Grenada Challenge Fund:

Rationale and Design

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Acronyms

CDB	Caribbean Development Bank
CDF	CARICOM Development Fund
CFA	Challenge Fund for Agriculture
CFT	Challenge Fund for Tourism
DAE	Direct Access Entity
EC$	Eastern Caribbean dollar (1 US$ = 2.7 EC$)
GDB	Grenada Development Bank
GARFIN	Grenada Authority for the Regulation of Financial Institutions
GTA	Grenada Tourism Authority
GHTA	Grenada Hotel and Tourism Association
LMU	Land Management Unit
MNIB	Marketing and National Importing Board
MOU	Memorandum of understanding
NAWASA	National Water and Sewerage Authority
NDA	National Designated Authority

Note: conversion rate used USD / EUR: 0,905458

1. Executive Summary [e]

Rationale of the Challenge Fund

The Challenge Fund promotes the adoption of water-efficient solutions in the Grenadian agriculture and hotel/guesthouse sectors by using GCF grants to (i) facilitate water auditing, solution design and implementation and (ii) incentivize significant private co-finance for the purchase of water-efficient equipment.

Both sectors rely heavily on the availability of water resources. In particular water scarcity in the dry season, expected to increase with climate change, has the following effects:

- Farmers witness a significant reduction in productivity and, in the worst case, are unable to farm for the entire dry season. The income loss is severe, especially for small farmers (<0.5 acres).
- The effects of droughts on hotels and guesthouses include unreliable water supply, water rationing to guests, additional costs (especially if water has to be trucked in), customer complaints and damage to gardens.

Several solutions are available to minimize the impact of severe dry seasons and droughts:

- Farms can switch from rain-fed agriculture to irrigation, adopt more efficient irrigation (micro-sprinklers and drip instead of over-head sprinklers), harvest rainwater with tanks or ponds, adopt shadehouses or switch to hydroponics.
- Hotels can upgrade their bathrooms with water-efficient fittings (showers, toilets and faucets that consume less water), harvest rainwater through tanks and recycle greywater for use in cleaning, laundry and gardens.

The track record of implementation for these water-efficient solutions is poor:

- Of an estimated 2,100 full-time Grenadian farmers, only 400 irrigate. While not all farms are suitable for irrigation, the Ministry of Agriculture estimates that an additional 600 farmers could irrigate. Of the farmers already irrigating, 75 use inefficient over-head sprinklers. Penetration of rainwater harvesting, shadehouses and hydroponics is limited, according to the Ministry of Agriculture (no specific data provided).
- Data on the water efficiency of the 90 hotels and guesthouses operating in Grenada are limited. From interviews, it appears that smaller hotels and guesthouses (85 in total) are behind in bathroom refitting and greywater recycling, while rainwater tanks appear to be more widely adopted. The 5 large hotels have implemented more comprehensive measures, including desalination plants and comprehensive recycling.

Several barriers explain the low penetration of water efficiency solutions:

- For farmers, especially small ones, water efficiency is a large investment with unpredictable returns, due to the high price volatility of agriculture produce in Grenada. Cost savings are limited because farmers mostly use free, natural sources rather than NAWASA water. Technical knowledge is limited. Access to finance is a major stumbling block; lenders consider the sector very risky, have limited exposure and only extend loans secured against land or vehicles.
- Hotels and guesthouses prioritize investments that visibly improve guest experience (e.g. furniture renovation), prefer to delay specific investments if they are planning broad renovations in the future, and are concerned about investment size. Water tariffs, unlike electricity, are low, reducing the future cost saving potential. Access to finance is relatively difficult, especially if the real estate is already pledged for a mortgage. In addition, authorities have limited data on water efficiency, which is not covered by mandatory sector audits.

The Challenge Fund is designed to overcome these barriers through two types of grants:

1. Water Audit Grants to hire technical experts tasked to (i) comprehensively audit the water efficiency of farmers and hotel/guesthouses, (ii) recommend farm/hotel-specific solutions and (iii) monitor the installation of water efficiency systems.

2. Purchase of Equipment Grants to cover part of the initial investment incurred by farmers and hotels/guesthouses for the purchase of water-efficient equipment. As a result, the cost/benefit analysis for farmers and hotels/guesthouses becomes more attractive and credit risk for commercial lenders is reduced, facilitating their involvement as providers of co-finance.

Structure of the Challenge Fund

The agriculture and hotel/guesthouse sectors differ significantly in water conservation needs, economics, market participants, government bodies of reference and other stakeholders. To maximize effectiveness, the Challenge Fund will be centrally managed by GDB but will disburse funds under two separate windows: the Challenge Fund for Agriculture (CFA) and the Challenge Fund for Tourism (CFT). Both will be funded by the GCF through grants, deposited in segregated accounts at the GDB.

Central functions will include:
- A Management Committee, comprising the General Manager of the GDB and two senior GDB senior loan officers, housed at the GDB headquarter in Grenada and responsible for the approval of both agricultural and tourism grants.
- A Supervisory Board, comprising one nominee each of GDB, GIZ, Ministry of Agriculture and Grenada Tourism Authority, responsible for monitoring the sound application of procedures for audit, grant approval and disbursement.

GDB is deemed as the best entity to manage the Challenge Fund, for the following reasons: it was created in 1965 with the mandate to manage concessional development funds; it finances the agriculture and hotel sectors in its normal course of business; it ran a grant-based program for energy efficiency in 2013-16; it was nominated by GoG as Direct Access Entity for the GCF.

The two sector windows will have different procedures and technical staff for water audits, and different grant terms, sizes and conditions for approval. Specifically:
- CFA: Water audits conducted by an international irrigation expert, in conjunction with the Ministry of Agriculture's Land Management Unit and Extension Division. Expected water audit duration of three years. Grants will cover 50% of the equipment purchase.
- CFT: Water audits conducted by a recognized commercial water/plumbing expert, in conjunction with the Grenada Tourism Authority. Expected water audit duration of one year. Grants will cover 40% of the equipment purchase, subject to certain caps (bathroom refitting: max. EUR 181 grant per bathroom and EUR 9,055 per hotel/guesthouse; greywater recycling: max. EUR 4,889 grant per small hotel or guesthouse, max. EUR 24,991 for large hotel).

Sector distinctions notwithstanding, both CFA and CFT will have a system of checks and balances to prevent fraud and abuse. For instance, audits will always include the expert and government representatives, audit certificates will be recorded electronically and made available to lenders for co-financing purposes, equipment installation will be monitored and will constitute a condition for grant disbursement.

The grant percentage for farmers is higher due to the lack of water cost savings (unless the Government of Grenada decides to charge, in the future, for water abstraction from rivers and streams), highly unpredictable sector economics (and therefore unpredictable return on investment) and very limited access to finance for farmers.

Hotels and guesthouses benefit from better (although not great) access to finance and realize an immediate reduction in water bills from efficiency measures. At the same time, due to the low water tariffs charged by NAWASA, cost savings are limited and investment IRR, absent a grant, would likely be negative. The 40% grant for the hotel sector is sized so that 10-year IRR becomes positive (low single-digit return).

Proposed fund size

The proposed Challenge Fund size is EUR 2.98 million, of which:

- EUR 2.63 million for the Challenge Fund for Agriculture
- EUR 0.35 million for the Challenge Fund for Tourism

The total Water Audit Grant will be EUR 0,43 million, 15% of total Challenge Fund size. The Water Audit Grant is higher for CFA than for CFT (EUR 0.33 million vs. EUR 0.11 million). This reflects the greater length and complexity of water audits in agriculture (3 years vs. 1 year for CFT).

It is projected that 85% of the total grant financing is used for the purchase of equipment (EUR 2.55 million). The equipment shall reach the following coverage among the target groups:

- CFA: 50% of farms suitable for (but currently not) irrigating will adopt efficient irrigation systems; 50% of farms currently irrigating with inefficient equipment will switch to efficient systems; 20% of farms already irrigating or adopting irrigation as part of the program will also install rainwater harvesting systems, 5% will adopt shadehouses and 1% will adopt hydroponics.
- CFT: 25% of large hotels and 50% of small hotels and guesthouses will upgrade their bathrooms with efficient fittings; 10% of small hotels and guesthouses and 40% of large hotels (2 out of 5) will install greywater recycling plants.

Based on these targets, the proposed Purchase of Equipment Grant is just over EUR 2.30 million for CFA and close to EUR 0.24 million for CFT.

The co-finance ratio for purchase of equipment is 1.0x for CFA (based on 50% grant ratio) and 1.5x for CFT (based on 40% grant ratio).

Water audits are not expected to generate co-finance – the Ministry of Agriculture and GTA are likely to contribute existing personnel and resources to the auditing process. Including water audits in the calculation, co-finance ratios are diluted to 0.9x for CFA and 1.0x for CFT.

Table 1 (next page) shows the Challenge Fund breakdown by sector and type of grant.

DISCLAIMER:

The Challenge Fund structure proposed in this report is the result of preliminary conversations with stakeholders. The structure envisages an active role in fund management and related operations for the Grenada Development Bank (GDB), the Ministry of Agriculture's Land Management Unit and the Grenada Tourism Authority (GTA). These entities expressed their support for the Challenge Fund, but the exact nature of their involvement and the fund's operating procedures will need to be carefully negotiated. Some features of the Challenge Fund may change as a result.

Table 1. Challenge Fund Summary

	EUR	EURm	% Split
Total Challenge Fund			
Total Challenge Fund - by sector	2.981.793	2.98	100%
CFA	2.630.023	2.63	88%
CFT	351.770	0.35	12%
Total Challenge Fund - by grant type	2.981.793	2.98	100%
Water Audit Grant	434.620	0.43	15%
Purchase of Equipment Grant	2.547.173	2.55	85%
Challenge Fund for Agriculture			
CFA total	2.630.023	2.63	100%
Water Audit Grant	325.965	0.32	12%
Purchase of Equipment Grant	2.304.058	2.30	88%
Challenge Fund for Tourism			
CFT total	351.770	0.35	100%
Water Audit Grant	108.655	0.11	31%
Purchase of Equipment Grant	243.115	0.24	69%

2. Overall Fund Structure

The Challenge Fund aims to incentivize the adoption of water-efficient equipment and practices in the Grenadian agriculture and tourism sectors. While both sectors heavily rely on the availability of water resources and hence are major users of water, they differ significantly in terms of water conservation and climate adaptation needs, economics, market participants, government bodies of reference and other stakeholders. To maximize effectiveness, the Challenge Fund will be managed by GDB and will operate through a combination of general and sector-specific functions.

General functions will include:

- A Management Committee comprising the General Manager of the GDB and two senior GDB senior loan officers. The Managing Committee will be housed at the GDB headquarter in Grenada and will be responsible for the approval of both agricultural and tourism grants.
- A Supervisory Board comprising one nominee each of GDB, GIZ (the Accredited Entity), Ministry of Agriculture and Grenada Tourism Authority. The Supervisory Board will be responsible for monitoring the sound application of procedures for audit, grant approval and disbursement, as well as transparency in public communications.

At a sector-specific level:

- Two separate funding windows are established, the Challenge Fund for Agriculture (CFA) and the Challenge Fund for Tourism (CFT). Both windows will be funded by the GCF through grants deposited in segregated accounts at the GDB.
- Both CFA and CFT will provide concessional support to audits of water needs in the respective sectors and purchase of equipment by farmers/hotels, with significant co-finance provided by the latter or their lenders.
- CFA and CFT will differ, however, in audit and disbursement procedures, audit personnel, and size and format of disbursements.

Sections 3 and 4 describe the specific features, procedures and rationale of CFA and CFT, respectively. A fund size is proposed for each window as if it were a standalone entity, based on sector-specific assumptions of project participation, investment needs and extent/cost of water audits.

Based on these assumptions, the overall Challenge Fund size, funded by GCF grants, would be EUR 2.98 million, split as follows:

- Challenge Fund for Agriculture: EUR 2.63 million
- Challenge Fund for Tourism: EUR 0.35 million

Given the untested nature of the Challenge Fund, we recommend a flexible approach on sizing. In particular, while maintaining the total Challenge Fund size unchanged, the distribution of funds between CFA and CFT could be adjusted after a trial period of, for instance, 12 months. The trial should provide sufficient evidence and data to assess which of the two windows requires more or less funds.

3. Challenge Fund for Agriculture

3.1 Market Analysis [a]

Official statistics on the number of farmers in Grenada are not reliable. The most recent agriculture census (2012) counted over 9,345 farmers. The parameters used to define a farmer, however, were very broad, including backyard and part-time farmers. A more realistic estimate of the number of full-time farmers is 2,000-2,500. This corresponds to the number of farmers with whom the extension department of the Ministry of Agriculture interacts on a regular basis. The Marketing and National Importing Board (MNIB), a statutory body that is a large wholesale buyer of agricultural produce, transacts with 2,100 farmers. The analyses in this report are based on this baseline number.

Average farm size for these full-time farmers is between 2 and 2.5 acres. The distribution is skewed towards a large number of small farmers (around 0.5 acres) and small number of large farmers (5 acres and above). To give a sense of magnitude, MNIB purchases 80% of its volume from 20% of the farmers. Farmer cooperatives or other forms of association cover only a small portion of farmers – Grenada's farming sector remains highly fragmented.

Farmers cultivate a wide range of crops. Some of these (like cocoa, nutmeg, banana) are tree crops for which the benefits of irrigation (vs. rain-fed agriculture) are limited. Smaller farmers focus on fruits and vegetables (lettuce, cabbage, sweet potatoes, etc.) – short crops that are more suitable to irrigation. During the dry season, absent irrigation, some of these crops cannot be cultivated or exhibit much lower yields.

Almost all demand for Grenada's agricultural produce is domestic. Expensive and inconvenient transportation limits access to other markets in the region. The UK used to be a major export market for Grenadian bananas, thanks to a favorable trade agreement, the expiry of which has caused a significant downsizing in banana farming.

The main sources of domestic demand are hotels, supermarkets, street vendors and MNIB. The latter, despite being a statutory body, operates on a for-profit basis. It owns a large purchasing center where farmers sell produce in bulk, and a network of local fruit and vegetables stores where it resells to final consumers at a margin. MNIB buys and sells at market prices (no price controls) and does not guarantee any purchase volume. It estimates that it buys between 30% and 50% of the total farm produce of Grenada. Many farmers, however, see MNIB as the buyer of last resort and prefer to approach hotels and supermarkets directly, hoping to get higher prices.

Without an export market to absorb some of the volumes, production gluts occur regularly. During gluts, prices can drop dramatically, sometimes to the point where produce is almost worthless. Gluts are compounded by farmers' preference to continue to produce on the same crops, rather than diversify into new crops the supply of which is more limited – in fact, Grenada imports some vegetables that could be produced domestically. Gluts and price volatility are major concerns for Grenada farmers and significantly impact the predictability of future revenues (even in the next growing cycle).

Not all farms are suitable for irrigation. In addition to crop selection, the position and layout of a farm are critical to determine its irrigation needs – for instance, some farms are too far from water sources (rivers and stream). An official estimate of the number of farms suitable for irrigation is not available. Conversations with the Land Management Unit (LMU) and extension officers of the Ministry of Agriculture consistently pointed to a figure of around 1,000. The same sources estimate that approximately 400 of these already use irrigation, while 600 rely exclusively on rain. A recent survey by MNIB, based on a sample of 320 farmers, found that 29% use irrigation (a lower percentage than the 40% implied by the Ministry of Agriculture). For the purpose of this report, we will use the 400 figure indicated by the Ministry. Of the 400 irrigated farms, LMU

estimates that 50-75 use large, over-head sprinklers; these are not only water-inefficient but also result in the proliferation of weeds, since the watered surface is not well targeted, causing additional costs in fertilizers and weed removal.

Most of the stakeholders interviewed indicated a strong interest among farmers to adopt irrigation, if they have not already done so, or switch from over-head sprinklers to more efficient micro-sprinklers and drip irrigation. Stakeholders also highlighted the reticence of some farmers to abandon over-head sprinklers, which they deem as more convenient to use, despite their lower efficiency. The need for rainwater harvesting tanks and shade houses was also mentioned, as well as hydroponics and aquaponics.

The choice of the optimal irrigation system varies depending on crop types, farm layout (e.g. flat vs. sloping) and proximity to water sources, among other variables. In addition to the installation of micro-sprinklers or drip irrigation, some farms may need pumps to convey water from the source to the field. For other farms, located below the water source, a pump is not necessary. Some farms may benefit from rainwater harvesting infrastructure (at its most basic, a pond with or without lining, depending on soil type). Other water efficient farming solutions, such as shadehouses and hydroponics, may also find applications in Grenada – although their adoption so far has been quite limited. In some areas, the ideal solution may include shared infrastructure among more farmers (assuming they are willing to join forces). Only a detailed, farm-by-farm assessment can determine the most efficient solutions – a standardized approach would not be effective.

3.2 Financial Sector Analysis [a]

This section analyzes access to finance for Grenadian farmers. Lending sources include credit unions, traditional banks and the Grenada Development Bank (GDB). MNIB provides interest-free credit for the purchase of fertilizers and equipment. The Ministry of Agriculture ran a concessional lending program to facilitate the purchase of irrigation equipment (now expired).

Interviews with representatives of all these entities paint a consistent picture: access to finance for Grenadian farmers is very limited. Several factors explain this:

1. Lenders consider farming a high-risk sector. Weather, lack of insurance against extreme climate events, crop diseases, production gluts and volatile prices were mentioned as risk factors.

2. Credit unions, GDB and banks mostly lend on a secured basis. Many farmers lease their land, which cannot therefore be pledged. Farm equipment is not considered good collateral – apart from vehicles, for which there is an active resale market.

3. Traditional loan amortization schedules, with fixed monthly repayments, are not ideal for small farms that do not generate revenues and cash until the harvest season.

4. Grenadian farmers are not affluent. Some have to complement their farm work with other jobs to make a decent living. For many, commercial interest rates are prohibitive.

5. On the loan demand side, many farmers are reluctant to borrow because of the unpredictability of their business. Gluts of produce, the inability to secure long-term supply contracts and extreme crop price variability can have a very negative impact on harvest revenues, which makes farmers very cautious.

A description of each funding source and the Ministry of Agriculture's expired program is provided below.

Credit unions

Credit unions are non-bank financial institutions, regulated by an *ad hoc* body. They operate as cooperatives, taking deposits and lending to their members (all individuals, not companies). There are ten credit unions in Grenada, with some 55,000 unique members and a combined loan book of EC$600m (~EUR 199 million), or 15-20% of the total loans outstanding in the country. We met with GARFIN (the regulator), Ariza (the largest credit union by assets – almost half of the sector) and Communal (the largest by membership – 25,000).

Credit unions lend predominantly against collateral, usually land, real estate or vehicles. Unsecured loans are much less frequent and usually smaller; for instance, Ariza has an EC$10,000 limit on unsecured lending. The average interest rate on loans is 9%. Loan growth has been very healthy in the past 2-3 years – approx. 15% per annum. The regulator expects growth to continue, but at a more muted rate – the non-performing loan ratio is 6.3% and most credit unions are being encouraged to shore up capital.

Ample liquidity has not benefited farmers. A breakdown of loan portfolios by sector was not provided, but all commentary pointed to only a small fraction being devoted to farming activities. Credit unions currently do not offer any loan product tailored to the needs of a farmer.

Banks

Banks appear to have an even smaller exposure to farmers than credit unions. The team interviewed Republic Bank, the largest player with a EUR 154 million loan book (28% market share). Its exposure to agriculture is less than 1% of the book and comprises predominantly mortgages for land or vehicle purchase. Republic explained this low exposure with (i) the inherent risks of agriculture (weather, crop losses, etc.) and (ii) a “culture” among farmers of not servicing loans.

It is worth noting that loan growth in the banking sector is much lower than for credit unions – Republic estimates sector growth of less than 3%. The sector was badly hit during the 2008/09 financial crisis and is still struggling. Republic’s non-performing loan ratio, for instance, is 9%, well above the 5% target set by the central bank.

GDB

GDB is a small, government-owned, DFI-funded development bank focused on long-term financing at concessional rates. It has EC$60m (EUR 19,9 million) in assets and EC$50m (EUR 17,2 million) in loans. It is funded by the Caribbean Development Bank, CARICOM Development Fund and EIB, with guarantees provided by the Grenadian government. 75% of funds have been deployed and GDB will need to tap its sources again soon. Almost all loans are secured, usually against real estate. The average business loan is EC$60-80,000, with a 10-year maturity and 8% interest.

Agriculture represents only 8% of the loan portfolio. GDB attributes this to the decreasing relevance of agriculture in the Grenadian economy (after hurricane Ivan and the expiry of an advantageous trade deal with the UK for Grenadian bananas), and high sector risk. Agricultural loans are used to purchase vehicles, buildings and to, a lesser extent, other farm equipment (e.g. irrigation pumps). The typical farm equipment loan is EC$20-30,000 (EUR 6,700 -10,050), with a 4 to 5-year maturity, 6-8% interest and the irrigation equipment as collateral.

A staggering percentage (over 50%) of agricultural loans are non-performing. This shows not only the inherent sector risks but also the inadequacy of traditional loans to the farming sector – in particular, their short maturities and fixed monthly repayments, independent of fluctuations in production and prices. GDB noted that only a small portion of defaults results from fraud. In most cases, farmers stop servicing their loans because of a business downturn.

MNIB

MNIB is not a lender, but does play an important role in providing liquidity to farmers. Farmers need working capital to purchase seeds, fertilizers and small equipment, such as boxes, at the beginning of the crop cycle. MNIB sells some of these items to farmers, providing interest-free credit for periods up to 6 months – timing the repayment cycle with start of the harvest. At that point, farmers go to the MNIB purchasing center to sell their produce. At each sale, MNIB pays for the produce at market prices, but retains a portion of the proceeds as repayment for its original advance.

Credit size depends on the farmer's payment capacity. As a regular buyer of produce from 2,100 farmers, MNIB has first-hand knowledge of their business, crop cycle and financial profile. Farmers with whom MNIB has repeat business tend to get large amounts. New farmers are subject to stricter due diligence, including farm visits by one of three MNIB extension officers. Payment terms are flexible, including grace periods if necessary. The entire system is computerized and past transactions are recorded going back a few years. MNIB's proximity to farmers, understanding of the crop cycle and flexibility have contained bad credits to 10%.

MNIB also signed two memoranda of understanding with Ariza and GDB to facilitate financing for selected farmers. MNIB agreed to refer farmers to those lending institutions, facilitate loan repayment though a lien on the sale of produce by the borrower to MNIB and provide technical support to borrowers under the scheme. Ariza and GDB agreed to provide loans to participating farmers, within their normal lending policies, for infrastructure development, purchase of land, input, vehicles and equipment, establishment of irrigation systems, training expenses and working capital.

Ministry of Agriculture's Expired Program[1]

In 2013, the Ministry of Agriculture bought EUR 72,000 – 90,500 worth of irrigation equipment in bulk and sold it to farmers over the following two years. As part of the program, a financing plan was put in place. Farmers were required to pay 20% upfront and received a 5-year loan from the government for the balance. The loan had a concessional interest rate of 2% and a 1-year grace period for principal repayment. 150 farmers participated (average farm size of 1.5 acres).

Financially, the program was a failure. Many farmers, the small ones in particular, only paid the 20% upfront but did not repay the concessional loan. Among the reasons for such failure, Ministry of Agriculture representatives mentioned:

- The assumption by farmers that the government's role is to provide free subsidies, and that the loan represented only a soft obligation
- The fact that loan repayment was handled by the Accounting Department of the Ministry, rather than a private sector lender, only reinforced this false beliefs
- There was no political willingness to enforce loan repayments

In 2016, the government purchased a new batch of irrigation equipment worth EUR 45,270. Perhaps as a result of the previous experience, it decided to sell the equipment to MNIB. The latter, in turn, sold it piecemeal to farmers at a small mark-up, applying its own credit terms and procedures (as previously described). MNIB has been considerably more successful in obtaining payment from farmers.

[1] Confirmation of exact details of the program still pending from Ministry of Agriculture.

3.3 Barrier Analysis [a]

As hinted in the previous sections, several barriers have limited the adoption of efficient irrigation and water conservation techniques in Grenadian farms. Specifically:

1. High upfront investment for the average Grenadian farmer. Farming is not a very lucrative profession in Grenada (as in many other regions), and farmers have limited cash on hand for investments such as irrigation. Their income potential is constrained by limited farm size, small domestic market and the volatility in commodity prices.

2. The financial returns of irrigation are hard to quantify, especially in the short term. Irrigation has the obvious benefit to allow farms to produce in the dry season, when they would otherwise generate no revenues. How much revenues farms generate in one season, however, is a question mark, in particular in small markets like Grenada, which are subject to gluts and high price variability. While over time crop prices are likely to average out, farmers tend to focus mostly on the next crop – the risk of not generating sufficient revenues in the short-term is a significant deterrent to long-term investments.

3. Lack of technical knowledge and assistance. The choice of water-efficient farming solutions depends on a variety of factors, including crops, farm size, farm layout (flat/mountain) and proximity to a water source. This makes it difficult for a farmer to independently determine and implement the optimal solution. The government offers some technical assistance – the Land Management Unit of the Ministry of Agriculture is in charge of assessing and designing water-efficient farming solutions for any farmers that request so. The unit is well-trained, but very small in size – it counts three officers, of whom one will retire and another will start graduate studies soon. The Ministry of Agriculture also has 47 extension officers that do regular farm visits, but none has deep technical expertise in water-efficient farming solutions.

4. Farmers have limited access to finance. As previously discussed, sector-specific risks, the preference for secured lending, rigid debt repayment terms, and the farmers' unpredictable income and risk aversion have contributed to very low loan penetration.

5. Past reliance on subsidies. As pointed out by officials of the Ministry of Agriculture, Grenadian farmers have become accustomed to receiving equipment and services for free from the government. This negatively impacts their willingness to make investments upfront, even if the cost/benefit analysis is positive.

6. Free access to irrigation water. Most farmers irrigate using water from Grenada's many rivers or streams, at no cost (apart from connection to the source). The immediate incentive to switch to more efficient irrigation techniques – i.e. reducing water bills – is therefore not present. Of the 93 farmers surveyed by MNIB that use irrigation, 94% source water from local rivers, 89% collect water from roof run-off and 8% have wells; only 35% purchase water from NAWASA (and some of it may be for domestic use).[2]

3.4 Proposed Instrument [b]

Overview

The proposed instrument is the Challenge Fund for Agriculture (CFA). Its mission is to facilitate the adoption of new or more efficient irrigation and water conservation systems by Grenadian farmers, through the partial use of grants for irrigation need assessment and the purchase of equipment.

[2] The sum exceeds 100% as some farmers use multiples sources of water.

CFA will be funded by GCF grants and will be managed by the Grenada Development Bank. The fund will have two components:

1. A Water Audit Grant for the Ministry of Agriculture to hire an irrigation expert who will lead the comprehensive assessment, design and monitoring of irrigation solutions for Grenadian farms, over a period of 3 years.

2. A Purchase of Equipment Grant for farmers that decide, after the assessment, to invest in water-efficient farming solutions. This grant will cover 50% of the equipment cost, with the remainder financed by the farmer directly or a lender.

Section 3.5 contains a detailed description of the CFA features, procedures and governance.

Proposed Size

The proposed size for the Challenge Fund for Agriculture is approx. EUR 2.63 million, including:
- EUR 0.33 million for the Water Audit Grant
- EUR 2.30 million for the Purchase of Equipment Grant

The size of the Water Audit Grant assumes a EUR 108,650 annual compensation for an international irrigation expert relocated to Grenada for a period of 3 years.

The size of the Purchase of Equipment Grant is based on the following assumptions, discussed with the Land Management Unit, MNIB and a group of Ministry of Agriculture extension officers (detailed calculations can be found in Appendix A):

- Average farm size of 2.25 acres
- 1,000 farms (out of 2,100) are in principle suitable for irrigation
- Of these, 400 use irrigation (incl. 75 that use inefficient overhead sprinklers) and 600 do not
- Four water conservation solutions will be incentivized by the grant: efficient irrigation (micro-sprinkler or drip), rain water harvesting, shadehouses and hydroponics/aquaponics.
- Irrigation
    - CFA aims to achieve a (i) 50% irrigation rate for the 600 farmers that currently do not irrigate and (ii) the switch to micro-sprinklers and drip for 50% of the 75 farmers currently using overhead sprinklers. The 50% target assumes, conservatively, that some farmers will not want to participate (for whatever reason) or will not be able to source funds for the non-grant portion. In addition, larger farms (4-5 acres) may include areas that are not suitable for irrigation
    - The cost of new irrigation is estimated at EUR3,622 per acre. This includes EUR 1,811 for micro-sprinklers or drip equipment, and EUR 1,811 for a pump (source: the Land Management Unit). Conservatively, we assume that all new irrigation will be pump rather than gravity-assisted
    - The cost of switching to micro-sprinklers or drip is EUR 1,811 per acre (we assume that most farmers using over-head sprinklers already own a pump)
- Rain water harvesting
    - 20% of farmers already irrigating and 20% of new farmers irrigating (as per previous point) are expected to adopt rainwater harvesting through lined ponds.
    - The cost of a lined pond is estimated at approx. EUR 7,932. A pond of this size and cost is sufficient to irrigate 0.5 acres for 80 days without any rain replenishing the pond. It is assumed that larger farms will complement the pond water with other sources. The support through the CFA would be for rainwater harvesting in general, this would also include rooftop collection. Since this very much depends on the specific circumstances at the farm, only the lined pond is costed here, but also other rain water harvesting technologies are eligible for funding through the CFA.
- Shadehouses

  - 5% of farmers that will have adopted efficient irrigation are expected to adopt shadehouses, as indicated by the Extension Office of the Ministry of Agriculture.
  - The cost of a shadehouse is estimated at EUR 3,395 (source: Ministry of Agriculture extension officers)
- Hydroponics and aquaponics
  - These technologies are relatively new to Grenada (only two farms have adopted it so far). However, stakeholder consultations (including farmers, suppliers, and Ministry of Agriculture Divisions like Extension Services, Agronomy, Land Management Unit and the Chief Agricultural Officer) during the Agri-Business Expo organized by the Ministry of Agriculture, indicated that there is great interest in these technologies, and some large scale farmers are already investing in larger-scale systems (with costs of up to EUR 90,545).
  - The CFA should not crowd out investments by farmers who have own funding sources. On the other hand, there are farmers who intend to switch to these highly water conserving technologies due to the more frequent problems with the traditional water sources. Hence, based on the mentioned we assume conservatively that 1% of farmers may want to introduce it, at an estimated capped cost of EUR 18,109 per farm. It is expected that this will open the door for more farmers in the medium-to long-term.

Based on these assumptions, the total investment for participating farmers would be about EUR 4.61 million, requiring a Purchase of Equipment Grant of just over EUR 2.30 million (50% of total).

Note that the Purchase of Equipment Grant may or may not be fully utilized, depending on farmer participation in the assessment program and their willingness and ability to source capital for the non-grant portion of the investment.

Co-finance

Sources of co-finance, in the form of contribution to the equipment investment, will be entirely private: the farmers themselves (should they decide to use their cash), credit unions, banks or MNIB.[3]

The co-finance ratio is approx. 0.9x (approx. EUR 2.30 million of private capital vs. EUR 2.63 million fund size). Excluding the Water Audit Grant from the calculation, the co-finance ratio would be 1x, since private capital exactly matches the size of the Purchase of Equipment Grant.

3.5 Features, Rationale and Risk Mitigation [c] [d]

Role of Management Committee

Description

GDB will manage the Challenge Fund, with three core responsibilities: (i) grant approval and disbursement, (ii) coordination with the Challenge Fund Supervisory Board and (iii) transparency and public reporting.

For these purposes, GDB will identify within its ranks and appoint a team of 3 full-time professionals to act as Management Committee of the Challenge Fund. The appointment of the team is a pre-condition to program inception. The team will be chaired by the General Manager of GDB, to whom it will report on a monthly basis, or more frequently if required. The General Manager of GDB will also be a member of the Challenge Fund Supervisory Board (see below).

[3] We consider MNIB a private entity, even if government-controlled, since it operates on a commercial, for-profit basis.

GDB will disburse both the Purchase of Equipment Grants and Water Audit Grant, according to the procedures described below.

GDB will ensure the full transparency of all financial flows. It will set up a segregated account for the initial grant transfer from GCF and will keep a detailed electronic record of each transaction with farmers (for Purchase of Equipment grants) and the Ministry of Agriculture (for the Water Audit Grant). A monthly summary of activities will be submitted to the Supervisory Board. In addition, quarterly and annual reports of the Challenge Fund operations will be published on the GDB website for public access.

Rationale:

1. As a development bank in operation since 1965, GDB has the mandate and expertise to manage concessional funds. The capacity to execute the mandate is ensured by the Challenge Fund team appointment at inception.
2. GDB has already experience with managing similar financial vehicles. In 2013-2016, the GDB ran a grant-based fund to support energy efficiency measures in the hotel sector, funded by the Caribbean Development Fund (CDF)
3. The GDB has been nominated by the Government of Grenada and the NDA as Grenada's Direct Access Entity (DAE) for the Green Climate Fund, and is currently undergoing a technical assistance program to support the accreditation process. With the involvement in the CREWS proposal as a financial intermediary, the GDB can gain valuable insights and experience which will support the institutional strengthening process towards "GCF Readiness" of the GDB.
4. Concessionality is minimized by requiring GDB to support the program with its own personnel and IT systems, and invest more in both staff and IT if needed for the execution of the mandate.
5. Fraud risk is minimized by (i) centralizing the grant process in one, very visible entity, (ii) setting up adequate IT systems, (iii) reporting to the Supervisory Board and (iv) quarterly and annual disclosures to the public.

Role of Supervisory Board

Description

The Supervisory Board will be responsible for monitoring the sound application of the procedures for irrigation assessment, grant approval and disbursement, as well as the Fund's transparency in communications to the public and the farmer community in particular. It will not participate in individual grant-making decisions, but will obtain monthly reports with detailed data and analysis, and will be able to solicit information at any time.

The Supervisory Board will be composed of one nominee each of GDB (the General Manager), the Accredited Entity, Ministry of Agriculture and Grenada Tourism Authority. The latter will be represented because the Supervisory Board will exercise its power over both the Challenge Fund for Agriculture and Challenge Fund for Tourism.

Rationale

1. Minimize the risk of fraud.
2. Maximize the visibility and transparency of the program.

Role of Water Conservation Expert

Description

The water conservation expert has the following key responsibilities: (i) assessing the irrigation needs and water conservation potential on a farm-by-farm basis over a 3-year period, (ii) designing the most suitable water-efficient farming solution for a given farm, (iii) formulating the budget and (iv) monitoring the implementation of the system. The disbursement of the grant will occur only after the expert certifies the full implementation.

The expert will be assisted by 3 officers from the Land Management Unit and Extension Division of the Ministry of Agriculture. The Ministry will commit to sourcing these officers and remunerating them. Some of these officers may have to be hired externally. In particular, the LMU is currently understaffed – it has three officers but will soon lose two.

The water conservation expert will be consulted during the hiring process, to identify the most suitable candidates. He/she will also provide on-the-job training and if necessary class-room type for the new officers or for other Ministry officers, e.g. from the Extension Division, who will be reassigned to support the program.

Rationale:

1. Optimize the use of CFA resources, by involving a highly-skilled technical expert. Conversations with farmers and other stakeholders almost unanimously pointed to the lack of critical irrigation knowledge among extension officers. The relatively modest grant necessary to hire the expert would make a significant difference to the timely and effective completion of the assessment program.
2. Minimize the risk of fraud, by making grant disbursements conditional to implementation.
3. Minimize concessionality, by requiring a substantial budget and staff commitment by the Ministry of Agriculture. The Ministry will be solely responsible for providing assistance to farmers with their irrigation needs post-program completion (e.g. maintenance and future upgrades of equipment).
4. Provide a development co-benefit to the Ministry of Agriculture, through training of the Land Management Unit by the irrigation expert.

Program Awareness

Description

The CFA assessment program will be widely advertised to farmers, through the Ministry of Agriculture's extension officers, the MNIB, farmers associations and a website. Farmers willing to participate in the assessment will contact the Land Management Unit at an email or telephone number provided to the public.

The communication campaign will specify that the assessment does not automatically lead to a grant for equipment – discouraging opportunistic applicants.

Rationale:

1. Ensure non-discriminatory access to the service to any prospective participants.

Farm Assessment Procedures

Description

The expert or his support team will contact farmers directly to schedule farm visits. The team will spend an estimated half a day at the farm to do a comprehensive assessment. For transparency, the farm will be placed on a rating scale, based on a detailed application form that will include an evaluation of both technical aspects and farmer capacity to operate the system (with appropriate training). Different variables will be assigned a different weight – for instance, prohibitive distance from a water source will likely be a "deal-killer". A brief written explanation of the decision will be kept for the record, together with the assessment form. Back in the office, another half a day will be spent on designing the most suitable water efficiency solution and formulating the investment budget. At the end of the assessment and design process, the expert will issue a water audit certificate to the farmer, which will be the precondition to qualify for a CFA grant.

Rationale:

1. Minimize the risk of collusion with the farmer by having group visits to the farm and by keeping a detailed record of the audit.
2. Ensure fair and impartial recommendations through the rating system.
3. The issuance of the certificate minimizes the risk of fraudulent grant requests and also ensures that the equipment purchased by the farmer (and/or financed by lenders) is exactly that recommended by the expert team.

Purchase of Equipment for Water-efficient Farming

Description

Once a meaningful number of farms have been assessed and have agreed to participate in the program (for instance 50), a bulk order for the purchase of equipment will be submitted. The Land Management Unit has indicated that high-quality equipment is easy to source from regional (Jamaican in particular) or international suppliers (US, Europe, Israel), at a meaningful discount to the price charged by local Grenadian distributors.

The Ministry of Agriculture could submit the purchase order and then resell the equipment at cost to MNIB or other equipment distributors in Grenada. Farmers would purchase the equipment from MNIB or other participating distributors, paying a small mark-up (e.g. 10%) to remunerate their services.

Rationale:

1. Reduce the unit cost of equipment. This directly benefits farmers and also ensures that grant money is spent in the most efficient way (i.e. no leakage of grants due to extra-profits for equipment suppliers).
2. Ensure elevated and consistent standards of quality, contrary to the uneven quality of equipment currently supplied by local distributors.
3. Facilitate future technical assistance by the Ministry of Agriculture, since all installed equipment will be similar.

Grant Size

Description

The size of the Purchase of Equipment Grant is equal to 50% of the investment budget determined by the irrigation expert, subject to a cap.

In the case of irrigation equipment, for instance, the cap would be EUR 3,622 per acre irrigated, corresponding to the reasonable cost of micro-sprinklers or drip irrigation and a pump. For small farmers – the most problematic from a credit standpoint – this would imply a total investment of EUR 1,811 on a typical 0.5-acre farm. EUR 905 would be covered by the CFA grant and EUR 905 by the farmer directly or a commercial loan. Note that EUR 905 (EC$2,700) is within the range of the typical credit extended by MNIB to its farmers (EC$50-3,000). Given MNIB's good track record of credit collection, EUR 905 appears to be a reasonable amount for a small farmer loan.

The size of the Water Audit Grant is based on reasonable salary expectations for a recognized international irrigation expert who is willing to relocate to Grenada for 3 years. It will be subject to a cap of EUR 108,655 per annum.

Rationale:

1. Given the uncertainty of the water efficiency cost/benefit analysis, a significant reduction in the investment burden is necessary to encourage farmers to adopt efficient irrigation and water conservation measures.
2. The Purchase of Equipment Grant requires a 1:1 co-finance ratio from the private sector – be it the farmers with their own cash and/or commercial loans.
3. A 50% grant implies a commercial loan exposure that should be manageable for a small farmer.
4. Fraud and mismanagement risk is minimized by capping the Purchase of Equipment Grant and by benchmarking the water conservation expert remuneration based on international standards.

Procedure for Grant Disbursement – Water Audit

Description

GDB will be responsible for disbursing the Water Audit Grant in the form of monthly compensation to the water conservation expert, during the 3-year appointment. The expert will be hired through a transparent, competitive hiring process. GDB and the Supervisory Board will retain the right to replace the expert if his/her performance is unsatisfactory. In this case, no compensation is due for the remainder of the 3-year period. A new expert will be hired and the grant will be used for his/her compensation.

Rationale

1. Ensure efficient use of grant by hiring a competent professional, with the faculty to replace him/her if performance is unsatisfactory.
2. Maximize transparency and minimize risk of fraud through an open, competitive hiring process.

Procedure for Grant Disbursement – Purchase of Equipment

Description

At the end of the assessment and design process, the expert will issue a water audit certificate to the farmer. A record will also be kept electronically in the Challenge Fund database. The farmer will present the certificate to any lender he/she wishes to approach to fund the initial investment, as proof that the farmer qualifies for a grant. Lenders will be able to confirm the approval and size of such grant directly with the Challenge Fund.

Through own cash or commercial loans, the farmer will fund the entire investment at inception. Once the new system is fully implemented, the water conservation expert will visit the farm and, if satisfied with the evidence, will issue an official implementation certificate.

Grants will be disbursed only if the following conditions are met:
1. Issuance of the implementation certificate, and
2. Up until that point, the farmer has regularly repaid any loan he/she may have taken for the initial investment.

The second condition is meant to ensure farmer compliance with the loan agreement – another safety net that should encourage commercial lenders to engage with farmers. Staggered disbursements of the grant over the loan maturity, subject to timely loan servicing, could be considered as a further incentive to meet debt obligations and to avoid fraudulent behavior.

It is expected that the installation of the equipment will take place within 6-12 months of the initial assessment. The installation certificate will be issued jointly to the farmer and the lender (if any). Since it is expected that most farmers will borrow to finance the initial investment, priority in the drawdown of the grant is given to the lender. Any residual grant amount will be paid into the bank or credit union account of the farmer.

Rationale:

1. Lenders will recover at least 50% of the loan, or a higher percentage if the farmer contributed to the initial investment with his own cash. This is a significant incentive and should increase lender participation in the program
2. Borrowers will benefit from better terms (e.g. lower interest), given the lenders' lower risk exposure. In addition, at least 50% of the loan will be automatically repaid upon program implementation, significantly reducing subsequent debt repayment obligations
3. The risk of fraud is minimized through the certificate system, both at the investment and grant disbursement phases

Exit Strategy

The Challenge Fund for Agriculture will expire once funds are exhausted or after 5 years from inception, whichever is earlier.

The use of all available funds prior to the expiration of the 5-year period would be a sign of success for the program. In this case, GIZ and the Ministry of Agriculture would explore additional sources of grant finance to meet any future unmet demand for irrigation and other water conservation solutions in Grenadian agriculture.

In addition, the Ministry of Agriculture and GDB will benefit from capacity building and new insights. These can be used in any future program led by the Government of Grenada directly. In addition, the Land Management Unit and Extension Division of the Ministry of Agriculture will be better equipped to provide ongoing technical assistance to Grenadian farmers.

Should the envisaged structure of CFA prove a success, GIZ would look to replicate it in other countries – in the Caribbean and elsewhere – that face similar water uncertainty issues.

4. Challenge Fund for Tourism

4.1 Market Analysis [a]

Sector Overview

In 2016, total room stock in Grenada was 2,095 rooms, with a capacity of 3,139 beds in 90 hotels, guesthouses, apartments and villas. The capacity in terms of beds has increased by almost 10% since 2012, which is reflected in the total overnight capacity of 1.15 million guest-nights/year. 5 large hotels (Sandals, Radisson, Rex, Coyaba and Spice Island) represent 40% of the rooms (168 each, on average). The remaining hotels and guesthouses are much smaller (15 rooms on average).

In 2016, visitor arrivals to Grenada reached almost 474,000, of which 113,000 (29%) stayed in hotels or similar establishments. With an annual average hotel occupancy rate of 56%, Grenada achieved a total of almost 640,000 overnight stays in 2016.

The main source market was the US, followed by the UK, the Caribbean (Trinidad and Tobago and St. Vincent and the Grenadines), Canada and Germany. Visits were mainly for leisure, business and study. The direct contribution of travel and tourism to GDP for 2015 was EC$168 million (EUR 56 million), or 7.5% of GDP. Direct and indirect sector contribution was EC$573 million (EUR 192 million), or 25.5% of GDP.

After a tough period following hurricane Ivan in 2004 and the global financial crisis, the current situation in the hotel sector is deemed as good. The Grenada Tourism Authority (GTA) expects another ten establishments to launch over the next year. Some guesthouses, however, are suffering from competition by Airbnb and high regional travel costs – guest houses cater in particular to tourists and business travelers from the Caribbean regions, unlike large hotels and resorts targeting the US and European markets.

Tourism has led to positive socio-cultural impacts with the development of cultural events and festivals such as Spicemas, Parang and Saraka, highlighting the unique afro-Caribbean heritage of Grenada. The island has also focused on developing niches such as eco-tourism, yachting, sailing and agro-tourism. However, the development of the tourism sector has also created economic challenges through overdependence on the industry, excess demands on the island's resources and economic leakages (Bhola-Paul, 2015).

Water Conservation Issues

Hotels and guesthouses accounted for 10% of total water supplied by NAWASA, Grenada's water utility, in 2016/17. With total consumption of 138 million gallons and almost 640'000 overnight stays, each tourist used approx. 215 gallons (975 liters) per day, slightly above regional average. The largest portion of daily water usage per guest is represented by cooling (30%), followed by guest room (25%), kitchen (20%) and laundry (15%).

The dry season (December to May) is also peak tourist season – water demand by hotels and guesthouses is the highest when water supply is the lowest. In periods of heavy droughts, the implications for the hotel sector can be severe, including:

- Unreliable water supply;
- Increased water shortages at the facility;
- Increased costs of water due to the high costs of trucking;
- Increased complaints from guests;
- Loss of ornamental plants and garden stock;
- Loss of on-site production of fruit and vegetables.

During the drought of 2009/10, for instance, large hotels in the southern tourism belt of Grenada island were forced to purchase truck-delivered water at EUR 25 per cubic meter for transport alone. Between February and April 2010, water was rationed at some small hotels and guesthouses in the islands of Carriacou and Petite Martinique.

Potential Water Saving Measures

The following potential water efficiency measures emerged from interviews with hotel and guesthouse managers and other stakeholders:

- Replace old showerheads and faucets with low-flow ones, or equip them with aerators
- Retrofit toilets to reduce water use per flush
- Replace old toilets with new low-volume ones
- Install rainwater harvesting tanks to collect water for use in case of emergency (drought or NAWASA pipe failure)
- Install a grey-water treatment system to re-use shower and sink water for irrigation, laundry and cleaning

GTA conducts mandatory audits of each hotel and guesthouse every three years. The audit is meant to ensure compliance with local regulations on state of the facilities, food safety and sanitation, pools, fire safety, solid waste and pest control, and furnishings. The audit does not cover the hotel's water efficiency and water conservation practices.

As a result, a comprehensive water efficiency mapping is not available, and any evidence in this respect is anecdotal. For this report, the team has interviewed several hotels, a contractor, GTA and the Grenada Hotel and Tourism Association (GHTA).

The larger hotels appear to be the most advanced in terms of water efficiency. The largest hotel (Sandals), for instance, has a comprehensive grey water recycling system in place, large water storage tanks and a desalination plant for use in extreme circumstances; many of its rooms were recently refurbished with efficient showers, sinks and toilets.

Evidence is mixed with regards to guesthouses. In general, from sector interviews, it appears that many of them have installed rainwater harvesting tanks – reflecting not only climate concerns but also the unreliability of water supply from NAWASA. Grey-water recycling and desalination are much less frequent, reflecting the large size of the investment and broader infrastructure implications (for instance, the need for separate plumbing for clean and recycled water). The adoption of water-efficient fixtures and fittings in rooms and kitchens goes hand in hand with the timing of overall room renovations and varies widely.

4.2 Financial Sector Analysis [a]

Hotels and guesthouses borrow from banks, credit unions and GDB (see details below). The most common form of borrowing is a mortgage for building purchase, construction or renovation. The latter was commonplace after the destruction caused by hurricane Ivan. Lenders are very reluctant to lend on an unsecured basis, leaving a mortgage top-up as the only option to increase borrowing (assuming there is capacity for such top-up).

Banks

Tourism broadly defined (hotels, guesthouses, ancillary services, and student housing at St. George's University) represents a large portion of banks' assets. 15% of Republic's loan book, for instance, is in the sector (a breakdown for the hotel sub-sector is not available). Exposures range from short-term working capital loans to long-term, secured loans for hotel or guesthouse construction or renovations. The latter take the real estate as collateral, have maturities of up to 10-15 years and interest rates in the 5.5-8.5% range (depending on security, business prospects,

reputation of the owner/developer, etc.). Republic expressed some concerns on the credit quality of guesthouses, with several suffering from slow revenue growth (due to expensive regional flights) and high cost of doing business (electricity bills are often mentioned).

Credit unions

Credit unions lend mostly to guesthouses and apartment owners, and only on a personal basis – members of credit unions are individuals, not companies, and must be CARICOM nationals. Ariza, the largest credit union by assets, described its typical guesthouse/apartment loan as a 10-year mortgage, with rates ranging between 7.9% and 10%. Communal Credit Union, the largest by number of members, has only 2% of the loan book in the guesthouse sector – mostly mortgages for building renovation or construction of rental apartments. The typical loan amortizes over 10 years and has a 7% interest rate.

GHTA mentioned mortgage rates of 10-12%, higher than those mentioned by banks and credit unions. Regardless of the exact figures, the general picture is one of fairly expensive cost of borrowing for Grenadian hotels and guesthouses.

GDB

Hotel and tourism represent 20% of GDB's loan book. GDB focuses on small hotels that need funds for construction, retrofitting and repairs, and purchase of equipment. The average mortgage is EC$200,000 (EUR 67,000), amortizes over 8-10 years and has a 6-8% interest rate. Non-performing loans in the hotel sector are less than 10% of the exposure.

Concessional Finance

Sources of concessional finance for hotels and guesthouses are very limited.

The most prominent example was the CDF CAP grant for energy-efficient renovations (in particular upgrade of air conditioners and fridges). Grants were provided by the CARICOM Development Fund (CDF) and administered by GHTA and the GDB. Grants covered 50% of the equipment purchase price, with a cap of EC$40,500 (EUR 11,900) per hotel. 22 hotels and guesthouses participated, with total grants disbursed of EC$345,000 (EUR 116,000).

Interestingly, program participation was initially slow, despite the generous grant. One reason for this, according to a hotel owner who was involved in the program, was the inability of some hotels and guesthouses to fund the non-grant portion of the equipment purchase – many hotels had already maxed out their mortgage capacity, and unsecured loans were not available. Eventually, however, the total foreseen grant amount was disbursed.

4.3 Barrier Analysis [a]

As hinted in the previous sections, several barriers have limited the adoption of efficient irrigation and water conservation techniques by Grenadian hotels and guesthouse. Specifically:

1. Lack of problem mapping. While hotels and guesthouses must participate in a mandatory audit by the GTA every three years, this audit does not cover water efficiency. In the absence of comprehensive data, the topic of water efficiency in the hotel sector has gained little traction with Grenadian authorities.

2. Prioritization of "client-facing" investments. Water efficiency investments compete for a slice of the hotel budget with other renovation investments. Hotels tend to prioritize the most visible for guests – from furniture upgrades to the installation of new TV screens.

3. Water tariffs are low. While all stakeholders unanimously complained about high electricity bills, only a small minority complained about water bills. The owner of one relatively large hotel openly admitted that he has little incentive to make water efficiency investments because "water is cheap". To give an order of magnitude, utility bills shared by the facilities manager of Sandals, the largest hotel in Grenada, showed monthly electricity costs 5-7x[4] greater than water costs.

4. High cost of bathroom fittings. While water-saving devices *per se* are not expensive, they are embedded in the overall design of a faucet, shower or toilet. Hotels with high standards of interior design would need to spend significant amounts to achieve the water-saving objectives without sacrificing image.

5. Preference for broader hotel renovations. Hotels planning to do broader renovations in the future will postpone bathroom-specific interventions to that moment, for convenience and budget reasons.

6. Large water-saving systems are expensive and cumbersome to install. Large hotels with significant laundry, gardening and cleaning needs are particularly suited to the installation of grey-water recycling systems. This infrastructure, however, is expensive and requires comprehensive works (e.g. separate plumbing for clean and recycled water).

7. Relatively limited access to finance. The vast majority of hotels and guesthouses already have a mortgage, for construction or refurbishment. As a result, they have already pledged collateral and would not be able to obtain a new mortgage. To the extent they have paid down some of the existing mortgage and property value has not changed, topping up that same mortgage is a possibility, but not all hotels are in this position. Banks and credit unions rarely extend unsecured loans.

4.4 Proposed Instrument [b]

Overview

The proposed instrument is the Challenge Fund for Tourism (CFT). Its mission is to facilitate the adoption of more water-efficient bathroom fittings by Grenadian hotels and guesthouses, through the partial use of grants for water audits and the purchase of equipment.

CFT will be funded by GCF grants and will be managed by the Grenada Development Bank. The fund will have two components:

1. A Water Audit Grant for the Grenada Tourism Authority to hire an expert who will lead the comprehensive audit of water usage in Grenadian hotels and guesthouses, over a period of 12 months.

2. A Purchase of Equipment Grant for hotels and guesthouses that decide, after the audit, to upgrade their bathrooms and kitchens with more water-efficient fittings or install greywater recycling (rainwater harvesting tanks are excluded, due their already wider adoption). This grant will cover 40% of the equipment cost. The bathroom refitting grant will subject to a cap (per grant) of EUR 181 per room and EUR 9,955 per hotel. The greywater recycling grant will be subject to a cap of EUR 4,889 per grant for small hotels and guesthouses, and EUR 24,991 per grant for large hotels.[5]

[4] Depending on the season. The water bill is higher in the dry months mostly due to higher pool evaporation.
[5] Equivalent to 40% of the estimated reasonable investment size for a greywater recycling plant of suitable size for small hotels/guesthouses and large hotels, respectively.

New hotels currently under construction will not qualify for the grant, since it is likely that they have already opted for the most efficient water fittings. Therefore, extending the program to them would qualify as development assistance, rather than a climate adaptation measure.

Section 4.5 contains a detailed description of the CFT features, procedures and governance.

Proposed Size

The proposed size for the Challenge Fund for Tourism is EUR 351,770, including:

- EUR 108,655 for the Water Audit Grant
- EUR 243,115 for the Purchase of Equipment Grant

The size of the Water Audit Grant assumes a EUR 108,650 annual compensation for an international expert relocated to Grenada for a period of 12 months.

The size of the Purchase of Equipment Grant is based on the following assumptions (detailed calculations can be found in Appendix B):

- 90 hotels and guesthouses already operating in Grenada – 5 large ones and 85 smaller ones
- 2,095 rooms, of which 842 in the 5 large hotels (168 rooms per hotel on average) and 1,253 in smaller ones (15 rooms on average)
- We assume two type of interventions: (i) upgrade of bathroom fittings (shower, faucet, toilet) with more efficient equipment and (ii) installation of greywater recycling for water from laundry, kitchen and other public areas
- Bathroom refitting
    - We set the following targets for CFT: 25% of the room in large hotels and 50% of the rooms in smaller hotels have their bathrooms refitted with water efficient fittings. The lower percentage for large hotels reflect their higher rate of renovation and the fact that some of them belong to international groups whose broader investment decisions will be only marginally affected by country-specific incentives
    - Based on feedback from an established Grenada-based contractor, the fair price for one good-quality, no-frills, water-efficient shower, one faucet and one toilet is estimated at a combined EUR 453. This is assumed to be the reasonable investment per room. Any investment above this value would be due to the choice of high-end, designer fittings – aesthetic features that CFT is not meant to subsidize
    - The grant is set at 40% of the investment value, subject to a cap of EUR 182 (40% of EUR 453) per room – as per previous comment – and a cap of EUR 9,055 per hotel. The latter would allow the refitting of 50 rooms and is meant to avoid grant concentration among the largest hotels
- Greywater recycling
    - This equipment is considerably more expensive. Based on a study conducted in Malta,[6] the cost is estimated at EUR 12,224 for 2 and 3-star hotels (the equivalent of Grenada's small hotels and guesthouses) and EUR 62,477 for 4 and 5-star hotels (the equivalent of Grenada's large hotels and resorts)
    - CFT will target the installation of greywater recycling by 10% of the small hotels and guesthouses (8-9 establishments) and 2 out 5 large hotels (Sandals has already installed greywater recycling).
    - The grant is set at 40% of the investment value, subject to a cap of EUR 4,889 (40% of EUR 12,224) per small hotel or guesthouse, and EUR 24,991 (40% of EUR 62,477) for large hotels.

[6] Marco Cremona, 2013. *Greening the economy – greywater treatment and flow rate regulation as a job generator, water, energy and CO2 saver*. EU LIFE+ Investing in Water Project.

Based on these assumptions, the total investment for participating hotels and guesthouses would be EUR 607,789, requiring a Purchase of Equipment Grant of EUR 243,115.

Note that the Purchase of Equipment Grant may or may not be fully utilized, depending on hotels and guesthouses' willingness and ability to source capital for the non-grant portion of the investment.

Co-finance

Sources of co-finance, in the form of contribution to the purchase of equipment, will be entirely private: the hotels and guesthouses themselves (should they decide to use their cash), banks and credit unions.

The co-finance ratio for CFT would be approx. 1x. Excluding the Water Audit Grant from the calculation, the co-finance ratio would be 1.5x, based on the 60/40 split between private capital and grants for the purchase of equipment.

4.5 Features, Rationale and Risk Mitigation [c] [d]

Role of Management Committee

GDB will manage both the Challenge Fund for Tourism and the Challenge Fund for Agriculture. The same Management Committee will be in charge of both funds. While finances of the two funds will be kept separate (including segregated accounts), the responsibilities of the Management Committee will be the same.

Please refer to Section 3.5 for full description and rationale.

Specifically for the hotel and guesthouse sector, it is worth re-iterating GDB's experience in managing the CDF CAP grant program for energy efficiency.

Role of the Supervisory Board

The same Supervisory Board will provide oversight to both the Challenge Fund for Tourism and the Challenge Fund for Agriculture.

Please refer to Section 3.5 for full description and rationale.

Role of Water Expert

Description

The water expert has the following key responsibilities: (i) auditing all 90 hotels and guesthouses over a 12-month period, (ii) proposing water-efficient fittings in line with the specific needs of each hotel/guesthouse, (iii) certifying that the new fittings purchased by the hotel are water-efficient and were bought at fair price and (iv) certifying the installation of the new fittings. The disbursement of the grant will occur only after the last step.

Rationale:

1. Optimize the use of CFT resources, by involving a highly-skilled technical expert.
2. Minimize the risk of fraud, by making grant disbursements conditional to implementation.
3. Minimize concessionality, by requiring a staff commitment by the GTA.
4. Provide a development co-benefit to the GTA, through on-the-job training of GTA officers by the water expert, for future water audits

Program Awareness

Description

The CFT assessment program will be widely advertised to hotels and guesthouse, through the GTA, GHTA and a website. Hotels willing to participate in the water audit will contact GTA at an email or telephone number provided to the public.

The communication campaign will specify that the water audit does not automatically lead to a grant for equipment – discouraging opportunistic applicants.

Rationale:

1. Ensure non-discriminatory access to the service to any prospective participants.

Water Audit Procedures

Description

GTA will contact each hotel and schedule a visit by the water expert. The visit may be in conjunction with the tri-annual audit, if this is imminent, or separate. If the visit is in conjunction with the tri-annual audit, the expert will be accompanied by representatives from GTA, Ministry of Tourism, Fire Department, Ministry of Health, Physical Planning Unit of the Ministry of Works and Bureau of Standards. If the visit is scheduled separately, the expert will nevertheless need to be accompanied by two GTA officers, for reasons of transparency and capacity building.

As a co-benefit, GTA will gain valuable water audit training. The Challenge Fund will also engage in discussions with GTA to add water conservation as a component of the mandatory tri-annual audit going forward.

Depending on hotel size, the visit may last 2-4 hours. The expert will visit every room and fill a form detailing the type of fittings currently installed. These will be categorized based on their water efficiency. Based on the audit, the expert will release (electronically and on paper) a form detailing the exact number of items that would need to be purchased. This form will need to be presented by the hotel owner to request the grant. The form will be electronically filed in the database of the CFT.

During the audit, the expert will also explain the benefits of the program, in particular the water bill reduction potential. He/she will also describe the structure and procedure to obtain the grant.

Rationale:

1. Minimize risk of collusion between hotel and expert by involving more personnel in the audit.
2. Minimize risk of fraud by the hotel through the certificate system.

Purchase of Equipment

Description

Due to the wide variety of designs and price points for water-efficient showerheads, faucets and toilets, no bulk purchase program will be put in place. Hotel and guesthouse owners will be free to choose the equipment most suited to their establishments.

As a condition for the grant application, however, the equipment will need to be certified by the water expert to verify:

1. That the equipment meets the water-efficiency prerequisites of CFT, and
2. That the equipment was purchased at fair prices, for instance by comparing prices from different sources

Applicants will be able to consult the water expert before finalizing the purchase. A receipt for the purchase will have to be submitted with the grant application.

Rationale:

1. Minimize the risk of fraud (e.g. through inflated purchase prices)
2. Ensure that the equipment meets the climate objectives of the Challenge Fund, and grants are not wasted in simple hotel renovation

Grant Size

Description

The grant will cover 40% of the equipment cost, subject to the caps described in Section 4.4.

The grant percentage is lower than the 50% set for the Challenge Fund for Agriculture. The reason for this is the immediate reduction in water bills that results from the installation of the equipment – unlike in the agriculture sector, where water is mostly free and the economics of irrigation are determined by future revenue increases rather than cost savings.

At the same time, due to the low water tariffs charged by NAWASA, cost savings are limited and investment IRR, absent a grant, would likely be negative over a 10-year period (and even more so over a shorter period). The 40% grant for the hotel sector is sized so that 10-year IRR becomes just about positive.

Appendix B contains an example based on real water bills provided by one guesthouse interviewed, extrapolated to simulate the average Grenadian guesthouse (15 rooms and 56% average occupancy). The simulation assumes that the hypothetical average guesthouse retrofits all its bathrooms with water-efficient equipment for an investment of EUR 453 per room. The total investment would be EUR 6,791, of which EUR 2,716 covered by the CFT grant. The remaining EUR 4,075 would need to come from cash, a new mortgage or a top-up of an existing mortgage.

At current water tariffs and without any grants, the 10-year IRR would be -8%; with the envisaged grant, the IRR increases to +3%. We also modeled the scenario of a 20% water tariff increase from year 4, which would increase the water bill savings. In this case the IRR would be -5% without a grant, and +6% with the envisaged grant.

A 40% grant is also lower than the 50% envisaged by the CDF CAP energy efficiency program for hotels. Note that, despite the higher grants and the significantly higher cost of electricity vs. water, the energy efficiency program was slow to pick up, due to the hotels' difficulty in funding the non-grant portion of the investment.

The per-room cap is meant to ensure the climate adaptation (rather than renovation) focus of grants. The per-hotel cap ensures that the climate adaptation benefits of the program are widespread.

The size of the Water Audit Grant is based on reasonable salary expectations for a recognized international expert who is willing to relocate to Grenada for 12 months. It will be subject to a cap of EUR 108,655 per annum.

Rationale:

1. A significant percentage grant is needed to prioritize investments that otherwise hotels may consider marginal, and incentivize borrowing for the non-grant portion of the investment.
2. Low water tariffs make the investment IRR, without grants, not very attractive. The grant is meant to make the IRR just about positive over a period of 10 years.
3. The Purchase of Equipment Grant requires a 1.5x co-finance ratio from the private sector – be it hotel owners with their own cash and/or commercial loans.
4. The per-room and per-hotel caps ensure adherence to the climate adaptation objectives of CFT and minimize the risk that the hotel uses the grant for general refurbishment purposes.
5. Fraud and mismanagement risk is minimized by the two caps and by benchmarking the water expert remuneration based on international standards.

Procedure for Grant Disbursement – Water Audit

Description

GDB will be responsible for disbursing the Water Audit Grant in the form of monthly compensation to the water expert, during the 12-month appointment. The expert will be hired through a transparent, competitive hiring process. GDB will retain the right to replace the expert if his/her performance is unsatisfactory. In this case, no compensation is due for the remainder of the 12-month period. A new expert will be hired and the grant will be used for his/her compensation.

Rationale

1. Ensure efficient use of grant by hiring a competent professional, with the faculty to replace him/her if performance is unsatisfactory.
2. Maximize transparency and minimize risk of fraud through an open, competitive hiring process.

Procedure for Grant Disbursement – Purchase of Equipment

Description

At the end of the audit process, the expert will issue a certificate detailing the precise investment requirements of the hotel in question. A record will also be kept electronically in the Challenge Fund database. The hotel will present the certificate to any lender he/she wishes to approach to fund the initial investment, as proof that it qualifies for a grant. Lenders will be able to confirm the approval and size of such grant directly with the Challenge Fund.

Through own cash or commercial loans, the hotel will fund the entire investment at inception. Once the new equipment is implemented, the expert and two representatives of GTA will visit the hotel and, if satisfied with the evidence, will issue an official implementation certificate.

Grants will be disbursed only if the following conditions are met:
1. Issuance of the implementation certificate, and
2. Up until that point, the hotel has regularly repaid any loan it may have taken for the initial investment.

The second condition is meant to ensure compliance with the loan agreement – another safety net that should encourage commercial lenders to extend new or additional loans to hotels. Staggered disbursements of the grant over the loan maturity, subject to timely loan servicing, could be considered as a further incentive to meet debt obligations and to avoid fraudulent behavior.

It is expected that equipment installation will take place within 6 months of the initial assessment. The implementation certificate will be issued jointly to the hotel and the lender (if any). Since it is expected that most hotels will borrow to finance the initial investment, priority in the drawdown of the grant is given to the lender. Any residual grant amount will be paid into the bank or credit union account of the hotel.

Rationale:

1. Lenders will recover a portion of the loan through the grant. This is a significant incentive and should increase lender participation in the program
2. Borrowers will benefit from better terms (e.g. lower interest), given the lenders' lower risk exposure. In addition, at least a portion of the loan will be automatically repaid upon program implementation, significantly reducing subsequent debt repayment obligations
3. The risk of fraud is minimized through the certificate system, both at the investment and grant disbursement phases

Exit Strategy

The Challenge Fund for Tourism will expire once funds are exhausted or after 5 years from inception, whichever is earlier.

The 5-year period should allow hotels and guesthouses to make the investments, and source the private funds or loans needed, even after the expiry of the 12-month contract with the water expert.

The use of all available funds prior to the expiration of the 5-year period would be a sign of success for the program. In this case, GIZ and the GTA would explore additional sources of grant finance to meet any future unmet demand for water conservation solutions in the Grenadian hotel and guesthouse sector.

In addition, the GTA and GDB will benefit from significant capacity building and new insights. These can be used in any future program led by the Government of Grenada directly. At a very minimum, the Government should consider the mandatory inclusion of water audits in the tri-annual hotel audit process.

Should the envisaged structure of CFT prove a success, GIZ would look to replicate it in other countries – in the Caribbean and elsewhere – that face similar water uncertainty issues.

Appendix A. CFA Size Estimate

Please refer to “CFA” sheet in Challenge Fund Model Calculation.xls (emailed).

Appendix B. CFT Size Estimate

Please refer to “CFT” and “Guesthouse IRR” sheets in Challenge Fund Model Calculation.xls (emailed).

Appendix C. List of Stakeholders Interviewed

Ministry of Agriculture

Permanent Secretary	Merina Jessamy
Land Management Unit	Trevor Thompson, Celia Edwards
Extension Division	Ronald O'Neal, George Philipp, Derek Thomas, Tara Brizan
Environment Division	Aria St. Louis (Division Head)
Agronomy Division	Troy Augustine
Former Minister	Roland Bhola (now Minister for Youth, and also farmer)

Ministry of Finance

NDA	Fitzroy James, Titus Antoine

Hotel and tourism associations

GHTA	Pancy Cross
GTA	Allison Hall, Susan Cadore, Shermaine McMeo

Other stakeholders

GIDC (Grenada Investment Development Cooperation)	Che' Keens-Douglas
MNIB	Ruel Edwards (CEO), Roderick St. Clair
NAWASA	Whyme Cox (Manager, Planning and Development)
Grace Lutheran School	Ryan Hellpap (promoter of Hydroponics and Aquaponics)
St George's University	Clifton Maxwell (promoter of Hydroponics and Aquaponics)

Financial sector

Ariza	Lucia Livingston-Andall (CEO)
Communal Credit Union	John Marryshow (Loans Manager), Chinel Andrews (Marketing)
GARFIN	Denis Felix (Executive Director)
GDB	Mervyn Lord (General Manager), Natasha Joseph (Business Development Manager)
Republic Bank	Valentin Antoine (Manager, Commercial Services)

Farmers

Belle Vue Farms	Michael Church
La Digue	Fimbar Hopkin (Chairman)
Grenada Feder. of Farmers and Fishers	Keith Clouden
Grenada Network of Rural Women Producers	Theresa Marryshow (President), Earla Baptiste, Royan Baptiste
North East Farmers Org.	Magdalene Niles, Cephes Bain

Hotels and guesthouses

Bougainvillea Apartments	Eva Edmont
Sandals Resort	Ronald Jean (Chief Engineer)
True Blue Resort	Russ Fielden
Tropicana Guesthouse	Horatio Brizan

Suppliers and contractors

Quinn Design & Construction	Mike Quinn (Managing Director)
Renwick & Thompson	Trevon Mitchell