



Green Climate Fund Concept Note

The Green Climate Fund (GCF) is seeking high-quality projects or programmes.

Accredited Entities may choose to submit a concept note, in consultation with the relevant national designated authority, to present the proposed project or programme idea in order to receive early feedback and recommendation.

Project/Programme Title: Climate Resilient Water Sector in Grenada (CREWS)

Country/Region: Grenada/ Caribbean_____

Accredited Entity: t.b.d.

National Designated Authority: Department of Economic and Technical Cooperation (DETC) of the Ministry of Finance



Please submit the completed form to fundingproposal@gcfund.org¹

I. Project / Programme Information	
1.1. Project / programme title	Climate Resilient Water Sector in Grenada (CREWS)
1.2. Project or programme	Project
1.3. Country (ies) / region	Grenada / Caribbean
1.4. National designated authority(ies)	Department of Economic and Technical Cooperation (DETC) of the Ministry of Finance
1.5. Accredited entity	t.b.d.
1.6. Executing entity / beneficiary	Executing Entity: : t.b.d. Beneficiary: National Water and Sewerage Authority (NAWASA), Ministry of Agriculture
1.7. Access modality	Direct <input type="checkbox"/> International <input checked="" type="checkbox"/>
1.8. Project size category (total investment, million USD)	Micro (≤ 10) <input type="checkbox"/> Small ($10 < x \leq 50$) <input checked="" type="checkbox"/> Medium ($50 < x \leq 250$) <input type="checkbox"/> Large (> 250) <input type="checkbox"/>
1.9. Mitigation / adaptation focus	Mitigation <input type="checkbox"/> Adaptation <input checked="" type="checkbox"/> Cross-cutting <input type="checkbox"/>
1.10. Results areas (mark all that apply)	<p><i>Which of the following targeted results areas does the proposed project/programme address?</i></p> <p>Reduced emissions from:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Energy access and power generation (E.g. on-grid, micro-grid or off-grid solar, wind, geothermal, etc.) <input type="checkbox"/> Low emission transport (E.g. high-speed rail, rapid bus system, etc.) <input type="checkbox"/> Buildings, cities, industries and appliances (E.g. new and retrofitted energy-efficient buildings, energy-efficient equipment for companies and supply chain management, etc.) <input type="checkbox"/> Forestry and land use (E.g. forest conservation and management, agroforestry, agricultural irrigation, water treatment and management, etc.)
	<p>Increased resilience of:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Most vulnerable people and communities (E.g. mitigation of operational risk associated with climate change – diversification of supply sources and supply chain management, relocation of manufacturing facilities and warehouses, etc.) <input checked="" type="checkbox"/> Health and well-being, and food and water security (E.g. climate-resilient crops, efficient irrigation systems, etc.) <input checked="" type="checkbox"/> Infrastructure and built environment (E.g. sea walls, resilient road networks, etc.) <input type="checkbox"/> Ecosystems and ecosystem services (E.g. ecosystem conservation and management, ecotourism, etc.)
1.11. Project / programme life span	5 years
1.12. Estimated implementation start and end date	Start: <u>{01/12/2017}</u> End: <u>{30/11/2022}</u>

¹ Please use the following naming convention for the file name: “[CN]-[Agency short name]-[Date]-[Serial number]” (e.g. CN-ABC-20150101-1).

II. Project/Programme Details

The Fund requires the following preliminary information in order to promptly assess the eligibility of project/programme investment. These requirements may vary depending on the nature of the project/programme.

2.1. Project / programme description (including objectives)

Climate change poses a severe threat to Grenada's water supply, since it relies on surface water sources and rainwater catchment to a large extent. While in the rainy season the available water resources exceed the water demand, there is a considerable deficit in the dry season. Along with the increase in average temperature due to climate change, this deficit causes a serious current and potential threat as annual rainfall is projected to decrease by up to 21%, leading increasingly to droughts. Saltwater intrusion in coastal groundwater aquifers due to sea level rise will further limit the availability of water in the future. In addition, more frequent heavy rainfall events – as predicted as another major impact of climate change – aggravate the problem of more frequent water supply outages due to high turbidity in the raw water supply.

Based on the predicted impacts of climate change, the water sector has been identified in a number of national policies and strategies as a key sector being affected by Climate Change, e.g. in the Nationally Determined Contribution (NDC), in the recently finalized National Adaptation Plan (NAP), in the updated "National Climate Change Policy for Grenada, Carriacou and Petite Martinique (2017-2021)", in the 2012 UNDESA/ Ministry of Environment strategy document "Climate Change Adaptation in Grenada" and in the National Climate Change Policy and Action Plan (2007) as well as in Grenada's First National Communication to the UNFCCC. The main goal of the CREWS programme is hence to increase Grenada's adaptive capacity to Climate Change by improving the climate resilience of its water supply system. The following paragraphs summarize the 5 components the project will entail:

1. Component 1 - Strengthened water resource management, policies, and regulation (US\$1.171 million): The institutional framework concerning water management will be amended, introducing a dedicated unit on government side to ensure sound, and climate-proof regulation of the management of water resources. Tasks of this unit will include the evaluation, research, investigations, monitoring and protection of Grenada's water sources, as well as handing out permits for water abstractions. Regulations regarding septic tank sludge disposal will also be improved in order to reduce water pollution, since currently all waste water is discharged without being treated. Another aspect of component 1 will be to support the mainstreaming of climate change issues in sectorial policies and project development processes, to better include water related issues and requirements in future planning- and political processes. The following sub-components are foreseen:
 - a. Sub-component 1.1: Improved Legislative and Institutional Framework (US\$1.0921 million)
 - b. Sub-component 1.2: Mainstreaming climate change policies in the water sector (US\$0.200 million)
 - c. Sub-component 1.3: Improved sludge disposal from septic tanks (US\$0.150 million)
2. Component 2 - Reduced stress on water resources through improved climate-resilient water demand management (US\$ 8.053 million): Customers (households, businesses, schools, hospitals, farmers etc.) will benefit from awareness campaigns and water conservation trainings, water audits, improved data for allocation of water, and access to funding for the implementation of water efficiency measures (e.g. on a revolving funds basis). The National Water and Sewerage Authority (NAWASA) will be able to reduce its water losses through improved leakage control and rehabilitation measures. Agriculture will benefit from improved water use efficiency in the sector. The following sub-components are foreseen:
 - a. Sub-component 2.1: NAWASA Water Loss Reduction Strategy (US\$6.403 million)
 - b. Sub-component 2.2: Community Awareness and Education (US\$ 0.150 million)

- c. Sub-component 2.3: Financing scheme to support water efficiency measures by water users (US\$1.500 million)

- 3. Component 3 - Improved water supply security in highly vulnerable areas (US\$26.674 million): Infrastructures like water catchments, treatment plants, storage tanks and distribution pipelines will be upgraded; storage and water improvements for medical centres will be implemented. Additionally, new water sources will be accessed where spatial analyses indicate promising potential yields. Furthermore, water efficient irrigation technology will be promoted in the agricultural sector. By improving and extending the water supply related infrastructure, more water compared to present levels will be available to the Grenadian people, leading to improved water supply in the dry season and less frequent outages after heavy rainfall events. The following sub-components are foreseen:
 - a. Sub-component 3.1: NAWASA Water Storage and Pipelines (US\$13.648million)
 - b. Sub-component 3.2: Sustainable use of groundwater resources (US\$0.350 million)
 - c. Sub-component 3.3: Water Storage and improvements at medical facilities (US\$0.246 million)
 - d. Sub-component 3.4: Improved wastewater disposal to reduce pollution of costal reef and hence support increased resilience of coasts and beaches against storm surges and greater wave energy (US\$2.500 million)

- 4. Component 4 - Increased financial sustainability for the water supply system (US\$0.540 million) : decision-makers will have an improved understanding of the requirements for financial sustainability and will be better positioned to decide on a sound tariff system, which allows for self-financed medium- to long term infrastructure investments for climate resilience. The following sub-components are foreseen:
 - a. Sub-component 4.1: Conduct a Tariff Study for NAWASA (US\$0.100 million)
 - b. Sub-component 4.2: Development and implementation of a Maintenance Plan for existing and new infrastructure US\$0.400 million)
 - c. Sub-component 4.3: Community Awareness and Education (US\$0.040 million)

- 5. Component 5 - Reduced disaster risk (US\$1.540 million): the capacity of the infrastructure and the management in the water sector is improved to better deal with disaster risks through reduced risk of blockages and stoppages, improved automated communication and monitoring systems to reduce response times, as well as improved emergency and disaster response plans. The following sub-components are foreseen:
 - a. Sub-component 5.1: Asset Condition Assessment and Vulnerability Analysis (US\$0.1million)
 - b. Sub-component 5.2: Silt Traps and River Intake Retrofits (US\$0.930 million)
 - c. Sub-component 5.3: Remote Monitoring & Control (SCADA) Systems (US\$0.560 million)
 - d. Sub-component 5.4: Emergency Response Plan (US\$0.015 million)

- 6. Component 6 - Project Implementation Support and Overall Coordination: The objective of this allocation is to enable the procurement of the services of a project manager, a water resources specialist, a senior engineer and a senior technician with the relevant competencies. During the life of the Project, they will

provide project management and technical support to NAWASA, to ensure efficient and effective implementation and monitoring of Grenada’s first GCF project. They will also provide support in reporting and communication to the Accredited Entity, the NDA and the GCF.

The successful implementation of these components should allow for a transformation towards a climate-resilient water sector in Grenada, since they tackle five key issues of relevance in this regard:

- (1) Sustainable water resources management to ensure that scarce water resources will not be over-abstracted, in particular during predicted longer and more severe and longer dry seasons, and that water resources management uses regulatory mechanisms considering climate change impacts (e.g. water abstraction permits considering new hydrological regimes, seasonal variations, etc.) ;
- (2) Effective water demand management to reduce the overall pressure on the scarce water resources, hence being better prepared for dry seasons, which are very likely to be more severe with climate change;
- (3) effective and reliable water supply abstracting and enhancing available resources in an efficient manner to support climate-responsive water supply management responsive to greater fluctuations in rainfall patterns and overall reduced water availability;
- (4) sufficient financing available to ensure that future measures to make the system more climate-resilient can be implemented when needed, and allow for an introduction of climate-specific process-based demand management methods like special pricing mechanisms during extreme dry periods;
- (5) preparedness of the existing and new infrastructures and the institutions for potential natural disasters like heavy rainfall events or tropical storms, , which are predicted to become more severe with climate change.

The implementation of the components will support each other and hence create synergistic effects to improve performance of Grenada’s water sector with regard to these five issues, e.g. an effective water demand management facilitates stringent water resources management due to reduced pressure on the resources, or an enhanced financial viability supports the future provision of required infrastructure, while better preparedness reduces the rehabilitation costs after a disaster. The feedback loops and synergies are also stylized in the following graph:



The conceptual structure of CREWS hence follows the approach mentioned by the World Bank: “In general, solutions can be categorized into three buckets: those aimed at increasing the supply of water; those designed to decrease the demand of water; and those which aim to reduce risks from water extremes by “climate proofing” valuable investments from natural hazards. There is no one-size-fits-all solution, however, and in practice, hybrid solutions will be needed, determined by country and regional risks and circumstances.” The so-called hybrid solution for Grenada contains all three elements

	<p>mentioned, and foremost has a strong focus on climate-change-oriented sector reforms as well as financial sustainability to broaden the scope for NAWASA for long-term self-financing of investment requirements.</p>
<p>2.2. Background information on project/programme sponsor</p>	<p>Describe project/programme sponsor's operating experience in the host country or other developing countries.</p> <p>The project sponsor – beside the GCF – is mainly the UK Government through a contribution from within the Caribbean Infrastructure Fund (UK_CIF), which is focusing on the improving the climate resilience of one water catchment and supply infrastructure (Concorde System). The Government of Grenada and the National Water and Sewerage Authority (NAWASA) will contribute in kind with input of staff and the provision of office space. All project sponsors have considerable experience with project implementation in Grenada.</p> <p>Overall, the CREWS project will be in a position to leverage additional funding during, but in particular beyond the implementation, in three ways. Firstly, the financing for the infrastructure component will be combined with funding available from the UK Government (see above) for the water sector in Grenada, in total approx. 10 million USD. Secondly, the revolving fund will use the seed funding from the GCF to finance water efficiency measures through interest free loans. This will allow to leverage private funding for further measures in the future. As mentioned above, over the duration of the first loans it is expected that an additional 1 million USD can be leveraged by the private sector. In addition, the Component 4 is geared towards creating a sustainable tariff structure for NAWASA, which should allow for funding capital investments in the long-term through internal (NAWASA) resources instead of having to rely donor projects.</p> <p>In total, the GCF investment of 36 million USD will be accompanied with a co-financing of approx. 11 million USD, which results in a co-financing ratio is approx. 30%.</p>
<p>2.3. Market overview</p>	<p>Describe the market for the product(s) or services including the historical data and forecasts.</p> <p>Provide the key competitors with market shares and customer base (if applicable).</p> <p>Provide pricing structures, price controls, subsidies available and government involvement (if any).</p> <p>There is no market for water supply, since NAWASA is by law the only potable water provider in Grenada. Providers of bottled drinking water only serve a very small segment, both in terms of overall water consumption (as drinking water is only a small percentage of overall water needs) as well as customer share (high income).</p> <p>The price for water is set in NAWASA's tariff structure which has to be approved by the Cabinet of the Government of Grenada</p>
<p>2.4. Regulation, taxation and insurance</p>	<p>Provide details of government licenses, or permits required for implementing and operating the project/programme, the issuing authority, and the date of issue or expected date of issue.</p> <p>Describe applicable taxes and foreign exchange regulations.</p> <p>Provide details on insurance policies related to project/programme.</p> <p>No licences, permits etc. needed for the implementation of the project, since NAWASA is the national authority for such projects. Contractors e.g. for the execution of civil works will have to fulfil usual standards with regard to work place safety, insurance of workers, performance bonds, etc.</p>
<p>2.5. Implementation arrangements</p>	<p>Describe construction and supervision methodology with key contractual agreements.</p> <p>Describe operational arrangements with key contractual agreements following the completion of construction.</p> <p>Provide a timetable showing major scheduled achievements and completion for each</p>

	<p>of the major components of the project/programme.</p> <p>CONSTRUCTION and SUPERVISION</p> <p>The overall implementation of the project will be supported through an implementation management support team (comprised of project manager, a water resources specialist, a senior engineer, a senior technician with the relevant competencies and a procurement manager), based at the Executing Entity’s premises. This team will work closely on the one hand with the Accredited Entity to ensure all activities and processes are streamlined with the GCF requirement, local norms and regulations and also with the NDA to ensure that national coordination will be supported. On operational level, the main counterpart of the implementation team will be NAWASA, which is the major recipient of the infrastructure support of components 1 and 3 as well as institutional support of component 5, with the Ministry of Education, Human Resource Development and the Environment in particular for component 2, and with the Grenada Development Bank (GDB) for component 3.</p> <p>All construction and supervision works will be based on FIDIC standards.</p> <p>OPERATIONAL ARRANGEMENTS AFTER COMPLETION OF CONSTRUCTIONS</p> <p>NAWASA will operate the newly built infrastructure as it does with the current infrastructure.</p> <p>TIMETABLE: see Annex III.</p>
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III. Financing / Cost Information

<p>3.1. Description of financial elements of the project / programme</p>	<p>Please provide:</p> <ul style="list-style-type: none"> • a breakdown of cost estimates analysed according to major cost categories. • a financial model that includes projection covering the period from financial closing through final maturity of the proposed GCF financing with detailed assumptions and rationale; • a description of how the choice of financial instrument(s) will overcome barriers and achieve project objectives, and leverage public and/or private finance. <p>ECONOMIC AND FINANCIAL ANALYSIS: The financial and economic return of climate-proofing Grenada’s water sector is in principle highly positive, with a return of 3,2 USD for each USD invested, based on Bueno et al (2008), cited in UN ECLAC (2011). UN ECLAC, , estimated an investment of 45 million USD which results in avoided climate change costs of 141 million USD. However, as mentioned in E6.1, the implementation without GCF support is highly unlikely, given the highly limited fiscal space and the inability of NAWASA to raise required investment funding through the current tariff system.</p> <p>Based on the level of expected impacts and hence adaptation costs, and considering that Grenada is a country of the SIDS group, grants are deemed as the appropriate financial instrument of this water sector adaptation project. This will help to overcome funding barriers for the upgrading of the infrastructures but also for the necessary amendments to the regulatory structure, which considers climate change impacts and supports the climate—proofing of future investments. Investments for demand side water efficiency measures will be financed through a revolving fund, so that leverage of that share of the funding (approx. 1-2 million USD) will be easily achieved.</p>					
<p>3.2. Project financing information</p>		Financial Instrument	Amount	Currency	Tenor	Indicative Pricing
	Total project financing (a) = (b) + (c)		Approx.. 42.273	<u>million USD (\$)</u>		

	(b) Requested GCF amount	(i) Senior Loans	.....	<u>Options</u>	() years	() %
		(ii) Subordinated Loans	.....	<u>Options</u>	() years	() %
		(iii) Equity	.....	<u>Options</u>		() % IRR
		(iv) Guarantees	.....	<u>Options</u>		
		(v) Reimbursable grants *	.....	<u>Options</u>		
		(vi) Grants *	31.842..	<u>million USD (\$)</u>			
		* Please provide detailed economic and financial justification in the case of grants.					
		Total Requested (i+ii+iii+iv+v+vi)	.....31.842.....	<u>million USD (\$)</u>		
(c) Co-financing	Financial Instrument	Amount	Currency	Name of Institution	Seniority		
	<u>Grant</u>	.....10.431.....	<u>million USD (\$)</u>	.....UK/DFID	<u>Options</u>	
	<u>Options</u>	.....	<u>Options</u>	.....	<u>Options</u>	
	<u>Options</u>	.....	<u>Options</u>	.....	<u>Options</u>	
	<u>Options</u>	.....	<u>Options</u>	.....	<u>Options</u>	
		Lead financing institution:					
(d) Covenants							
(e) Conditions precedent to disbursement							

IV. Expected Performance against Investment Criteria

Please explain the potential of the Project/Programme to achieve the Fund's six investment criteria as listed below.

<p>4.1 Climate impact potential [Potential to achieve the GCF's objectives and results]</p>	<p>Due to the size of the island and the water supply and resources management structure, the whole population of Grenada, Carriacou and Petite Martinique will benefit from the project, i.e. more than 110'000 people.</p> <p>Grenada's population will benefit from the implementation of CREWS in particular by being more resilient to impacts of climate change with regard to water issues. The living conditions of the most vulnerable members of society will improve by improved access to safe water and hence improved health and hygiene standards. This will be achieved by the expanding and improving the water supply network, be it the upstream water catchment and – treatment facilities, storage facilities, or the downstream distribution network providing water to the individual customers. Already connected customers of NAWASA will benefit as well, as the water supply situation will be more reliable and potent after implementing CREWS. The project also aims at establishing connections to low-income household, which have insufficient funds to pay for the connection process</p>
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	<p>themselves. In addition, improved water facilities and hence reliability in health care institutions will contribute to higher resilience also above the individual level.</p> <p>These efforts will be fostered by the other components of CREWS. Through awareness and education campaigns, micro-financing of individual private water efficiency improvement measures, and ensuring the long term monetary independence of NAWASA from foreign financial aid, the people of Grenada will benefit from improvements of water supply, public health, food security and social equity (in terms of service coverage). Other than that, economic growth will be stimulated by providing more water and a reliable service to tourism and agriculture as the country's most important industries, as well as to other sectors.</p> <p>Improved regulation in the water sector will benefit all Grenadians, since this will help to ensure long-term reliability and availability of water resources, balancing current and future needs.</p>
<p>4.2 Paradigm shift potential <i>[Potential to catalyze impact beyond a one-off project or programme investment]</i></p>	<p>TRANSFORMATIONAL POTENTIAL</p> <p>Overall, CREWS will allow for a transformation of Grenada's water supply sector. Through the combination of improved infrastructure, sound and effective regulation, awareness and water demand management and financial sustainability it will put the water sector on a sustainable pathway. It will allow NAWASA to meet the peoples' demand of sufficient and high quality water, while ensuring the protection of water resources and supporting NAWASA's ability to generate sufficient income through a sound tariff system. In addition, the project could be used as a pilot approach for other small island development states in the Caribbean region, since most countries face very similar challenges, due to climate change, with comparable sector framework conditions.</p> <p>SCALING UP AND REPLICATION:</p> <p>CREWS' potential for scaling up and replication lies in its ability to maintain and multiply its effects beyond the duration of the initial GCF funded project, firstly in Grenada on the ground, but as well as a best practice case for other countries with highly vulnerable water sectors, (like other SIDS).</p> <p>Most important in this regard are Components 1, 2 and 4 (see para B.3), which ensure institutional and sustainable financing for implementing investments measures beyond the project period.</p> <p>Once sufficient funding is available (Component 4), infrastructure development will continue to be scaled up and replicated, because of direct economic advantage for NAWASA, since improving and expanding infrastructure will result in better services and, in turn, higher revenues for NAWASA. Measures to reduce non-revenue water by identifying and repairing leaks in the distribution network, will reduce the overall cost of the water production in the medium term. NAWASA will be able to work more efficiently, in terms of being more resource-efficient, as well as generating higher revenues.</p> <p>Consequently efforts related to infrastructure development will be pursued beyond the project duration, as they lead to economic benefits and will therefore be encouraging to similar stakeholders in the region to follow the same approach. In combination with Components 1 and 4, i.e. with an improved institutional framework and a sound financial situation of NAWASA, investments can be designed and financed to ensure climate resilience and sustainability of Grenada's water sector. On the demand management side (Component 2), there are also economic incentives for private customers to participate in the CREWS initiated approach to reduce their individual water demand. Regardless whether a customer has an industrial, commercial, or domestic background, fulfilling your needs with less water results in lower costs for water. The indirect benefit of reducing water consumption is the reduction of water scarcity risks. With better water availability and reduced individual demand, the risk for NAWASA of not being able to satisfy individual water demands, which may, in severe cases, result in massive economic loss, is considerably reduced. Optimization on the demand side will be scaled up and replicated via the revolving fund foreseen as part of Component 2. The implementation of component 5 will allow for the first time in Grenada the coordinated cooperation between Disaster Risk Reduction (DRR) efforts and Climate Change Adaptation (CCA) activities – the coordinated approach should be a standard in particular in SIDS, however reality shows that this is not the case in most countries. Hence, introducing this within a GCF funded project would allow also for a transformative shift in the way DRR and CCA are conceptualised and operationalised in Grenada.</p>

KNOWLEDGE and LEARNING:

Component 1 of the project specifically addresses the establishment of a new governmental department, which will be dedicated to overseeing the management of the country's water resources. This department will be the sole institution to issue permits for drillings and abstractions, it will have responsibility for identify supply sources, allocation to users and it will be in charge for monitoring and ensuring high water quality water sources. By founding this department, knowledge would be created and interchanged in various ways. In the beginning, a particularly strong capacity building will be necessary to form a solid basis for the work of the department, including workshops and meetings of all stakeholders involved in the water sector. This will be followed by intensive efforts to compile, process, and analyse hydro geographic data to better understand the interdependencies and processes of the Grenadian water resources.

But the creation of this department would also support knowledge and learning on a broader level, since it will act as the information platform for all citizens in Grenada with regard to water resources. This will improve the transparency in the sector and the understanding of critical resource issues in the broader public interest.

This process will strongly support and be supported by implementing Component 2 of CREWS, which focuses on the promotion of water demand management. To achieve this, awareness campaigns and trainings will be run to change consuming behaviour on the one hand. On the other hand water audits will be held, to give advice to customers how to reduce water consumption and costs of such, or how to reduce the risk of being subject to water scarcity. Promising measures can be funded through the revolving fund also foreseen in Component 2. As for NAWASA, non-revenue water losses will be decreased by leakage elimination and overall distribution improvement. Experienced gained in these ventures will create a knowledge spill-over of which all water related stakeholders will benefit. As 'gained experiences' in this case also means financial advantage due to reduced costs, it is very likely that water-smart consumption adjustments will quickly spread from consumer to consumer.

Outside the sector, the link to agriculture and tourism will support cross-sectoral learning and knowledge transfer. This will further be supported through the management, steering and reporting structure of the project, which will ensure the participation of national institutions like the National Climate Change Committee (NCCC) or the Sustainable Development Council (SDC), so that national learning and knowledge-sharing processes are expected to take place. For component 5, there will be close cooperation with the National Disaster Management Authority (NADMA) and the Climate Change Focal Point of Grenada, which would also result in knowledge sharing and learning between these two critical fields.

ENABLING ENVIRONMENT:

CREWS will support the establishment of an improved enabling environment, achieved mainly through Components 1, 2 and 4. CREWS will link to the project "Integrated Climate Change Adaptation Strategies (ICCAS)", which supports the mainstreaming of climate issues in national planning and small water projects.

CREWS' Component 1 is directly targeting an improved enabling environment through the establishment of a clear and transparent regulatory framework. By forming a dedicated governmental unit with the exclusive task and competence to manage and monitor Grenada's water resources, one important base for a sustainable and climate-resilient water sector is laid. Combined with pillar 4's objective for a sustainable financing structure for NAWASA, including the issue of tariff amendments, an enabling environment for the actors in Grenada's water sector will be established, which ensures the long-term effectiveness and efficiency of the water supply system for all customers.

Through increased awareness about the importance of sound water resources management, effective water demand management and sustainable financing of the water sector, private and public actors are enabled to play a more prominent role in the sector and hence support its climate-resilience. Through the establishment of a water resources management unit, which will also coordinate with and consult the public in decision-making, participation and transparency is improved.

This also holds for the establishment of a revolving fund, which will be open to all private

	<p>and public bodies in Grenada. This fund in particular is geared towards an effective and sustained participation of relevant actors to access conditional finance for their efficiency measures</p> <p>In addition, the pathway towards a climate-resilient water sector will also contribute to Grenada’s overall strive for climate change adaptation also in other sectors. The CREWS project will enjoy highest visibility in the country, and will act as a front-runner for similar approaches also in other sectors. Given the close links to the tourism and agricultural sectors, the private and public actors and decision-makers in these sectors, but also e.g. in forestry, energy or transport, will learn from CREWS and will be ready to start a process of transformation of their respective sector. This includes improved regulation, climate risk analysis and the financially sustainable continuation of planned interventions.</p> <p>Finally, see above with regard to the cooperation between DRR and CCA – this will support the creation of environment where Grenada’s capacities to fight against the negative impacts of climate change, which often includes disaster risks, are strengthened considerably.</p> <p>REGULATORY FRAMEWORK AND POLICIES:</p> <p>CREWS will play an important role in developing a new and modern regulatory framework. As mentioned above, NAWASA fulfils currently certain water resources management functions (protection, quantity and quality control, etc.) while being the main water user in terms of abstraction for the water supply. Component 1 of CREWS will amend the institutional framework to ensure the sound regulation of water resources and it will support improved regulation and procedures of septic tank sludge disposal to reduce water pollution. This includes the finalisation and approval of a new water resources management act and corresponding policies, which also contain the establishment of a regulatory body outside NAWASA, hence ensure the abolition of any potential conflict of interest between water resources abstraction and water supply tasks. CREWS will also support the mainstreaming of climate change considerations in water sector policies and project development processes.</p>
<p>4.3 Sustainable development potential <i>[Potential to provide wider development co-benefits]</i></p>	<p>ECONOMIC CO-BENEFITS</p> <p>Tourism and agriculture are two of the country’s biggest contributors to the nation’s GDP and employment. Both economic sectors are heavily dependent on reliable water supply and water resources management. Shortages in water supply will have significant negative impacts on the delivered tourism product as the sector has a significant water demand. Declining rainfall and increasing drought occurrence translate into declining agricultural yields which leads to reduced income for farmers and declining food security. In addition, the agricultural sector provides food and agricultural products for the tourism sector, which intensifies the vulnerability further. Records show that the two major droughts in 1995 and between 2009 and 2010 induced huge losses in these two sectors. Providing water supply and water resources management will foster further economic growth in both of these sectors, create jobs, raise the average income and thus increase purchase power.</p> <p>Climate change models for the region clearly indicate the likelihood of increased intensity and frequency of extreme rainfall and storm events. A reliable water supply helps to mitigate the effects of long lasting droughts, and thus protect the basis for further economic progress while on the contrary also reducing the risk of economic losses due to water scarcity. This will be provided by the implementation of CREWS, as more water will be available due to increased storage, accessing additional sources and the development of infrastructure. Water demand will be reduced by eliminating water leaks and improving the consumer behavior. As an outcome, more water will be available for further economic ventures. In consequence, both economic and social development will strongly profit from an enhanced water supply system and higher reliability.</p> <p>In an assessment of the economic impact of climate change on the water sector in Grenada, the UN ECLAC (2011) came to the conclusion that adaptation measures will have a significant benefit also in economic terms: It is estimated that in 2050, the costs produced by climate change impacts outnumber the costs of adaptation measures 61 times!</p> <p>SOCIAL CO-BENEFITS</p> <p>The population of Grenada faces water scarcity already today, particularly around the</p>

	<p>end of the dry season. In particular low-income households with no or very small storage capacities are vulnerable to interruptions in supply and long droughts. Yet, those households not being connected to the supply network at all are the most vulnerable group, since it fully relies on rain or surface water or public standpipes. Since many streams run dry during dry season, and longer dry seasons exhaust the rainwater storage systems, water scarcity threatens these groups the most. CREWS will therefore foster social development by expanding the access to drinking water for especially vulnerable groups of society, and will have an additional focus on medical centers. Implementing the project will reduce the population’s vulnerability against water scarcity in general, and in particular of low income groups which do not have access to piped drinking water and storage facilities. By expanding the distribution network and improving the overall supply situation during the dry season, not only will inconveniences and possible health-related issues with regard to water will be minimized. Water related diseases will be reduced and public health improved, as contamination of water will be prevented due to protection and safeguarding of water sources, covering of water storage facilities, and faster leak repair in the distribution network.</p> <p>ENVIRONMENTAL CO-BENEFITS</p> <p>Environmental Co-benefits: Grenada’s environment will strongly benefit from implementing CREWS, in particular pillar 1, since water efficiency measures will reduce water loss to a minimum. In order to satisfy the water demand of the economy and population, less ground- and surface-water needs to be extracted therefore, thus decreasing stress on the overall water regime. As a result, local flora and fauna will benefit from a more natural water balance and will be less subject to water stress during water scarce events. Additionally, improved distribution facilities will lead to reduced pumping requirements from groundwater sources, hence reducing electricity consumption and greenhouse gases. But also pillar 1 contributes to environmental benefits, since the regulation of water resources by a regulatory department and not the water supplier NAWASA will ensure that environmental issues will be considered when e.g. abstraction licenses will be issued. While before the potential conflict between water abstraction and environmental protection had to be dealt within the utility whose objective is to provide water, a separate regulator could also enforce abstraction limits and hence force water users to focus more on water efficiency and not only on additional abstractions. And pillar 3 foresees improved protection of coastal reefs due to the extension of the sewer outfalls.</p> <p>GENDER-SENSITIVE DEVELOPMENT IMPACT</p> <p>Since a large number of jobs in the tourism sector is held by women, economic growth in this sector would also contribute to additional employment opportunities for women. Same holds for the agricultural sector, where jobs are predominantly held by men. The stronger focus on water demand management and the improved awareness about water related issues would also contribute to empowerment of women, who are mainly dealing with the management of water in the households. Hence, the awareness and capacity building programme for efficient water management (part of Component 2) will have a particular focus on women. The approach is similar to the hugely successful “Water Wise Women” initiative in the Hashemite Kingdom of Jordan, where women were trained in water resources and management issues and acted as multipliers in their communities (GIZ 2015).</p> <p>The monitoring of CREWS will use a Gender-informed monitoring and evaluations report.</p>
<p>4.4 Needs of recipient <i>[Vulnerability to climate change and financing needs of the recipients]</i></p>	<p>LEVEL OF EXPOSURE TO CLIMATE RISKS:</p> <p>Grenada as a SIDS is highly vulnerable to the adverse effects of climate change with the increase in magnitudes and frequencies of extreme events are already being observed. Small islands and coastal zones are highly threatened by both extreme events and sea level rise. Vulnerable ‘hot spots’ like Grenada are especially endangered, because it is likely that in course of the climate change the frequency of occurrence of extreme weather events is greater, the sensitivity higher, the devastation is more severe and the communities are more vulnerable. Moreover the irreversibility of sea level rise during our lifetime and in future generations implies that adaptation is the only option in those</p>

regions. (World Bank 2015)

Looking at the water sector, climate change will lead to an intensification of the global hydrological cycle and can have major impacts on regional and national water resources, affecting both ground and surface water supply for domestic and industrial uses, irrigation, hydropower generation, navigation, in-stream ecosystems and water-based recreation. Changes in the total amount of precipitation and in its frequency and intensity directly affect the magnitude and timing of runoff and the intensity of floods and droughts. Many Caribbean states are increasingly vulnerable to the dual challenges of increasing demand for water and climatic variability where even a slight reduction in rainfall would have serious consequences. (IPCC 2007^a, UNEP 2003) As a Small Island Developing State, Grenada's adaptation actions are strongly built on the water sector – the comment by the World bank made in a recent report proves particularly true for Grenada: “Water is to adaptation what energy is to mitigation, and the challenges the world will face in adapting to water issues will be enormous [...] Meeting these challenges will, in many regions, require unprecedented actions, significant investments in infrastructure, technology and knowledge, and a radical rethinking of policies and institutions [...]” (World Bank, 2016) In Grenada, already today water scarcity causes severe problems, in social as in economic terms. Longer and more severe dry seasons, as seen more frequently since 2009, increased temperatures and heavy rainfall events cause interruptions in water supply, which particularly affects low income households, as those either do not have access to piped water at all and therefore fully rely on surface water, or do not have sufficient funds for acquiring water storage cisterns or tanks. In economic terms, the sectors of tourism and agriculture are significantly contributing to the national GDP and are key foreign exchange generating sectors. Both sectors are at the same time strongly dependent on sufficient water resources. This makes the country's economy highly vulnerable to water scarcity – already now, but even more so in the future with the impacts of climate change increasing this vulnerability and the risks of water scarcity.

Main observed climatic trends for Grenada which have serious impacts for the water sector have been described as (NASAP 2015):

- Fluctuation in rainfall levels and patterns (seasonality) during the past 2 decades
- Annual mean and maximum temperatures monitored show a statistically significant warming trend
- Sea-level rise appears to be near the global mean for 1971 – 2010) (NASAP 2015).

While two major droughts were recorded in 1995 and between 2009 and 2010 (which induced huge losses in the agricultural and tourism sectors), June and July 2013 were recorded as the driest months in Grenada in two decades. 2015 was again a drier-than-usual dry season (NASAP 2015), and warnings for a drought during the dry season 2016 have already been issued.

It is therefore obvious that climate variability is already now contributing to the critical water situation in Grenada. Climate variability refers to the way the climate fluctuates in the short-term, like months or years. Anticipated global warming is likely to exacerbate climate variability, and hence hydrological responses. It is already being observed that climate variability is increasing (IPCC 2001).

During the most recent dry seasons in 2014 and 2015, the National Water and Sewerage Authority (NAWASA) had to ration water in several parts of the island, leaving thousands of households without water.

Together with a projected decrease in rainfall, saltwater intrusion in coastal groundwater aquifers due to sea level rise will further limit the availability of freshwater in the future (UN, ECLAC 2011). In general, Caribbean islands are vulnerable to salt water intrusion. This is caused by the over-pumping of the groundwater wells of coastal aquifers leading to the upwelling of the salt water/ fresh water interface and the gradual inland movement of this interface. Most of the boreholes are located along the coastal sections of Grenada and are currently being impacted by saline intrusion due mainly to over extraction. The boundary for the seawater–freshwater interface in the Chemin watershed, where the main boreholes are located, protrudes inland and merges with the freshwater zone at distances within 300 m from the coastline. This would result in an increase in the salinity of the water in the wells which would eventually lead to closure of

the wells, thus increasing the reliance on surface water (Chemin River) and the Mardigras plant. This was also evidenced by the water quality measurements conducted in 2001 as a part of the CPACC study for the groundwater from the Chemin wells. Conductivity results supported that seawater is encroaching on the freshwater in the coastal aquifer of the Chemin valley. The situation will likely be exacerbated by sea level rise (NASAP 2015). Recent studies accounting for observations of rapid ice sheet melt (Greenland and Antarctic) have led to greater and more accurate estimates of sea level rise than in the IPCC AR4 projections. There is an approaching consensus that sea level rise by the end of the 21st Century will most likely be at least 1m above present levels. The Caribbean is projected to experience greater sea level rise than most areas of the world due to its location closer to the equator and related gravitational and geophysical factors (UNDP 2010).

In addition, GCM models project for Grenada that the mean annual temperature is to increase by 0.3 to 1.6°C by the 2030s and 0.7 to 2.6°C by the 2060s. RCM models show that this increase will most likely be more pronounced in the south than in the north of the island (NASAP 2015), where the vast majority of the population lives and the major economic activities are based. This results in increasing water demand for drinking and other domestic purposes as well as for tourism and agriculture, in particular irrigation. At the same time, increasing temperatures lead to increased evapotranspiration, leading to reduced water availability in aquifers and surface water systems.

Mean annual rainfall in the GCM models for the 2030's is projected to decrease by up to 25% dependent on model and scenario. For 2060, the projected decrease is up to 41% (NASAP 2015). Obviously, these projections will result in reduced water availability, and again the extent of the change is more pronounced in the south than in the north of Grenada (NASAP 2015). Various models indicate that between now and 2050, the total annual water demand would be higher than the total annual water supply – and this does not consider the supply gaps during the dry season (see ECLAC 2011). During dry season water treatment plants will have severe problems to keep up operation if stream flows drop to a critical water mark.

In an assessment of the climate change impact on the water sector of 2001 (ECLAC 2011), it was found that the total annual water demand will start to exceed the water supply around 2035, with a gap of almost 5 billion cubic meter in 2029 and increasing thereafter. The base for this finding is the A2 Scenario of the IPCC (2000) for changes in rainfall and temperature. For the B2 Scenario the supply-demand gap will not exist before 2050, but most likely start to widen between 2050 and 2060. It has to be noted that (a) the underlying demand projections for both scenarios assume a reduction in tourist arrivals starting in 2011 and resulting in a 20% lower number of tourists in 2049 (in reality until 2017 the number of tourists has increased since between 2011). In addition, the A2 and B2 scenarios were used to calculate annual water availability – as the authors note “Seasonality and ‘erratic’ patterns of rainfall are masked in the model, and those are of critical concern for water resource planning in Grenada. As discussed elsewhere in this document, variability in the incidence of rainfall as well as apparently declining totals has influenced streamflow and water availability. Taken together, this analysis indicates the need for additional water catchment, storage and dissemination infrastructure in order to meet the demands of the Grenadian population within and beyond the next four decades” (ECLAC 2011, p. 53).

Finally, the water supply in Grenada is already now experiencing problems after heavy rainfall events, when the water supply has to be stopped due to high turbidity in the raw water. The change in the proportion of annual total rainfall that falls in heavy events ranges between -12% and +8% in the GCM models (NASAP 2015). Given the impacts of heavy rainfall events already now, and linking it to reduced water availability in the future, which poses huge threats to the water supply system, it is obvious that solutions need to be found to overcome that challenge and secure as much as possible from the more limited water resources to supply water to the people and the key economic sectors. Altogether, not only the Grenadian water sector, but also the society and economy in general are highly vulnerable to projected effects of climate change. This holds particularly for the low-income households, who often cannot afford sufficient storage, as well as the major economic and employment sectors, tourism and agriculture. Integrated Water Resources Management (IWRM) can be hence seen as basic prerequisites for adapting to present-day climate variability. IWRM encompass a wide range of accepted water management practices that will readily serve adaptation to

climate change. In a nutshell, a paradigm shift is required in water management strategies towards 'living with floods and droughts'².

Hence, there is a strong need for investments and other interventions to make Grenada's water sector resilient to climate change – e.g. improvement of water catchment management, increased storage facilities and additional pipelines, but also in improved water resources management and regulation, more effective water demand management and sound financial conditions for NAWASA to fund required infrastructure in the future. This comprehensive approach is required to enable Grenada to start a paradigm shift in its adaptation efforts in the water sector, to overcome the challenges in meeting the quantity and quality of water needed to meet social and economic development needs in times of climate variability and change.

However, given the level of the risks and impacts and the economic and financial situation (see below) of the country, Grenada is not in a position to fund necessary adaptation measures. The CREWS programme aims to tackle the issues mentioned and to support Grenada on its path towards a climate-resilient and resource-efficient water sector. This will be achieved by the 5-pillar-approach which was explained above, improving the water supply related infrastructure, strengthening water demand management, increasing water demand management, and establishing sustainable financing for the water sector.

FISCAL GAP

The GCF contribution will provide the necessary base for the implementation of the CREWS programme. Firstly in financial terms, since neither NAWASA itself nor the government nor other sources can provide sufficient funding to achieve the required impacts. The government budget is very tight due to a Structural Adjustment Programme under the IMF, and NAWASA is not in a position to cover major infrastructure expenditures due to insufficient tariff structures. Given the level of climate change impacts for Grenada, GCF funding is indispensable. However, the GCF funding will also contribute to an active involvement of the government and NAWASA in interventions beyond infrastructure: namely in water resources regulation and management, as well as tariff restructuring, which should allow for laying the groundwork for future improvements with regard to reduced vulnerability and improved capacity for self-financing. As with the funding for the demand-side water efficiency interventions, the GCF contribution is critical to kick-start these long-term enabling environment factors.

LOCAL CAPITAL MARKET

The capital market in Grenada is not in a position to provide finance for such a project. The banks in general lack size and management capacities. However, the project will be used to involve at least one local bank, possibly the Grenada Development Bank (GDB), as a provider for the revolving fund structure for water efficiency measures on customer level (pillar 3). This, jointly with additional capacity building from Climate Finance Readiness activities outside the CREWS project (supported by the German Agency for International Cooperation – GIZ - and the Caribbean Development Bank - CDB), will contribute to strengthen the capacities of the local capital market to get involved in climate finance projects in the future.

STRENGTHENING INSTITUTIONS:

Institutional strengthening needs will be addressed by creating a department within the government, which is dedicated to the management of Grenada's water resources. Currently, the management of Grenada's water is one of the tasks of NAWASA, the country's water supplier. As the optimization of NAWASA's business operations on the one hand and the sustainable management of water sources on the other hand may be linked to conflicting strategies, one objective of CREWS is to delegate the authority for water resource management from NAWASA to a yet to be founded department of government, which will then adopt this responsibility. This department is likely to be subordinated to the Ministry of Agriculture. Its tasks will among others comprise the protection of water sources, the monitoring of water sources and water quality, and the issuing of water abstraction licenses.

This new division as well as NAWASA will undergo major capacity building programmes

² Kabat et al., 2002 <http://www.cru.uea.ac.uk/~timm/papers/dwc.pdf>

	<p>in order to be fully prepared for the challenges in making Grenada’s water sector climate-proof.</p>
<p>4.5 Country ownership <i>[Beneficiary country ownership of project or programme and capacity to implement the proposed activities]</i></p>	<p>NATIONAL CLIMATE STRATEGY:</p> <p>CREWS is absolutely aligned to national priorities concerning climate change adaptation. The Grenada government and all relevant stakeholders fully agree that climate-resilient water supply is one of the top issues for the survival of the country. This can be seen by the role the water sector plays in the following key national documents when it comes to climate change.</p> <p>The water sector is a priority sector in the recently finalized National Adaptation Plan (NAP) process. It was also selected as one of the three priority areas in the 2012 UNDESA/ Ministry of Environment strategy document “Climate Change Adaptation in Grenada” and was selected as an priority sector for the National Climate Change Policy and Action Plan (2007) and Grenada’s First National Communication to the UNFCCC. The importance of the water sector in the country’s climate planning is also highlighted in the Climate Change Vulnerability Assessment (GoG 2015b) of an important watershed as well as in the National Adaptation Strategy and Action Plan for the Water Sector (GoG 2015a) .</p> <p>There is a National Adaptation Strategy and Action Plan (NASAP) for the Water Sector (2015), which is part of the groundwork used for the development of the CREWS project approach. CREWS will ensure that Grenada will have a smart water policy which is the base for climate-resilient development. Or, as the World Bank puts it: “The future will be thirsty and uncertain, but with the right reforms, governments can help ensure that people and ecosystems are not left vulnerable to the consequences of a world subject to more severe water-related shocks and adverse rainfall trends”(World Bank, 2016).</p> <p>In addition Grenada has started to embark on a process to mainstream climate change in national policy some years ago. Since 2013, supported by the Integrated Climate Change Adaptation Strategies (ICCAS) programme, which is funded by the German Government and implemented by the Government of Grenada, GIZ and UNDP, a number of activities in this regard have been sped up. Climate Change is mainstreamed in the National Growth and Poverty Reduction Strategy and in the new National Development Strategy 2015 – 2030 which is currently being developed. Also, a more systematic approach to climate risk assessments based on the Caribbean Climate Online Risk and Adaptation Tool (CCORAL) developed by the Caricom Community Climate Change Centre (CCCCC) has been introduced and is now mandatory for all new project proposals which are put into the national budget. A new Coastal Zone Policy has been developed in a very consultative process, with more than 200 stakeholders and individual contributing to it. More than 30 stakeholders from private and public sector, civil society and government have participated in training courses with regard to Climate Finance Readiness.</p> <p>IMPLEMENTING CAPACITY</p> <p>Grenada has long-standing experience in implementing larger-scale climate change projects, e.g. the SPCR project funded by CIF/ World Bank and implemented by the Ministry of Finance, or the ICCAS programme mentioned above.</p> <p>NAWASA, the main beneficiary, is highly experienced in the implementation of water infrastructure projects.</p> <p>As NAWASA is fully aware of its critical situation, given the future challenges to adapt to climate change impacts, there is strong commitment to implement the project, since the CREWS project poses a huge opportunity to enhance the company’s process, assets, service capabilities and financial standing. The Government of Grenada also has been involved in the project idea and the project development, and fully supports the project, including the focus on water management at farm level and the regulatory structures for water resources management, where the Government of Grenada will play a major role.</p> <p>For the revolving fund, it is foreseen to work with the Grenada Development Bank (GDB), which has experience with similar approaches (on-lending of grant funds to finance small-scale improvement measures) e.g. with regard to energy efficiency in</p>

	<p>the hotel sector. The GDB just recently implemented such a project which was funded by the Caribbean Development Fund.</p> <p>So in summary there is sufficient capacity for overall implementation of CREWS, both on national level as well as with the accredited entity and the executing entities. Additional capacity would only be required as technical assistance for studies, concept development, and other technical support activities.</p> <p>EXECUTING ENTITIES</p> <ul style="list-style-type: none"> • t.b.d. <p>STAKEHOLDER ENGAGEMENT:</p> <p>STAKEHOLDER ENGAGEMENT DURING PROPOSAL DEVELOPMENT:</p> <p>The project idea has been proposed as an outcome of a climate-finance readiness mission by GIZ and CDB which met with approx. 100 stakeholders in Grenada. It has since then been discussed with various stakeholders, including NGOs, and was presented in various stakeholder meetings, including a training on accessing climate finance with participants from public sector, private companies, national funding institutions and civil society.</p> <p>Drafts of the project proposal have been presented in workshops with the Social Partners and the Sustainable Development Council (SDC), where a number of NGOs are represented. These meetings took place in October 2015 in St. George's, on March 2, 2016 in Sauteurs in the Northern part of the country, on March 9 again in St. George's and on March 15 in Grenville (east coast). In all meetings members of the National Climate Change Committee (NCCC) were present, which is composed of 13 members of different public authorities and ministries, chaired by the Permanent Secretary of the Environment Division of the Ministry and managed by the Grenada's Climate Change Focal Point, . The discussion with the NCCC included also co-opted members of the adaptation sub-committee of the NCCC. The proposal also has been discussed with the Grenada Chamber of Commerce and Industry and the Grenada Tourism and Hotel Association. In total, from the first idea to the final draft of the proposal, between 300-350 people were consulted – which is almost 0.5% of the total population. In all discussions the project was highly positively received, and it was given highest priority by the Grenadian Cabinet. The project is being developed and will be implemented in cooperation with the NDA, NAWASA and MoALFFE.</p>
<p>4.6 Effectiveness and efficiency <i>[Economic and financial soundness and effectiveness of the proposed activities]</i></p>	<p>Provide details of the below and specify other relevant factors (i.e. debt service coverage ratio), if available.</p> <ul style="list-style-type: none"> • Estimated cost per t CO2 eq (total investment cost/expected lifetime emission reductions) • Co-financing ratio (total amount of the Fund's investment as percentage of project) • Economic and financial rate of return <ul style="list-style-type: none"> - With the Fund's support - Without the Fund's support <p>FINANCIAL RETURN:</p> <p>Based on the level of expected impacts and hence adaptation costs, and considering that Grenada is a country of the SIDS group, a grant by the GCF as the major source for the CREWS project is deemed as the appropriate financial instrument of this water sector adaptation project. This will help to overcome funding barriers for the upgrading of the infrastructures but also for the necessary amendments to the regulatory structure, as well as to provide seed money for the revolving fund to finance demand side water efficiency measures, so that leverage of that share of the GCF funding (approx.. 1-2 million USD) should be easily achieved.</p> <p>Using a shorter time horizon similar to the implementation schedule of CREWS, Bueno et al. (2008), cited in UN ECLAC (2011) have estimated that in 2025 the cost of inaction in the water sector will be approx. 141 million USD in 2010 USD values. The estimated investment asked for in UN ECLAC (2011) for the period up to 2025, starting in 2016, would be 45 million USD. This rough calculation – although limited due to paucity of available data – indicates that the GCF investment in the CREWS project would support</p>

	to avoid huge economic losses for Grenada due to climate change.
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V. Brief Rationale for GCF Involvement and Exit Strategy

Please specify why the GCF contribution is critical for the project/programme.

The GCF contribution will provide the necessary base for the implementation of the CREWS programme. Firstly in financial terms, since neither NAWASA itself nor the government nor other sources can provide sufficient funding to achieve the required impacts. The government budget is very tight due to a Structural Adjustment Programme under the IMF, and NAWASA is not in a position to cover major infrastructure expenditures due to insufficient tariff structures. Given the level of climate change impacts for Grenada, GCF funding is indispensable.

However, the GCF funding will also contribute to an active involvement of the government and NAWASA in interventions beyond infrastructure: namely in water resources regulation and management, as well as tariff restructuring, which should allow for laying the groundwork for future improvements with regard to reduced vulnerability and improved capacity for self-financing. As with the funding for the demand-side water efficiency interventions, the GCF contribution is critical to achieve these long-term enabling environment factors, as well as the establishment of the revolving fund. Finally, the GCF contribution will send a strong signal to stakeholders not only in Grenada, but for all countries in the Caribbean – a signal that new international climate finance instruments can support the adaptation measures of the small island states in the Caribbean, but that these adaptation measures need to embrace the complexity of adaptation and must strive for a paradigm shift in the respective sectors. So in conclusion, GCF is the only available fund that can truly transform the water sector and finance holistic approaches (infrastructure and soft interventions) at a larger scale, which as a package is needed to ensure a climate resilient water sector in Grenada. With the transformational approach of the GCF, Grenada can embark on establishing the required institutional structures to develop a sustainable water supply and resources management system instead of implementing isolated technical measures to solve hot-spot issues only.

Please explain the exit strategy (i.e. how the project/programme will be sustained after GCF intervention).

The project will be sustained by the interplay of the 5 pillars, on which the overall objective is based upon.

1. **Strengthened water resource management:** Establishing a dedicated unit on the government side with the task of managing the country’s water resources will bear multiple advantages. First, by issuing regulations and water abstraction licenses the water resources of Grenada can be better protected, especially with respect to future development. Second, by supporting the mainstreaming of climate change issues, water saving potentials and resource efficiency in future sectorial policies and project development processes. These institutional efforts will have positive effects on the water supply situation on a long term scale, after the programme has expired. The long-funding source of that new unit is foreseen to develop during the implementation of the CREWS project from GCF finance to internal funding via a fee from water abstraction licensees, which will ensure the long-term effectiveness of the unit and the sustainability of achievements under pillar 1.
2. **Improved water demand management:** Awareness campaigns, trainings, water audits and funding of water efficiency measures will reduce individual water demands and therefore save the customers money. As water efficient behaviour is not only expression of ‘good environmental will’ but also bears economic saving potentials, positive feedback can be expected for the future. This will be supported by the planned revolving fund structure, so that the GCF funding for this activity can be rather seen as seed money for a long-term development and implementation. Therefore, even after the programme has ended, the economic incentives linked with attractive funding options will persuade customers to continuously improve water efficiently, after convincing examples have been provided during the implementation of CREWS. This will in turn reduce the need and urgency for new infrastructure development, hence reducing investment cost and pressure on resources – and will therefore support sustainability of actions in pillar 1 and 3 during and after the GCF funded implementation.

3. Improved infrastructure: Gaining access to new water sources as well as constructing and refurbishing infrastructures will improve the water supply situation in various forms. In conclusion, the overall supply reliability will be remarkably increased by improved water infrastructure, even on a long term scale under difficult future climatic conditions, after the programme has ended. In addition, as mentioned above, investment in infrastructure would continue to scale up and replicate, because a direct economic advantage is given to NAWASA, since improving and expanding infrastructure will result in higher revenues. Consequently efforts related to infrastructure development will be pursued beyond the project duration, as they lead to economic benefits and will therefore be encouraging to similar stakeholders in the region to follow the same approach.
 - a.
4. Sustainable financing: In terms of sustaining the project's goals over a long period of time, the most important factor to success will be the achievement of sustainable financing. The current tariff structure does not provide sufficient funding for major infrastructure investments, which impacts NAWASA's ability to react on additional requirements due to climate change. By establishing adequate tariffs for water supply and waste water disposal, NAWASA will be able to cover costs not only for operations and maintenance of existing and new assets, but also for future infrastructure development investments. In order to achieve this, water prices need to be raised, as revenues to NAWASA are currently not sufficient to cover operations, maintenance and infrastructure development. The key strategy for long term maintenance of NAWASAs physical assets will be the implementation of a preventive maintenance management plan, the financing for which would be integrated in the new tariff structure, including analysis of social acceptance, gender-relevance as well as flexible pricing schemes based on temporary scarcity due to climate change impacts. The current tariff structure varies between 8.10 EC\$/ 1000 imperial gallons for domestic use and fixed monthly rates of up to 550.00 for non-domestic use over 100,000 gallons.
5. Disaster Risk Reduction (US\$1.540 million): Disasters often pose the largest challenges for an infrastructure system on a small island. Heavy rainfall events, which are predicted to be come straonger and potentially more frequent, result in down-times of water supply systems due to heavy sedimentation, turbidity, blockage and other raw water quality issues. In addition, physical problems like blockages of intakes etc. have to be addressed. With more resilient infrastructure systems and improvement management preparations, these challenges should be reduced in the future, allowing the water supply to go back to normal operation must faster, which also means that cost for alternative water supply sources are much lower in case of a disaster.
6. Project Implementation Support and Overall Coordination (US\$ 0.9 million): The objective of this allocation is to enable the procurement of the services of a project manager, a water resources specialist, a senior engineer and a senior technician with the relevant competencies. During the life of the Project, they will provide project management and technical support to NAWASA, to ensure efficient and effective implementation and monitoring of Grenada's first GCF project. They will also provide support in reporting and communication to the Accredited Entity, the NDA and the GCF.

VI. Risk Analysis

Please describe the financial and operational risks and discuss mitigating measures.

As with all major projects, CREWS has to deal with potential implementation challenges. These are mainly of technical, environmental and social nature. The below mentioned risk are to be seen in addition to the potential negative impacts mentioned in E3.

Environmental risks include

- higher water consumption due to improved availability (Risk level: medium; Risk probability: medium; Risk mitigation potential by project: high)

Social risks include:

- Increased protection of catchment areas and their use for the water supply might induce user conflicts (Risk level: low; Risk probability: low; Risk mitigation potential by project: high)
- potential tariff increases might affect the low-income groups of society (Risk level: low; Risk probability: medium; Risk mitigation potential by project: medium)

Technical/ operational risks include:

- legislation not being enacted within the requisite time frame (Risk level: low; Risk probability: medium; Risk

mitigation potential by project: medium).

- Additional infrastructure for catchment and storage might have an impact on land use and protected areas (Risk level: medium; Risk probability: low; Risk mitigation potential by project: high)
- procurement of highly competent consultants and skilled contractors to complete the works within the requisite time and budget (Risk level: medium; Risk probability: low; Risk mitigation potential by project: medium).
- Construction delay risks: as in all projects with infrastructure elements, there is a risk for delays in the actual implementation (Risk level: medium; Risk probability: medium; Risk mitigation potential by project: high).
- Exposure of the new infrastructure to natural disasters like tropical storms etc., both during construction and operation (Risk level: high; Risk probability: medium; Risk mitigation potential by project: low).

VII. Multi-Stakeholder Engagement

Please specify the plan for multi-stakeholder engagement, and what has been done so far in this regard.

STAKEHOLDER ENGAGEMENT UNTIL NOW

See 4.5. above

PLAN FOR MULTI-STAKEHOLDER ENGAGEMENT

Grenada's NDA has developed a draft plan for consultations with key stakeholders with regard to GCF processes. According to that plan, non-governmental stakeholders will be regularly informed, e.g. in meetings of the Sustainable Development Council (SDC) about the approach and the progress of the project. In addition, regular reporting to the National Climate Change Council (NCCC) will ensure effective information flow to all relevant governmental stakeholders as well as to other climate change projects currently implemented.

VIII. Status of Project/Programme

- 1) A pre-feasibility study is expected to be completed at this stage. Please provide the report in Annex II.
The CREWS project is a summary of a number of studies done in Grenada's water sector (see list in Annex II). Hence, there is not "one single" pre-feasibility study or feasibility with exactly the same concept and scope, but a number of studies (from pre-feasibility to master studies and feasibility studies). Some of the projects dealt with infrastructure needs (e.g. the water storage optimisation concept developed by GIZ), some with legal/ regulatory aspects. During the development process for CREWS, these studies were analysed and the needs prioritized, in close coordination with NAWASA.
Insofar, the CREWS project is based on other studies and can be seen as extension of other projects which have identified a number of infrastructure interventions but could, due to budget limitations, not fund all of them.
The CREWS project is based on other studies and can be seen as extension of other projects.
- 2) Please indicate whether a feasibility study and/or environmental and social impact assessment has been conducted for the proposed project/programme: Yes No
See above for Feasibility Studies, "No" for explicit ESIA.
(If 'Yes', please provide them in Annex II.)
- 3) Will the proposed project/programme be developed as an extension of a previous project (e.g. subsequent phase), or based on a previous project/programme (e.g. scale up or replication)? Yes No
(If yes, please provide an evaluation report of the previous project in Annex II, if available.)

IX. Remarks

Annex I.

Please insert a map indicating the location of the project/programme.



Annex II.

Please provide the pre-feasibility study report for the project/programme.

Please also provide the feasibility study report, environmental and social impact assessment, and/or evaluation report, if available.

Due to the large size and numbers of documents which are available for the individual activities (there are pre-feasibility or feasibility studies for some activities, design studies for others, etc.), these are available on request.

Annex III.

Indicative time schedule