = € 250; **Materials/ Equipment:** ▪ 2 4X4 vehicles @ € 21,223 per unit = €42,446 ▪ 15 GPS units @€422 per unit = €6330 ▪ 4 laser guided calipers @€531per unit = €2,124	- Programme of CC Knowledge building institutionalized within national structure - Programme receive the support of other key stakeholders including DOE, NEMO, civil society

	issues a a cross cutting themef	▪ Action 5.6 Revision of forest management plans to reflect mitigation and recovery strategies		distance measurer with view finder @ €337 per unit =€1348 ▪ 10 prismatic compass @ €195 per unit = €1950 ▪ 10 field measuring tapes @ €53 per unit= €530 ▪ 20 diameter tapes @ €88 per unit = €1760 ▪ 4 boxes Serial number tree tags @ €193 per box = €772 ▪ densiometer @ €193 per unit = €965 ▪ 5 digital cameras @ €355 per unit = €1775 ▪ 5 GIS IT Computer @ €1,253 per unit = €6,265 ▪ 1 printer/ plotter/ digitizer @ €4,208 per unit= €4,208	
Component 3/ Result 2: Enhanced national capacities to plan for and to coordinate a national response to the threats of climate change		**Activity Result 2.1 Support the expansion and capacitation of the National Climate Change Office** ▪ Action 2.1.1 Support the Operationalization of Belize's PROTEM Climate Change Office within the Ministry of Forestry, Fisheries and Sustainable Development ▪ Action 2.1.2 Utilizing platforms developed under the UNDP/GEF Capacity Development initiative undertake national consultations as a means of determining the most appropriate National; climate change governance/ coordination mechanism ▪ Action 2.1.3 Provide	*Ministry of Forestry, Fisheries and Sustainable Development* *Ministry of Economic Development* *National Climate Change Committee* *United Nations Development Programme* *United Nations Environmental Programme* *United Nations Institute for Training and Research*	***Personnel:*** ▪ Short term technical support- Climate change Advisor to the GoB (National: 24 months@ €1,775 per month = €42,600) ▪ Short term technical Support- Climate Change Officer(National: 28 months @ €1225 permonth=€34,300) ▪ Short term Technical Support: MFFSD/ UNDP/MPS Staff collaborate of design of CC introductory training for public service= €5,500 ***Premises: (***CC Office- Rental and Maintenance 28 months @ €340per month = €9,520) **Material and Equipment** ▪ 4 computers @ € 1,192 per unit =€4,768 ▪ 1 Vehicle @ €21,223 =€21,223 ▪ 2 filing cabinet @ €304 = €608 ▪ 1 printer/Scanner @ €1,960=€1,960 ▪ 3 prefab work cubicles @ €1251= €3,753 ▪	- GoB support efforts to build awareness and understanding of climate change across Ministries - Building national knowledge base will result in more effective planning across ministries

		secretariat support to the national climate change committee **Activity Result 2.2 Map existing national climate change actors, roles, and capacities** ▪ Action 2.2.1 With the Aid of a consultancy determine existing national capacities to plan for climate change and to mainstream climate change into national development processes **Activity Result 2.3 Draft and seek national endorsement of an organizational framework supporting national climate change governance** ▪ Action 2.3.1 Plan and execute sensitization meetings with various levels of national stakeholders as a means of introducing proposed structure for effective climate change governance ▪ Action 2.3.1 Develop and execute awareness messages and forums among various levels of government as a means to build support for national structure for climate change planning and management		**Travel:** ▪ International travel supporting OFP/ CC Governance team participation in international and regional sessions €2,500 per year for 3 years = €7,500 ▪ Local travel supporting CC office = 28 months @ 75 gallons per month @€4 =€8,400 **Supplies** ▪ 28 months @ €250 per month =€ 7,000 ***Consultancies:*** Develop , socialize and assess most appropriate CC governance structure for country of Belize ▪ Short Term Technical Support- Institution Development expert (International Consultant: 40 work days@ € 526 per day = €21,040 ; Travel: Local travel accommodating consultative process- 150 gallons @€4 per gallon = €600; Determine existing national capacities for climate change planning and management and develop national capacity development master plan/ road map which outlines required levels of capacities for "Mission Critical" and, "Optimal" effectiveness ▪ Short Term Technical Support- Institution Development / CC governance expert (National Consultant: 60 work days@ € 181 per day = €10,860) Develop CC Cabinet paper presenting proposed governance structure and capacity development road map ▪ Short Term Technical Support- Policy draftsman (National Consultant: 15 work days@ €	

		▪ Action 2.3.2 Prepare cabinet paper for endorsement by government ***Activity Result 2.4 Implement campaign to support decision makers at different levels in improving their knowledge and skills on climate change adaptation and mitigation, and allowing their integration of CC into various ministerial/ constituency portfolios and social development planning processes.*** ▪ Action 2.4.1 Adopt Climate change content and for provide targeted actions in the awareness building of Belizean decision makers ▪ Action 2.4.2 Host 2 day Cabinet CC planning retreat allowing for immersion into climate change topics ▪ Action 2.4.3 Develop Ministry/ Sector specific climate change information dockets for use by decision makers ▪ Action 2.4.4 Support the establishment of climate change discussion panels within the NREPS structure and CEO		181 per day = €2,715 Develop CC sensitization products/ information dockets for multiple stakeholder groups inclusive of decision makers ▪ Short Term Technical Support- CC practitioners with strong training background (National Consultant: 120 working days €181 per day =€21,720 Sector Plan review (Mainstreaming CC into sector development planning) ▪ Short Term Technical Support- Planning consultants with expertise in various development/ social sectors (5 national Consultants/ Teams : 60 working days per plan @ €200 per day= €12,000 per plan= €60,000 National Adaptation response strategy considering 3 primary production sectors ▪ Short Term Technical Support- Climate change planning experts (International Consultants/ Teams : 40 working days per plan @ €500 per day = €20,000 per sector = €60,000 Develop a Low Carbon Emmission Development Sttategy (International Consultant 120 days @ €526 per day= €63,120) **Contracts:** ▪ Development of 2 CC Orientation/ Training packages – Estimates based on average cost of training programme/ package development (International Institution @: €21,260 per package =€42,520) **Training/ Workshops:** ▪ Discussion forum CC Governance 7 sessions @ 1,250	

		Caucus ▪ Action 2.4.5 Support the review of 5 sector plans (Inclusive of 2 social sector plans) ensuring its consideration of the effects and opportunities of climate change **Activity Result 2.5 Provide public servants and civil society representatives the opportunity for training/ development in the areas of Climate change negotiations; improved participation in UNFCCC processes; planning for climate change; climate change transformations in land cover; climate change education; risks and opportunities for the finance sector; integration of CC policies into national economic and social development planning activities** ▪ Action 2.5.1 With the assistance of the Ministry of Public Service design introductory courses in climate change for inclusion in Public Service orientation packages and professional development programmes ▪ Action 2.5.2 Work alongside UNDP's		per session= €8,750 ▪ Cabinet 2 day workshop/ retreat Venue: €5,000; Materials: €2,350; External Facilitation (International consultant: 10 days @ €526 =€5,260; Honorarium for presenters €5,000 ▪ Support to CEO caucus and NREPS process (Venue: 24 sessions @ $1000 per session =€24,000 ▪ Sector Plans Validation sessions (5 plans - 1 session per plan @ Venue: €1250 per session = € 6,250; Materials: €500 per session = € 2,500) ▪ Study Grants allowing participation in predesigned CC training programmes offered through various Universities, UNITAR, UNEP etc. : €10,000 per year for 3 years €30,000/ **Print Production Cost:** ▪ Production of CC information dockets and visibility materials 500 dockets @€12 per docket = €6,000 ▪ Support Info. Campaign= €15,500	

		Virtual College, UNEP and UNITAR to develop and deliver courses meant to develop national capacities to respond to the challenges of climate change. ▪ Action 2.5.3 Provide study grants to government staff wishing to pursue studies in climate change management or related fields ▪ Action 2.5.4 Support the participation of Belize's OFP in regional and international climate change meetings/ forums ▪ Action 2.5.5 Support the National Climate Change Committee in their formulation of national positions/ responses on climate change issues **Activity Result 2.6 Craft national CC adaptation planning and response strategies for three vulnerable sectors (Agriculture, Tourism and Fisheries)** ▪ Action 2.6.1 With the aid of Consultancies develop national adaptation response strategies for the Agriculture, Tourism and Fisheries Sectors.			

		▪ Action 2.6.2 Conduct national consultations on sector adaptation to climate change **Activity Result 2.7 Facilitate Belize's transition toward low-carbon development pathway, primarily through the provision of training sessions and workshops to enhance the capacity of relevant agencies/institutions on the use of the Low carbon growth modelling framework for planning purposes** ▪ Action 2.7.1 With the aid of Consultancies develop national Roadmap for Low carbon emmission strategy. **Activity Result 2.8 Develop and implement effective public education, information, and awareness activities on disaster risk reduction and climate change**			

*******Adaptive Management (Project management, M&E and Project visibility) Costs not reflected in Project RRF. Please refer to Project Budget (Annex 1) for supporting budgets for Adaptive Management. (€446,833 Total)***

Methodology

Climate Change Adaptation is a relatively new area of project intervention within the Belizean context. Management structures for such a project require that work niche be made available for the project within the respective partner minisiteries primarily within the Ministry of Forestry, Fisheries and Sustainable Development who has been designated the national lead for climate change initiatives. Such a niche must accommodate multiple stakeholders including technical advisors to the process, decision makers and community beneficiaries. The management of adaptation measures is further complicated by the fact that adaptation must occur primarily within the productive and response sectors and not necessarily within the environmental ministries. Because of the possible disjoint among the agencies responsible for the advancing of the national climate change agenda (Adaptation and mitigation) and the actual implementation of adaptation measures on the ground, measures will be supported which strengthen existing national structures supporting intersectoral/ interdisciplinary coordination ensuring adequate platforms for cross sectoral participation into project actions. Having such a feature in place will allow for the application of effective feedback loops, the cross hybridization of project ideas with lessons generated through implementation and the documentation of project lessons for future replication.

To facilitate UNDP's accountability for project resources and quality deliveries, UNDP will provide capacities in project management and project procurement and finances as direct support to the Project Management Unit. The UNDP team will also facilitate the participation and input by other participating UN agencies such as UNISDR and UNEP.

The Implementing Partners: In line with UNDP policies and as a means of ensuring national ownership and sustainability of the action, the project will be implemented by national actors with direct management mandates to the thematic areas being explored. These entities will be coordinated through the PMU established with the assistance of a UNDP Country Office and the Ministry of Economic Development. The established project management structure will provide a coordinated network of local, national and international partners.

Project Streering Committee (PSC)/ Project Board (PB): The project is to be managed using National Execution/ National Implementation (NEX/NIM) modality and will be directed by a Project Board consisting of a broad cross section of national climate change planners and actors. This Project Board will be chaired by the senior representative of the Ministry Economic Development. Board membership will consist of representation from implementation partner ministries (Ministry of Forstery, Fisheries and Sustainable Development, Ministry of Natural Resources and Agriculture), the National Climate Change Committee and the European Union as donor. It is important that non-state actors be represented on the Project Board.

The PSC/PB functions to provide leadership and guidance on the implementation of the project, as well as serve in the creation of synergies with other initiatives related within national portfolios. The PSC/PB provides strategic direction throughout the various implementation actions, ensuring that the project initiatives are executed as proposed in the project document and ensures the attainment of maximum national benefits. The PSC/PB meets quarterly to review strategic plans and issues affecting the project and to monitor project advances against approved plans, however this group have the flexibility of calling extra-ordinary meetings as is thought necessary to ensure the effective management of the project. The PB sets project management tolerances and manages risks which may impact effective project delivery.

Project Management Unit: The project management unit is to be established during the project inception phase and will respond to project's needs in terms of programmatic implementation and financial management, quality controls and communication. A Project Manager will be hosted at the

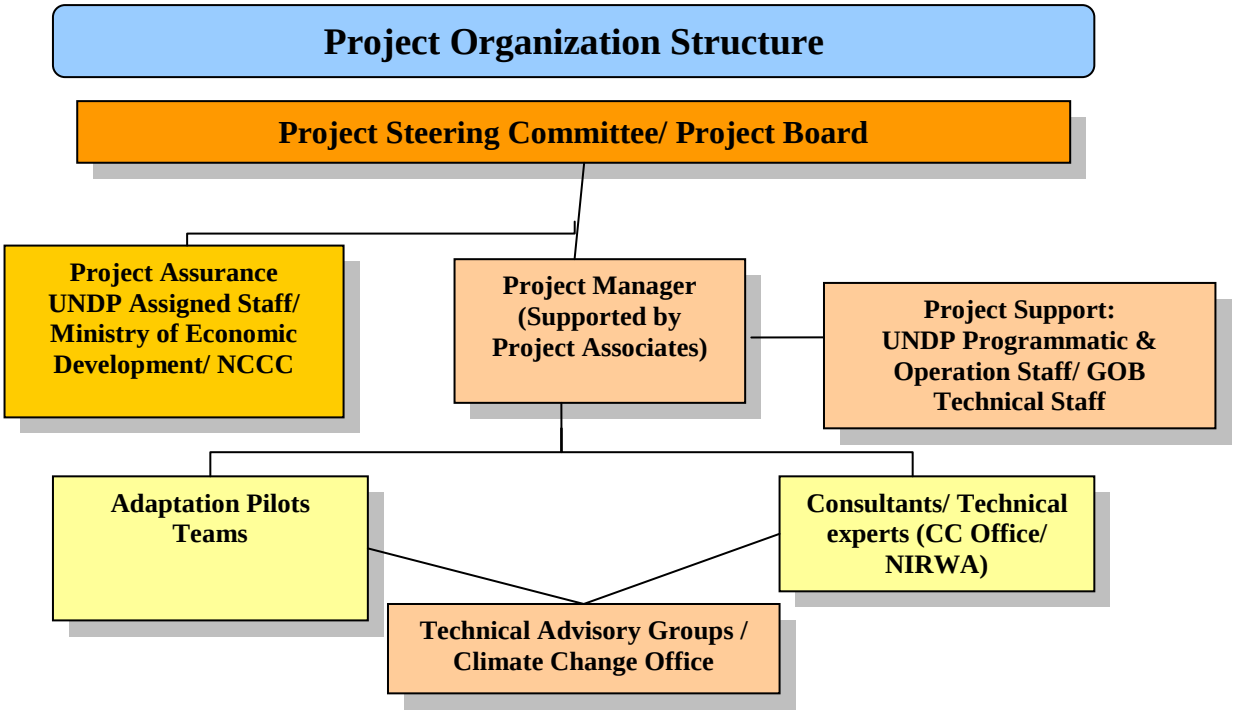
Ministry of Economic Development and will be supported by two Project Associates strategically placed within the respective partner Ministries. This three person team will be responsible for on the ground execution of project deliverables as well as coordination of key stakeholders and supporting initiatives. The PMU will operate with the support of a programmatic procurement officer hired to facilitate project procurement processes. UNDP Communication, Finance and Operations officers will also support the PMU directly. Short term technical advisors will also be sourced to support the functions of the Project delivery.

As his/ her primary responsibility, the Project Manager will head the project's planning and coordination efforts and will oversee and manage the day-to-day operations guided by annual and quarterly work and procurement plans approved by the PSC/PB. Monitoring of project actions will be the responsibility of a UNDP team assembled for this purpose as well as a quality assurance sub-committee chosen from among PSC/PB membership. The Project Manager is expected to facilitate the development of quarterly operational and procurement plans, as well as report to the PSC/PB on a quarterly basis as to the advances made by the project in reference to approved plans and alerting the PSC/PB on those issues potentially impacting project delivery. The Project Manager also has responsibility of regular reporting to the respective partner Ministries through monthly Highlight Reports and to participate in stipulated ministry meetings to facilitate adequate information sharing and essential feedback by national institutions. The Project Manager records and manages the project's risk and issue logs and serves as primary authority in the project's procurement processes. The Project Manager will be supervised by the PSC/PB.

Visibility actions will be guided by the "EU Visibility Guidelines for External Actions" and the more specific "EC/UN Joint Visibility Guidelines". All actions will be clearly articultated in an approved communication's plan to be elaborated during the project inception period.

The project will be managed within a Result Based management Framework using PRINCE 2 methodology as its primary tool to facilitate effective project planning and execution.

Project Support: Periodic project monitoring for results and evaluations will be the responsibility of the UNDP assigned Programme Analyst and an assigned Programme Associate. Additional oversight of project implementation will be provided by the UNDP Assistant Resident Representative. Further operational and technical support is available at any time from UNDP's Regional Office in Panama, UNDP EU Office in Brussels and the UNDP El Salvador Country Office. These offices house experts made available to provide for implementation support and technical backstopping.



Procedures for internal Monitoring and Evaluation

1. Project monitoring and evaluation is the responsibility of the project team, the Project Assurance Committee and the UNDP Country Office (UNDP-CO) The Project Results Framework provides performance and impact indicators for project implementation along with their corresponding means of verification providing a basis on which the project's Monitoring and Evaluation system will be designed in the initial inception phase. UNDP's monitoring approach to be applied to the proposed initiative includes data and analysis—this entails obtaining and analyzing documentation from projects that provides information on progress, validation—this entails checking or verifying whether or not the reported progress is accurate and participation—this entails obtaining feedback from partners and beneficiaries on progress and proposed actions. A monitoring and evaluation plan specific to the proposed project will be developed and approved by the Project Board within the first 3 months of project implementation.

2. Day to day monitoring of implementation progress will be the responsibility of the Project Manager and the assigned Project Associates. These exercises will be based on the project's Annual Work, Quarterly Stage and Procurement Plans and the established benchmarks/ indicators set up in both. The Project Field Officers are expected to raise project issues and risks with the designated Project Officer as soon as is possible allowing the appropriate support or corrective measures to be adopted in a timely fashion.

3. *Periodic monitoring of implementation progress* will be undertaken by the UNDP-CO (Senior Project Officer, Programme Analyst) through meetings with the project stakeholders. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities. The UNDP Programme Analyst will also perform field-monitoring visits to project sites at least once per quarter and is expected to reconcile the list of direct beneficiaries with project partners as well as monitor project impact over time.

4. Audit Financial transactions and financial statements shall be subjected to the internal and external auditing procedures laid down in the Financial Regulations, Rules and Directives of the UNDP.

Communication/ Visibility Plan

A Communication/ Visibility Plan of the project will be developed within the inception period of the project. This inception period corresponds to the first quarter of project implementation. The plan will be developed by the UNDP country office, utilizing the special guidelines for visibility as indicated in the Joint Visibility Guidelines for EC-UN Actions in the Field (2008) and for the requirements set in the Financial and Administrative Framework Agreement (FAFA). The overall communication objectives of such a plan involves the highlighting of the amount of support provided by the European Commission as it relates to the framework of the project, raising awareness in country upon achievements of project outcomes and demonstrating the impacts achieved by the project as it is being executed.

The purpose of the Communication/ Visibility Plan is to ensure that the European Union is recognized in its assistance in ensuring Belize's sustainable development. The plan will outline the use of media houses and videos as a means of raising awareness and sensitizing the Belizean Community as to the presence and work of the European Union in Belize, the use of promotional items as supporting materials for the socialization, provision of information and the support of other communication activities, and the use of print materials and publications in keeping beneficiaries and the greater population abreast as to progress made in project.

Possibility for Replication

Climate change adaptation is at an early stage of development in Belize. This project in its design showcases adaptation through pilots. These pilots respond to broad range climatic vulnerabilities. The project proposes the development of systemic capacity while demonstrating adaptation measures on the ground creating conditions appropriate for replication and scale up of actions.

It is the intention of project proponents to demonstrate proactical results that can be applied immediately.

The indicative workplan of the Action:

The duration of the action will be 28 months.

Year 1													
	Semester 1						Semester 2						
Activity	Month 1	2	3	4	5	6	7	8	9	10	11	12	Implementing body
Activity 1A.1 Support the institutionalization of the National Integrated Water Resources Authority within the Ministry of Natural Resources and Agriculture structure													
Preparation Activity 1 A.1													MNRA PCPU/ PMU
Execution Activity 1 A.1													MNRA PCPU/PMU
Activity 1A.2 Provide TA in the areas of Institutional Development and Institutional Financial Sustainability to the newly established, National Integrated Water Resources Authority													
Preparation Activity 1 A.2													PMU/ NIRWA/ UNDP/ MED
Execution Activity 1 A.2													PMU/ NIRWA/ UNDP/ MED
Activity 1A.3 Elaborate and widely socialize By-laws and regulations necessary for the enabling of the National Integrated Water Resources Authority													
Preparation Activity 1 A.3													MNRA PCPU/ NIRWA/ PMU
Execution Activity 1 A.3													MNRA PCPU/ NIRWA/ PMU
Activity 1A.4 Prepare National Water Resources Vulnerability profiles and associated Water Safety Plans for the Country of Belize													
Preparation Activity 1 A.4													NIRWA/ PMU
Execution Activity 1 A.4													NIRWA/ PMU
Activity 1A.5 Conduct water resource assessment (Ground Water Reserves) to inform Master plan for integrated water management													
Preparation Activity 1 A.5													MNRA/ PMU
Activity 1 B. 1 Execute 5 Climate Change adaptation pilots which demonstrate the integration of climate risk and resilience in water sector planning.													
Preparation Activity 1 B.1													PMU/ MFFSD/ MED/ Implementation Partners
Execution Activity 1 B.1													PMU/ MFFSD/ MED/ Implementation Partners

Year 1													
	Semester 1						Semester 2						
Activity	Month 1	2	3	4	5	6	7	8	9	10	11	12	Implementing body
Activity 2.1 Support the expansion and capacitation of the National Climate Change Office													
Preparation Activity 2.1													MFFSD/ MED/ PMU
Execution Activity 2.1													MFFSD/ MED/ PMU
Activity 2.2 Map existing national climate change actors, roles, and capacities													
Preparation Activity 2.2													MFFSD/UNDP/ MED/ PMU
Execution Activity 2.2													MFFSD/ UNDP/ MED/ PMU
Activity 2.3 Draft and seek national endorsement of an organizational framework supporting national climate change governance													
Preparation Activity 2.2													MFFSD/ Climate Change Office/ PMU
Activity 2.4 Implement campaign to support decision makers at different levels in improving their knowledge and skills on climate change adaptation and mitigation, and allowing their integration of CC into various ministerial/ constituency portfolios and social development planning processes.													
Preparation Activity 2.4													MFFSD/ PMU
Execution Activity 2.4													MFFSD/ PMU
Activity 2.5 Provide public servants and civil society representatives the opportunity for training/ development in the areas of Climate change negotiations; improved participation in UNFCCC processes; planning for climate change; climate change transformations in land cover; climate change education; risks and opportunities for the finance sector; integration of CC policies into national economic and social development planning activities													
Preparation Activity 2.5													UNDP/ MFFSD/ MED/ PMU
Execution Activity 2.5													UNDP/ MFFSD/ MED/ PMU
Activity 2.6 Craft national CC adaptation planning and response strategies for three vulnerable sectors (Agriculture, Tourism and Fisheries)													
Preparation Activity 2.6													NCCC/MFFSD/ UNDP
Activity 2.7 Facilitate Belize's transition toward low-carbon development pathway, primarily through the provision of training sessions and workshops to enhance the capacity of relevant agencies/institutions on the use of the Low carbon growth modeling framework for planning purposes													
Preparation Activity 2.7													NCCC/MFFSD/ UNDP
Activity 2.8 Develop and implement effective public education, information, and awareness activities on disaster risk reduction and climate change													
Preparation Activity 2.8													Climate Change Office/ PMU

Execution Activity 2.8													Climate Change Office/ PMU

For the following years:									
Activity	Semester 3	4	5	6	7	8	9	10	Implementing body
Execution Activity 1 A.2									PMU
Execution Activity 1 A.4									NIRWA/ PMU
Execution Activity 1 A.5									NIRWA/ PMU
Execution Activity 1 B.1									PMU/ MFFSD/ Implementation Partners
Execution Activity 2.5									UNDP/ MFFSD/ PMU
Execution 2.6									NCCC/MFFSD/ UNDP
Execution Activity 2.7									NCCC/MFFSD/ UNDP
Execution Activity 2.8									Climate Change Office/ PMU

Sustainability of the action

UNDP and project managers have built within its implementation strategy the actions stated below as a means of ensuring sustainability of project actions.

1. Seek letters of commitment from the Government of Belize ensuring the integration of national frameworks/ agencies, developed with the support of project funds, into overarching national structure with the complete support of government by end of project
2. Involve key stakeholders early in the process to ensure that outcomes and outputs are appropriately aligned with national processes and institutional priorities.
3. Execute project utilizing a flexible framework allowing for adaptive management which takes into account the evolving needs of the participating institutions and the evolving climate change policy context
4. Allow for modifications to the proposal: The original project pilots are to be updated in order to define more precisely the boundaries of the project and its proposed activities, and to allow for a clear distinction between baseline and project activities. Pilots are being embedded into national authorities, line ministries and agencies who have existing mandates and support programmes within the various thematic areas.
5. Build synergies with related on-going national interventions. It is advisable to merge disaster risk management, adaptation planning and related resource management topics when possible. The project takes this in its development creating an enabling environment for the systematic adoption of climate change adaptation actions related to the management of other sectors.
6. Building of multi-sectoral teams, to allow climate-change adaptation to be integrated into planning in a wide range of sectors. The project takes advantage of the fact that key national institutions are part of its Management Support Group or project board. This ensures the creation of an enabling environment for climate change management and the opportunity for synergy building among climate change actors.
7. Identify complementarities and establish linkages with other programmes and action plans : One such example is the Third National Communication (TNC), whose objective is to report to the UNFCCC on national efforts to address climate change, to formulate a national strategy, and to identify priorities for mitigation and adaptation, including potential projects for funding in these areas. The TNC will carry out vulnerability and adaptation assessments, and will identify priority measures and polices to build resilience in different sectors.
8. Commitment by the Government of Belize to post project support for institutional structures created. All project actions have been developed in direct consultation of national counterparts/ partners as a result to existing strategies or work programmes or as a response to need identified by consensus.
9. Explicit consideration of costs and benefits, with endorsement of strategies, policies and measures only if they can be expected to provide overall net benefits and can be sustained by national networks/ structures.
10. All actions executed within project pilots will first seek environmental clearance from the Department of environment ensuring that interventions do not negatively impact the Belizean Environment

BUDGET FOR ACTION: SEE ANNEX 1 OF DOCUMENT