



ADAPTATION FUND

## CONCEPT NOTE PROPOSAL FOR SINGLE COUNTRY

### REQUEST FOR PROJECT/PROGRAMME FUNDING FROM THE ADAPTATION FUND

The annexed form should be completed and transmitted to the Adaptation Fund Board Secretariat by email or fax.

Please type in the responses using the template provided. The instructions attached to the form provide guidance to filling out the template.

Please note that a project/programme must be fully prepared (i.e., fully appraised for feasibility) when the request is submitted. The final project/programme document resulting from the appraisal process should be attached to this request for funding.

Complete documentation should be sent to:

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## Acronyms

AR5	Fifth Assessment Report
AR6	Sixth Assessment Report
BNTF	Basic Needs Trust Fund
CATIE	Tropical Agricultural Research and Higher Education Center
CARICOM	Caribbean Community
CCCCC	Caribbean Community Climate Change Centre
CDB	Caribbean Development Bank
CIAT	International Center for Tropical Agriculture
CMIP5	Coupled Model Inter-comparison Project - Phase 5
CSA	Climate Smart Agriculture
ENSO	El Nino South Oscillation
ESMP	Environmental and Social Management Plan
FAO	Food and Agriculture Organization of the United Nations
G-CREWS	Climate Resilient Water Sector in Grenada (G-CREWS)
GDP	Gross Domestic Product
GEPAP	Gender Equality Policy and Action Plan
GIDC	Grenada Investment Development Corporation
GOG	Government of Grenada
GREP	Grenada Rural Enterprise Project
IFAD	International Fund for Agricultural Development
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
IPM	Integrated Pest Management
ITCZ	Inter-Tropical Convergence Zone
M&E	Monitoring and Evaluation
MALF	Ministry of Agriculture, Lands and Forestry
MAREP	Market Access and Rural Enterprise Development Programme
MOUs	Memorandums of Understanding
NAP	National Adaptation Plan
NAWASA	National Water and Sewage Authority

NCCC	National Climate Change Committee ()
NCCP	National Climate Change Policy
NDC	Nationally Determined Contributions
NDMA	National Disaster Management Agency
NSADP	National Sustainable Agriculture Development Plan
OECS	Organization of Eastern Caribbean States
PSC	Programme Steering Committee
RCP	Representative Concentration Pathway
RDU	Rural Development Unit
RWH	rainwater harvesting
SAEP	Climate Smart Agriculture and Rural Enterprise Programme
SDGs	Sustainable Development Goals
SECAP	Social, Environmental and Climate Assessment Procedures
SIDS	Small Island Developing State
SLR	sea-level rise
SPI	Standard Precipitation Index
SST	Sea Surface Temperature
UMIC	Upper Middle-Income Country
UNDESA	United Nations Department of Economic and Social Affairs
VST	Vocational and Skills Training

## PART I: PROJECT/PROGRAMME INFORMATION

**Title of Project/Programme:** Increasing climate resilience and adaptive capacity among farming and fishing communities in Grenada.

**Country:** Grenada

**Thematic Focal Area:** Agriculture

**Type of Implementing Entity:** Multilateral Implementing Entity

**Implementing Entity:** International Fund for Agricultural Development (IFAD)

**Executing Entity:** Ministry of Economic Development

**Amount of Financing Requested:** \$ 10,000,000 (in U.S Dollars Equivalent)

**Project Formulation Grant Request (available to NIEs only):** Yes  No

**Amount of Requested financing for PFG:** / (in U.S Dollars Equivalent)

**Letter of Endorsement (LOE) signed:** Yes  No

*NOTE: LOEs should be signed by the Designated Authority (DA). The signatory DA must be on file with the Adaptation Fund. To find the DA currently on file check this page: <https://www.adaptation-fund.org/apply-funding/designated-authorities>*

**Stage of Submission:**

This concept has been submitted before

This is the first submission ever of the concept proposal

In case of a resubmission, please indicate the last submission date: 1/9/2023

**Please note that concept note documents should not exceed 50 pages, including annexes.**

## Project/Programme Background and Context:

### I. Country context

1. Grenada is a Small Island Developing State (SIDS), highly vulnerable to external shocks and climate change (CC) effects. Grenada's population is 113,703 (as of 2021 statistics) living on 344 square kilometers (95% on the main island of Grenada and 5% on the two minor islands of Carriacou and Petite Martinique, which account for 34 square kilometers).

2. The country's population has remained fairly stable for decades. There are approximately 36,600 households, with 71,238 living in rural areas in 2019 (Rural Population 19-2021, 2020). Around 95% of the population lives on the main island of Grenada and 5% on Carriacou and Petite Martinique. Around 63% of the total population lives in rural communities spread across 7 parishes: Saint Mark, Saint Patrick, Saint Andrew, Saint David, Saint George, and Saint John, as well as the dependency of Carriacou. The median age is 32 ([The World Bank Data, 2021](#)).



Figure 1 Map of Grenada, NAP 2017

3. Grenada is a service-based economy. The main driver is the hospitality industry which accounts for over 40% of employment. The agricultural sector contributes with 54% of exports and provides employment to 10% of the employed population ([IFAD, 2021](#)). The country has been negatively impacted by external shocks in the past 15 years. In 2004-2005 hurricanes Ivan and Emily devastated the main export commodity, the nutmeg industry. In total, Grenada lost 90% of their nutmeg trees (Windward Islands Research and Education Foundation (WINDREF) Research Institute Annual Report, 2004, as quoted by [UNDP](#)). The observed increase in the number of more intense storms (Category 4 and 5 hurricanes) (CCCCC, 2015), is likely to have large impacts in Grenada's economy and livelihoods.

4. The country's economy showed a consistent upturn trend when the Covid-19 pandemic halted tourism inflows, with severe implications for the tourism sector, which is a key pillar for Grenada's economy. Although the Government of Grenada (GOG) was successful in keeping the spread of the virus under control, the pandemic had devastating effects on the economy and employment. Real GDP shrank by 14 percent in 2020 as tourism-related activities collapsed and in-person classes at Saint George's University were suspended. However, real GDP is estimated to have expanded by 5.6 percent in 2021. Stay-over tourist arrivals picked up strongly in the last months of 2021 but remained at only 25 percent of pre-crisis levels for the year as a

whole. Construction and agriculture did, though, rebound faster. The fiscal balance excluding interest payments is estimated to have maintained a surplus of around 2 percent of GDP and public debt declined to 70 percent of GDP in 2021. Real GDP is projected to expand by 4.3 percent in 2022 ([IMF, 2022](#)). The economy would be expected to recover to 2019 levels in 2023 in the baseline scenario and in 2024-2025 in the downside projections. Agriculture is the only sector with positive growth rates in both scenarios. Agricultural exports would become the main source of foreign exchange in the next two years in the absence of tourism inflows.

5. In 2020, approximately 30% of the population were poor, with 3.5% lived in extreme poverty ([UNICEF, 2021](#)). Unemployment levels have been extremely high since 2008: average unemployment rates have been consistently over 20% for several years and is a concern particularly among youth, whose unemployment rates are above 40%, and even higher for females ([World Bank, 2022](#)).

6. As a SIDS, Grenada has inherent characteristics that make it vulnerable to the adverse impacts of climate change and extreme weather events. Given that its economy depends on a relatively limited number of economic activities and outputs that are largely climate-dependent and climate sensitive, Grenada is and will be disproportionately impacted by it. Available climate screening studies indicate that in 2018, “13.5% of national budget was at risk of being negatively affected by climate change and 86% of the economy had an active link to climate change”. That is, the large majority of the economic sectors, and a seventh of the national budget are exposed to climate risks, including extreme events such as more intense storms (Category 4 and 5 hurricanes).

7. Climate change projections for Grenada include an increase in average annual temperature; a reduction in average annual rainfall in all seasons; potentially greater intensity of extreme events such as hurricanes, tropical storms, droughts, severe floods, and increases in sea surface temperatures. Non-irrigated subsistence farming systems are vulnerable to droughts, pests and diseases, reaching the peak production in the wet season (June-November) which is becoming less predictable and drier. Livestock farming is concentrated on the low lying, drier areas of the country. Lowest animal yields are expected due to reduced grass yields. The impact on fisheries would mainly stem from the increase in sea surface temperatures. The negative impacts of climate change are expected in various life stages of commercial fish, coral reefs, sea grass beds and mangroves, with implications for livelihoods, food security and availability of seafood for the tourism sector.

8. The Covid-19 pandemic was confirmed to have reached Grenada on March 22, 2020. Despite having reached the level of community spread within one month, lockdowns, curfews and social distancing protocols contributed towards a decline in cases and, by June 18, the Ministry of Health declared zero active cases. The second half of the year saw 41 reported cases by December 5th, with 2 active cases and 39 recoveries. However, the closing of borders in March, with Grenada's international airport and Carriacou's regional airport being closed to all commercial passenger traffic, has affected the economy, especially due to the impacts on the tourism industry, which accounts for over 80 percent of Grenada's total exports (IMF, 2020). A stimulus package announced by the government on March 20, 2020 offered payroll support to businesses, income support to self-employed persons, and an unemployment benefit, among other measures, for a three-month period to eligible citizens. Over 7000 Grenadians, including persons engaged in tourism-related businesses (taxi drivers, tour operators, vendors), benefitted from the implemented initiatives in light of the pandemic (Nurse, 2020).

Table 1. Basic Statistics and Population - Grenada

Physical areas	Value	Year
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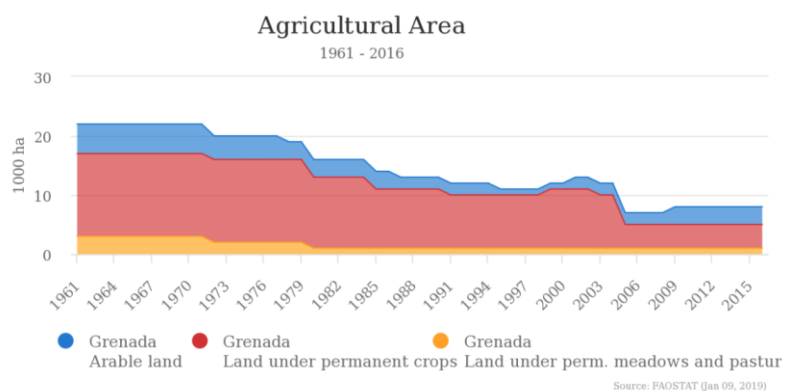
Area of country (Sq.km)	340	2020
Agricultural land (permanent meadows and pasture + cultivated land) (Sq.km)	80	2020
• As percentage of total area of the country (%)	23.5	2020
<b>Population</b>		
Total population	113,015	2021
Rural population	71,545	2021
• Rural population (%)	63	2021
Population density (People per sq. km)	331	2020
<b>Economy and development</b>		
Gross Domestic Product (GDP) (current US\$ million)	1,120	2021
• Value added in agriculture, forestry (% of GDP)	5.1	2021
• GDP per capita	9928.6	2021
Human Development Index (highest = 1)	0.6	2020
CPIA Gender Equality Rating (1 = low, 6 = high)	3.5	2021

Source: [World Bank Data, 2022](#).

## II. Economic, social and environmental considerations

9. Although Grenada is classified as an Upper Middle-Income Country (UMIC), as a SIDS it is vulnerable to external environmental and economic shocks. In particular, the country was affected by hurricanes in 2004-2005 and by the downturn in tourism following the global financial crisis of 2008-2012. Grenada's economy was also impacted by the Covid-19 pandemic, especially after the closing of borders in March 2020, which affected the economy, especially due to the impacts on the tourism industry (IMF, 2020).

10. Grenada retains considerable natural forest cover in highlands, which is important for the protection of watersheds that serve as sources of irrigation in periods of water scarcity. Forest and protected areas cover 30% of the main island, with perennial crops (spice and fruit plantations) accounting for a further 31%. Annual crops cover just 5% of land area and there are no permanent pastures. A notable feature of Grenada land use is the large amount of unproductive land, i.e., abandoned cropland and shrub and grassland, which account for 20% and 5% of the total land area, respectively. On the second largest island, Carriacou, the climate is drier and almost 60% of the island is classified as shrub and grassland. Pasture and grazing accounts for almost 25% of land area, and forests only 5%. (World Bank; CIAT; CATIE, 2014).



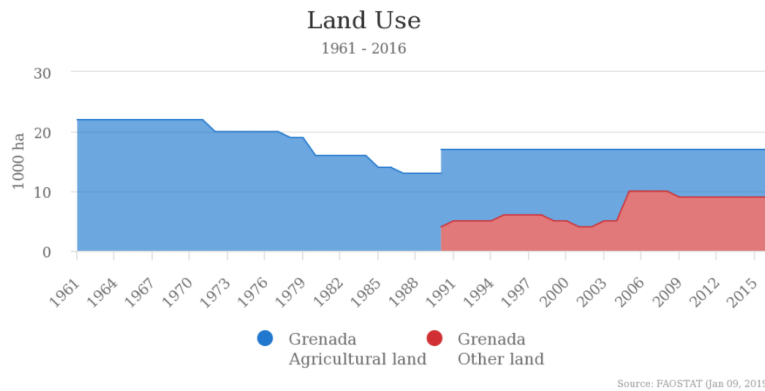


Figure 2 (A) Agricultural Area 1961 - 2016; and (B) Land Use Change 1961-2016

11. Some of the crops grown have increased slightly both in terms of the number of farms reporting and the area. It is important to note that there has been an increase in the area of cocoa by well over 324 hectares and of bananas by almost 227 hectares. The aforementioned crops were significant contributors to the island export earnings. These increases were as a result of a number of government interventions taken after Hurricanes Ivan and Emily in 2004 and 2005 respectively (Grenada Agriculture Census 2012, 2015). However, in spite of these productivity improvements, the total number of arable land (hectares) has been decreasing since 1961 due to increased urbanization and land demand for tourism facilities (Figure 2).

12. Nutmeg, which is one of the island's most important crops (in quantity and value), provides significant earnings from exports. This crop however, has not been as successful in increasing area under production but rather has declined. Nevertheless, the number of farms has increased by approximately 28%. Plantain on the other hand experienced a decline in farms ([2012 Grenada Agriculture Census, 2015](#)).

13. Soursop, a tropical fruit, is another highly relevant crop, both for domestic consumption and for export, as Grenada is the only country which can export fresh soursop to the US market. There are also about 10 small processors of soursop-cottage type operators for agro-tourism. Over the last 4 years, the Ministry of Agriculture, Lands and Forestry (MALF) and the Marketing and National Importing Board, have invested significant resources in the expansion of soursop cultivation (Government of Grenada, 2021).

14. Parts of Grenada's fishing sector remain artisanal and small-scale in nature, but in recent years the sector has undergone a transition from subsistence to commercial operations. A major area of growth has been in yellowfin tuna fishing, primarily for export. But within the past decade, significant improvement in technology has resulted in the use of larger ice-boats up to fifty feet, capable of undertaking multi-day fishing trips (FAO, 2015).

15. Rivers have traditionally provided an important source of rural household water. The continued importance of the source of water supply is manifested during severe dry seasons and in the aftermath of hurricanes and tropical storm induced disasters (Government of Grenada, 2000).



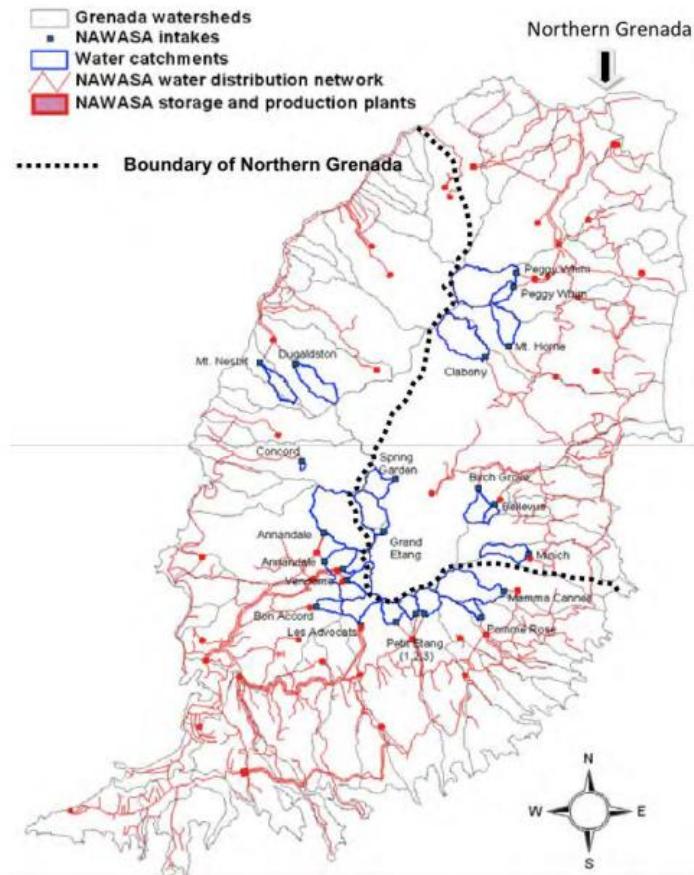


Figure 3 Grenada's water supply and distribution network (NAWASA and MALF-Land Use Division)

16. An important source of water use of crop and livestock production are rainwater harvesting (RWH) and abstractions from rivers. RWH has declined with the improvement of public water supply. RWH ponds have been used in livestock production and, in a few cases, for the provision of water for intensive vegetable production (IFAD, 2019).

17. The availability and accessibility of the country's limited land resources are further constrained by its steep topography, high rainfall levels, inefficient land tenure system, uncontrollable land prices, and unregulated land use, among other factors. Growing competition and demands among multiple land users are increasing the pressures on this limited and diminishing resource. (IFAD, 2019).

18. Another important constraint relates to an aging farming community in rural areas (estimated at 9,300 farmers), using traditional technologies and approaches, many of them part-time farmers who are retired or employed in other sectors and regard agriculture as an additional source of income. The aging farming community also affects land use: at present around 28 percent of the available agricultural land is left uncultivated, while access to land remains a constraint for young people (IFAD, 2019).

19. A potential opportunity to increase the climate change resilience of Grenadians lies in the agricultural sector. Even though agriculture and fisheries represent between 4%-7% of GDP in the past five years, their contribution to exports is significant: Fish, nutmeg, cocoa, mace, soursop and spices are the main export commodities representing approximately 90% of the sector's international sales. Overall, however, Grenada remains a net food importer, with approximately 80% of the food consumed not being produced domestically ([IFAD, 2021](#)).

### III. Climate Change Vulnerabilities, Impacts and Risks

#### *Climate characterization.*

20. According to the Köppen classification, most regions in Grenada lie in the Tropical Savanna Climate zone. The climate is influenced by Tropical North Atlantic Hurricane activity, the North Atlantic Sub-Tropical High, the North-East Trade Winds, and weather associated with the migrating Inter-Tropical Convergence Zone (ITCZ) by the El Niño South Oscillation (ENSO) phenomenon (Government of Grenada, 2017).

21. Observed data from the World Bank for Grenada (World Bank, 2021) shows that Grenada's annual average temperature is around 27°C, with slight variation during the annual cycle. The mean maximum temperature is 31°C, while the mean minimum is 24°C. Annual rainfall ranges from 1000 to 1500 mm in drier coastal locations to approximately 4000 mm in the central mountainous areas. The dry season typically goes from January to May and the rainy season from June to December. Carriacou and Petit Martinique generally receive lower levels of rainfall and, during the dry season, can experience severe drought conditions (Government of Grenada, 2017). Seasonal temperature and precipitation can be seen in Figure 4. Evaporation rates, particularly in the dry season, are high. The areas where the difference between the monthly rainfall and potential evapotranspiration is negative, are vulnerable to droughts and from time to time can experience severe water shortages due to extremely low rainfall (UNDESA, 2012).

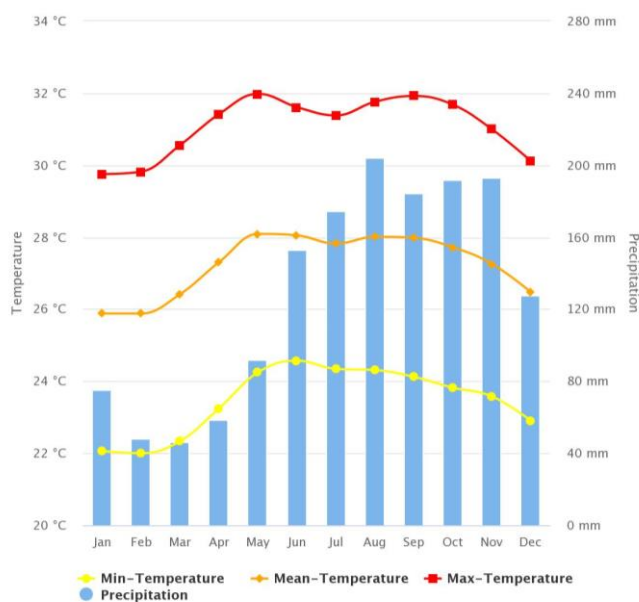


Figure 4: Monthly climatology of minimum, mean and maximum temperature and precipitation over 1991-2020. Source: World Bank Group, Climate Change Knowledge Portal (2021).

22. The mean annual temperatures have increased over time (minimum, mean, and maximum) since 1901 (Figure 5a, 5b, and 5c), while precipitation has not presented a significant trend (Figure 5d) but, it can be noted that 2015 was the driest year on record (see Figure 5d).

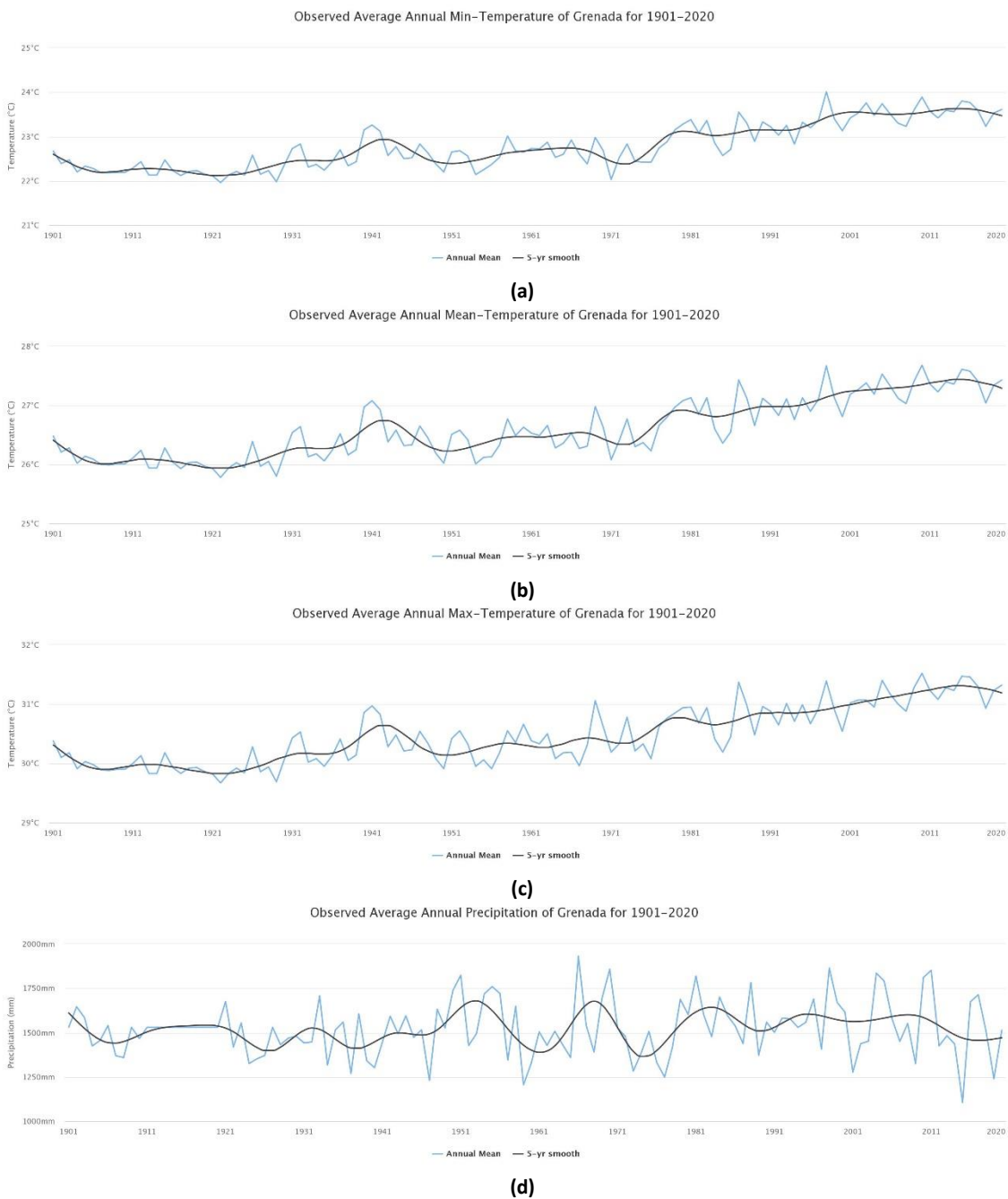


Figure 5: Observed average annual minimum, mean and maximum temperature and precipitation over 1901-2020. Source: World Bank Group, Climate Change Knowledge Portal (2021).

23. There has been a change in rainfall observed throughout the year, particularly during the wet season of Grenada (Figure 6a). The result has been a shift in rainfall climatology across decades. Though the beginning of the wet season has not shifted substantially, there has been a fluctuation in the number and timing of rainfall peaks observed. For example, the driest decade for Grenada since 1986 occurred in the 1990s when monthly rainfall did not exceed 140 mm, throughout most of the main rainy season. However, the November peak has become more consistent over time. Overall, the unimodal climatology of the island has varied, but the general pattern of dry early months has been retained. Decadal temperature climatology (Figure 6b) shows that temperatures have risen over time but have remained consistent since the 1990s. The most expressive changes occurred from August to October.

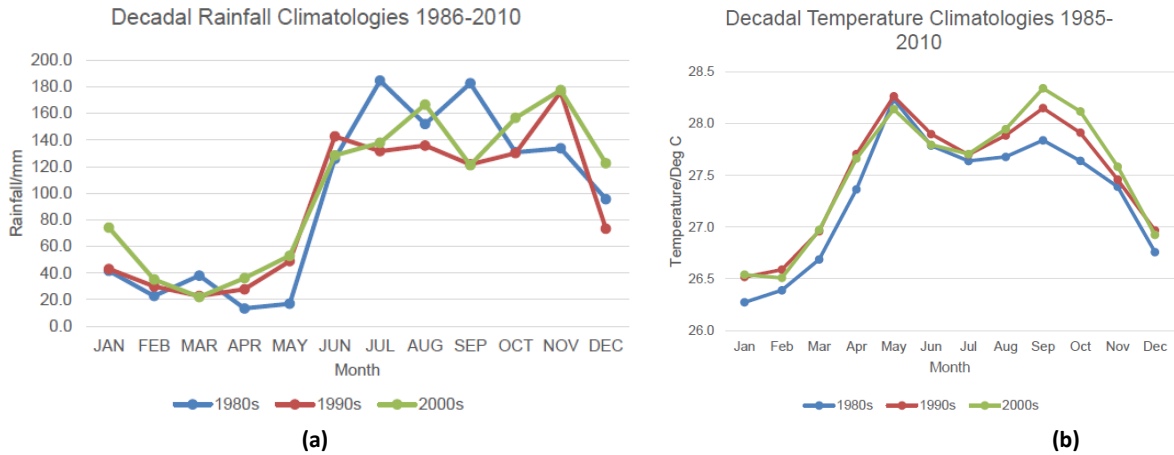


Figure 6: Average monthly rainfall (a) and temperature (b) by decade for the 1980s, 1990s and 2000s at the Maurice Bishop International Airport. Source: CCCCC (2015).

### Climate trends and projections

24. Climate change projections for Grenada include an increase in average annual temperature; reduced average annual rainfall; potential for an increase in the intensity of tropical storms; and increased sea surface temperatures (Grenada, 2017). These hazards are expected to affect all dimensions of the country's socioeconomic landscape, including human settlements, agricultural production, food supply, water supply, health and tourism (Ibid.).

25. Climate projections from the CMIP5 (Coupled Model Inter-comparison Project - Phase 5), included in the IPCC's Fifth Assessment Report (AR5), indicated an increase in mean temperature compared to the baseline period (1986-2005). A multi-model ensemble shows an increase from 0.67°C to 1.26°C in monthly temperature for RCP4.5 in the near (2020-2039) and middle (2040-2059) future. July is the month presenting the most expressive increase in temperature. Monthly precipitation is projected to be most affected during the rainy season, with a sharp projected reduction in July and a subsequent delayed start and shortening of the rainy season in the future, with severe implications for mace and nutmeg as well as other agriculture commodity production, if not addressed by appropriate adaptation interventions. For the RCP 8.5 scenario, the increase in mean monthly temperature is projected to be 0.73°C to 1.65°C in the near (2020-2039) and middle (2040-2059) future, relative to the reference period 1986-2005. Monthly precipitation presents a negative anomaly in the rainy season. Except in August, in the near-term (2020-2039), which has an increase of about 12mm.

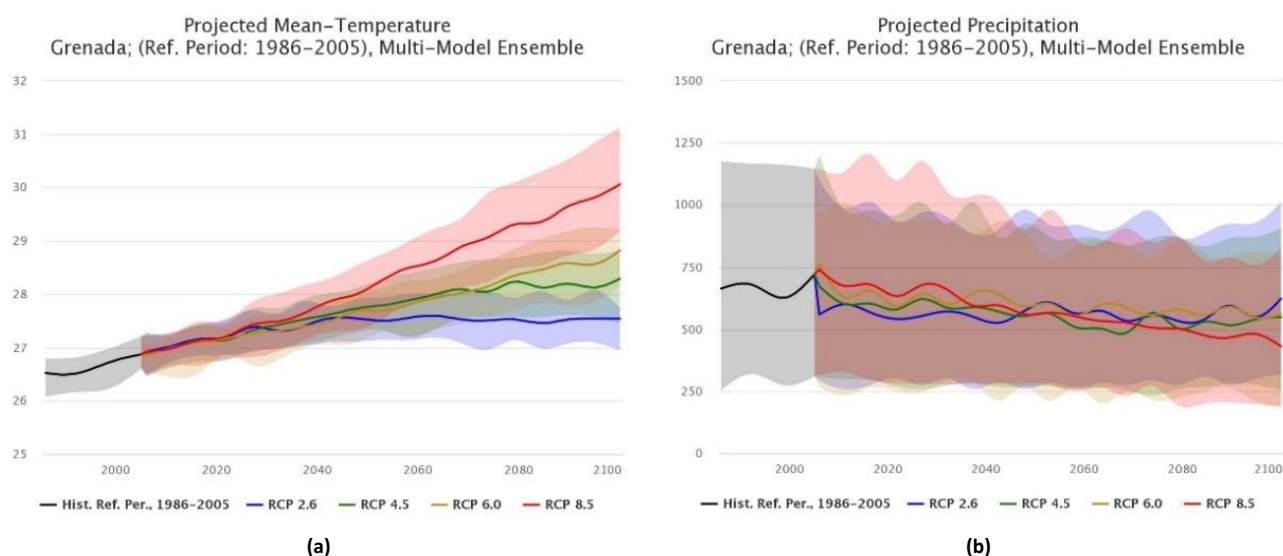


Figure 7. Projected Mean temperature (a) and Annual precipitation (b) from CMIP5 multi-model Ensemble. Source World Bank Group, Climate Change Knowledge Portal (2021).

26. The country is expected to undergo a warming and drying trend and, in addition, to experience more frequent heat waves and droughts, as well as heavy precipitation ([McSweeney et al., 2006](#)). As mean temperatures are expected to increase in the Caribbean according to the most recent AR6 report ([IPCC, 2021](#)), Grenada will have to prepare its agriculture sectors and livelihoods for drier conditions. Drying occurring in the traditional wet season (June–October) and lengthening of seasonal dry periods and increasing drought frequency are expected to increase demand for water throughout the region (Cashman et al., 2010), with implications for agriculture production and food and nutrition security, especially of the poor and most vulnerable inhabitants of Grenada.

*Observed trends, current and future impacts on the economy and rural livelihoods:*

27. As a small island developing state (SIDS) Grenada is particularly vulnerable to climate change and variability as evidenced by recent extreme weather events and the occurrences of increased forest fires, crop loss, water shortages and incidence of pests and diseases (IFAD, 2019).

28. According to the Caribbean Community Climate Change Centre (CCCCC, 2015), there has been an increase in the number of hurricanes passing within a 100-km radius of Grenada. It was also noted an increase in the number of more intense storms (Category 4 and 5 hurricanes) starting in 2002. The impacts of these hurricanes damaged ecosystems and infrastructure and caused economic declines. The report also noted that between 1950 and 2014 the islands of Petite Martinique and Carriacou have been impacted by two hurricanes that passed within a radius of 50 km. Over the past 100 years Grenada experienced less than 10 hurricanes; the two most devastating events in the last 13 years were Hurricanes Ivan in 2004 and Emily in 2005. Ninety-five per cent of the water supply was disrupted after Hurricane Ivan, and it took up to one month to restore 95% of the pre-hurricane supply. Overall damage for both events was estimated to be as high as 2.5 times the GDP. The country's annual average loss from hurricanes is US\$ 8.2M (0.9% of GDP) (World Bank, 2016). Most settlements and infrastructure in Grenada are located on or near the coast, including government, transportation, and commercial facilities. The storm surges also generate coastal erosion risks in low-lying areas and are of particular concern to the primary road that links coastal and interior communities (Simpson et al., 2012).



29. The region experiences drought-like events every year, often with low water availability impacting agriculture and water resources, and a significant number of bush fires (Peters 2015); there is evidenced of increased incidence of drought, longer dry seasons, shorter rainy seasons, increased temperature, coastal degradation and intrusion of saline water into aquifers, among others (Government of Grenada, 2016). During the 2009/2010 drought, the main water production centers experienced reductions of up to 65%; numerous bush fires had devastating effects on agriculture, tourism, and other social effects ([Peters, 2015](#)). The water production during the drought months showed that the National Water and Sewage Authority (NAWASA), struggled to meet demand (UNDESA, 2012). The northern part of Grenada, Carriacou, and Petite Martinique are the most affected.

30. Increase in sea surface temperature (SST) and sea-level rise (SLR) have been observed over the past years in the Caribbean region (Antuña-Marrero et al., 2015; Simpson et al., 2012). Coastal aquifers are threatened by seawater intrusion from sea-level rise, and this is exacerbated by a decrease in groundwater recharge through over-abstraction and decreasing rainfall. The major open wells in Carriacou and Petite Martinique are within 100m of the shoreline thus making them highly vulnerable to salt water intrusion from sea-level rise. Storm surge events caused by tropical storms and hurricanes can also cause extensive damage to aquifers. This risk of damage increases with higher sea-levels since this makes it easier for contamination to occur during storm surges (NAP, 2017).

31. Grenada economy depends on a relatively limited number of economic activities and outputs that are largely climate-dependent and climate-sensitive, Grenada can be disproportionately impacted by any change in its economic activities, and therefore the negative impacts of climate change pose an additional financial burden for the tri-island state with adverse effects on the country's socio-economic development (NAP, 2017).

32. Grenada's people, economy and environment are highly vulnerable to an increasingly variable and changing climate and weather patterns because they have been impacted by extreme climatic events such as tropical storms, hurricanes, coastal and inland flooding and drought and also at risk from future extreme events and creeping change such as sea level rise and increases in average temperature (NAP, 2017). Farmers already encounter difficulties as a result of seeds and plants being unable to withstand rising heat and humidity (Grenada, 2017).

33. Due to the mountainous topography, direct effects of rising sea levels on agriculture would be less severe; 3% of the agricultural land would be lost if sea levels rose by one meter. However, more widespread damage to agricultural systems can be expected as a result of saline intrusions into coastal aquifers, a problem that is already being experienced in some areas (IFAD, 2019).

34. The agriculture sector is particularly susceptible to the impact of hydro-meteorological hazards such as hurricanes, windstorms, floods, and droughts, as well as secondary hazards such as landslides. The increasing frequency and magnitude of these events have had devastating and dislocating impacts and, within the past three decades, an unprecedented number of incidents have incurred debilitating losses in the agriculture sector. For instance, Hurricane Ivan in 2004 incurred over EC\$100million in losses to the agriculture, forestry and fisheries sector, causing severe livelihood dislocations. Likewise, an extended period of drought in 2009/2010 resulted in serious dislocation in agricultural livelihoods through production reduction and increases in food prices (Collymore, Little and Spence Joint Venture, 2016). Reduced rainfall also poses challenges to agriculture.

35. The potential costs of inaction for Grenada comparing an optimistic (low impact, reduced emissions) and a pessimistic scenario (business as usual) indicates that inaction would cost

about 21% of the current GDP by 2025, 46% by 2050, 76% by 2075 and 111% by 2100 (WB, 2014).

36. Projected increases in Sea Surface Temperature (Simpson et al., 2012) and wind speed (CCCCC, 2015) indicate that hurricane intensity, but not necessarily frequency, over the North Tropical Atlantic has the potential to increase in the coming decades. Also, the frequency and intensity of tropical storms and hurricanes will continue to be heavily influenced by the state of the ENSO phenomenon well into the future (Government of Grenada, 2017), and this phenomenon will likely intensify (IPCC, 2013). According to Grenada's Second National Communication (Government of Grenada, 2017), some of the impacts of future climate change and sea-level rise on coastal resources are:

- Increased coastal erosion due to sea-level rise and the increased frequency and intensity of storm surges and intense rainfalls: continued coastal erosion, exacerbated by SLR, would very likely disrupt coastal villages like Gouyave, Grand Mal, Duquesne, Soubise, and Marquis, damaging critical fish habitat (mangroves), and destroying coastal property and aquaculture ponds.
- Prolonged dry periods, higher temperatures, and increased evapotranspiration rates will also negatively impact the water supply systems of the islands, and increase episodes of drought, based on the SPI (Standard Precipitation Index), especially in the dry season would severely affect the calendar of farmers.
- Increasing ocean acidification and inhibiting primary production processes and disrupting fisheries.
- Coral bleaching and the loss of fish habitats and tourist activities.
- Destruction of vital coastal ecosystems (mangroves and sea grass) that are not only essential fisheries habitats but also facilitate stabilization of the coast against erosion.
- Increased frequency and intensity of flood events caused by storm-surges intense rainfalls and damages to coastal infrastructures (roads and bridges), beaches for tourism, agricultural lands and crops (nutmeg and cocoa) and the proliferation of mosquito vectors that lead to health problems.
- Saltwater intrusion into low-lying estuaries and aquifers that would affect surface and ground water quality.

#### **IV. Environmental and Agro-ecological Conditions**

##### *Agro-ecological conditions*

37. Grenada has a diverse agricultural sector consisting of permanent crops, such as nutmeg, cocoa, banana, sugar cane, citrus, avocados, spices, breadfruit, mangoes, soursop, and other fruits, as well as temporary crops such as pigeon peas, beans, peppers, sweet potatoes, dasheen, yam, tannia, cabbage, tomatoes and other vegetables. There are relatively few large areas under crop monoculture, which indicates high agricultural biodiversity. Attempts are currently being made by the Pest Management Unit to develop less chemically dependent pest and disease control systems known as Integrated Pest Management (IPM). There are also initiatives to increase organic farming thus reducing fertilizer use in Grenada as a whole (Government of Grenada, 2014).

38. The principal permanent crops in Grenada in terms of production value and land-use coverage are nutmeg and mace, other spices, tropical fruits and vegetables, cocoa, and livestock (Figure 8). Grenada is the world's second largest exporter of nutmeg. In 2011, production of nutmeg was twice as high as in the aftermath of the hurricanes Ivan (2004) and Emily (2005), but still less than 15% of 2003–2004 volumes. In contrast, cocoa production had almost recovered to pre-hurricane levels by 2011. The top exports of Grenada are nutmeg,

mace and cardamom (\$9.01 million in 2020), non-fillet fresh fish (\$8.8 million), cocoa beans (\$2.85 million), and other fruits (\$2.23 million) (OEC, 2020). Soursop is considered by the Government of Grenada to be a promising area and the country is currently the only one permitted to export the fruit to the US market. These crops are cultivated alongside other tropical fruits in more extensive plantations in upland areas, typically 5-7 hectares in size. Small ruminant farming is the principal agricultural activity on the island of Carriacou. Over 80 percent of farmers in the fruits, vegetables, and roots and tubers subsectors are considered small-scale farmers, farming on less than half an acre or 0.2 hectares. Production of fruits, vegetables, and roots and tubers at this scale is primarily for subsistence and occasional sale in local markets, and there are just a few larger, commercial growers (Figure 8). The area of agricultural land has fallen markedly since the 1960s due to conversion to manufacturing, tourism, and residential uses, as well as abandonment of lands owned by absentee landlords. For many smaller landowners, farming is no longer their principal economic activity (World Bank, CIAT, CATIE, 2014).

39. Grenada’s fishery is largely artisanal and small-scale in nature, harvesting a tropical multispecies stock. However, in recent years the sector has become more commercial in operations and has become a major source of employment and income, a significant contributor to food supply and food security, and a foreign exchange earner (FAO, 2019). In 2012, the fishery sector contributed 31% of the agricultural GDP and 1.5% of the national GDP. Fishing, along with farming, is one of the most reliable sources of employment in many rural and/or coastal communities. However, climate change will have negative impacts on ecosystems that are important to various life stages of commercial fish, coral reefs, seagrass beds and mangroves. Possible consequences include a reduction in the abundance and diversity of reef fish, with implications for livelihoods, food security and the availability of seafood for the tourism sector.

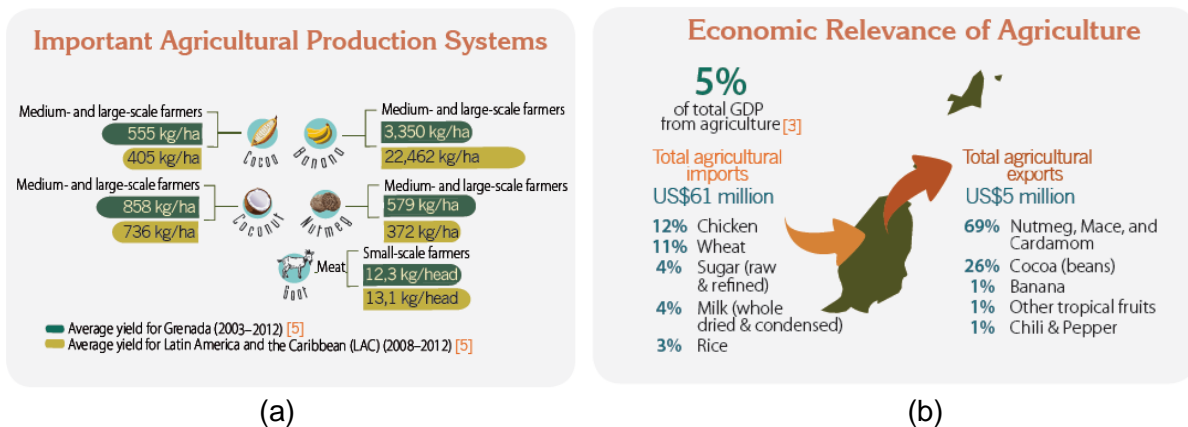


Figure 8 (a) Agricultural Production Systems; (b) Economic relevance (WB et al., 2014).



## Water resources

40. Overall, there are 71 watersheds within Grenada's forested areas. All of the major watersheds have perennial flows, though these are greatly reduced during the dry season. The magnitude of variability and the timing and duration of periods of high and low supply are increasingly less predictable, particularly during the dry season. This poses great challenges to ecotourism, agriculture, and other sectors. Rainwater harvesting ponds are used in livestock production and, in some cases, to provide water for intensive vegetable production (FAO, 2015). The increased understanding of the impacts of seasonal variations in water supply and the increased demands have, over time, heightened levels of awareness of watershed management issues. While the reliability of potable water supply has improved over the past ten years in Grenada, concerns remain over levels of pollutants and watershed degradation, water shortages during the dry season, the state of water storage and distribution infrastructure, inadequate financial and technological resources and poor human resources capacity, all of which place constraints on sustainable water management (Unesda, 2012). Additionally, Carriacou and Petite Martinique, which are both smaller in size compared to Grenada and are both located at lower elevations, receive less rainfall, with intermittent stream formations. There is heavy reliance on rainwater harvesting and cistern systems to meet water demands. Agricultural production on both islands is significantly impacted by a lack of suitable water supply (The CARIBSAVE Partnership, 2012).

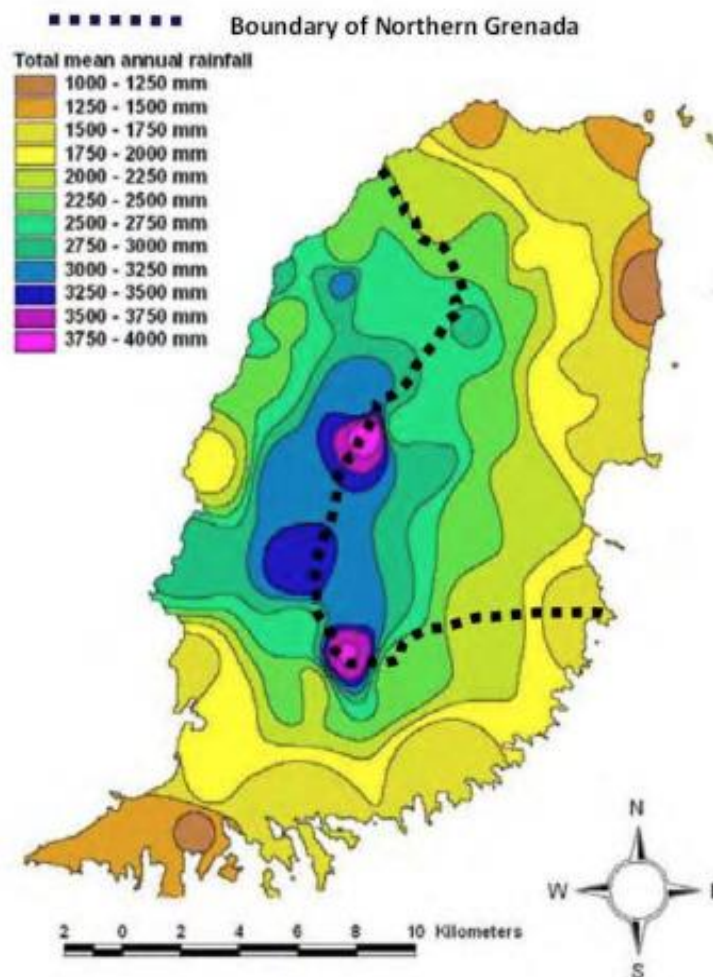


Figure 9 Mean annual rainfall on Mainland Grenada  
source: adapted from Land Use Division, Ministry of Agriculture, Land and Forestry

## *Forest*

41. Most terrestrial forest ecosystems in Grenada are currently in a recovery phase dominated by secondary forest with pockets of climax forest. According to Beard's classification, these include six forest communities: cloud forest; rain forests and lower montane rain forest; evergreen and semi evergreen seasonal forest; deciduous forest and dry woodlands; littoral woodland; and mangrove forest. Although the national forest cover is estimated at 17% (Grenada, 2016), currently protection exists for approximately six (6) forest areas, known as reserves in Grenada, and not all forest types are represented in these areas. Several communities are located within and in close proximity of the forested areas, which support their livelihoods. Non-timber forest products, primarily screw pine (*Pandanus utilis*) and bamboo (*Bambusa vulgaris*) are harvested and utilized for making baskets and other handicrafts. In Carriacou, a major obstacle to the regeneration of natural vegetation, other than the conversion of land for development, is the effect of grazing by livestock. Where grazing is intense, particularly in the dry season, soil erosion becomes more severe (IFAD, 2019). Trees and forests in Grenada are also economically important for their role in ecotourism and recreation (FAO 2015).

## *Biodiversity*

42. Despite its small size, Grenada possesses a high degree of biodiversity, with natural ecosystems ranging from natural rain and dry forests, terrestrial agricultural systems to fresh water systems, mangroves forests, and coastal and marine ecosystems. These ecosystems house many endemic, threatened and endangered species and are the source of various ecosystem goods and services which support the livelihood of the Grenadian population. These systems are also threatened by the impacts of climate change and natural disasters infrastructure development, habitat degradation and loss, use of genetically modified organisms, unsustainable production and consumption, over exploitation of resources among other factors. Additionally, the country's biodiversity is characterized as particularly fragile and vulnerable to external shocks, such as extreme weather like the hurricanes Ivan (2004) and Emily (2005), the global economic slowdown that began in 2008, and extreme drought conditions in 2009 and 2010 (Thomas, 2016). Taking these factors into consideration, the preservation of germplasm for specific crops such as cocoa, nutmeg, and other tree crops is of great importance for the continuity of their production. The management of plant genetic resources is limited in Grenada, with no effective mechanism in place to record and monitor activities in this area. While emphasis is being placed on the revitalization of the cocoa and nutmeg industry, the contribution of other crops such as coconut, mangoes, paw-paw, cassava, yams, dasheen, tannia, sweet potato and beans towards food security, value added and income generation cannot be overlooked (Dottin. M.). At the same time, population growth, infrastructural development, as well as unsustainable regional and local production and consumption patterns, drive the increasing demand for, and extraction of raw materials and other natural resources, as well as conversion of natural environments to generally unsustainable productive systems (IFAD, 2019).

## **V. Vulnerability**

43. Grenada is vulnerable to the observed and projected climatic changes, including extreme events, and is already experiencing changes in its climate system, evidenced by increased incidence of drought, longer dry seasons, shorter rainy seasons, increased temperatures, coastal degradation and intrusion of saline water into aquifers, among others. The expected impact of CC on agriculture is an increased risk of crop failure induced by an overall variation of average climatic variables, with above-average temperatures and below-average dry-season rainfall. (IFAD, 2019). Access to seeds and planting materials with the ability to withstand the

adverse weather conditions--heat and humidity--is an ongoing challenge for farmers (IFAD, 2017). This can significantly impact the country's food security and increase its reliance on food importation. According to Grenada's National Agricultural Plan, over 70% of available food for consumption is derived from imports (IFAD, 2015).

44. The vulnerability of the agricultural sector in Grenada is not only a function of its geophysical location and hydro-meteorological hazards but it is also due to the shortcomings of the current disaster risk reduction and response mechanisms to effectively mitigate the impacts. In addition to its already existing high exposure to natural hazards, the country is one of the SIDS classified as most vulnerable to climate change. (Collymore, Little and Spence Joint Venture, 2016).

45. The agricultural (crop and livestock) and fisheries sectors are vulnerable to the anticipated impacts of climate change and is already experiencing changes in its climate system, evidenced by increased incidence of drought, longer dry seasons and shorter rainy seasons. According to the NAP, the expected climate change impact on the main commodities are the following:

<b>Subsector</b>	<b>Impact of climate change</b>
Nutmeg	<ul style="list-style-type: none"> <li>- The nutmeg belt could be pushed to higher elevations reducing the positive effects on the water production of the watershed.</li> <li>- Although it is drought resistant, water availability could limit its growth.</li> <li>- The shallow root system of the nutmeg tree makes it vulnerable to torrential rain and high wind.</li> </ul>
Cocoa	Higher temperatures and erratic rainfall changes cocoa farming suitability and causes yield reduction ( <a href="#">Lahive et al., 2019</a> ; <a href="#">Bunn et al., 2019</a> ). There is a reduction in current suitable cacao production areas, and a migration of suitable areas for cocoa production with negative ecosystem impacts.
Fruit trees	Reduced water availability would reduce tree growth, including soursop.
Vegetables	<ul style="list-style-type: none"> <li>- Reduced water availability would reduce production.</li> <li>- Heavy rains can erode soils, damage crops and lead to fertilizer run-off into the marine environment.</li> </ul>
Roots and tubers	These are relatively resistant to irregular rainfall and hurricane damage.
Livestock	Drought leads to food scarcity and reduced productivity of grazing pastures resulting in decreased animal yields. High temperatures result in heat related stress, and housing for livestock is vulnerable to extreme events. There is also a high dependence on importation of animal feed which can result in increased vulnerability in respect of a reliable source of feed.
Fisheries	<ul style="list-style-type: none"> <li>- Increasing ocean acidification and inhibiting primary production processes, and disrupting fisheries would create dead zones, higher fish death rate, slower growth, and less living space for pelagic species like billfishes and tunas.</li> <li>- Coral bleaching and the loss of fish habitats (less living space for reef fishes and lobster) and tourist activities.</li> <li>- Increased temperature increase the likelihood of fish spoiling, increased occurrence of ciguatera poisoning with impacts on marketing and human health impacts;</li> <li>- Destruction of vital coastal ecosystems (mangroves and sea grass) that are not only essential fisheries habitats but also facilitate stabilization of the coast against erosion.</li> <li>- Sargassum influx events and its mass stranding can cause oxygen depletion and fish mortality, smothering and loss of critical fish habitats, reduced flyfish catches, hazard to navigation, damage to fishing gear, lost fishing time, loss of income for fishers, bad smell affecting fish markets and health of fisherfolk, and loss of food security.</li> </ul>

Source: NAP (2017), [FAO \(2021\)](#).

46. Non-irrigated subsistence farming systems are vulnerable to droughts, pests and diseases. The country experienced the first drought in 2010, severely affecting agricultural production. Most poor farmers use rain fed production systems that peak in the wet season

(June-November) which is becoming less predictable and drier. During the December-May dry season, the absence of irrigation to sustain horticultural production significantly reduces the consistent supply of local produce. Owing to the lack of storage facilities and farmers' lack of conditions to produce in this period, the scarce supply translates into higher prices and farm revenue. On the contrary, the market becomes oversupplied with certain crops in the wet season, leading to low prices, food losses and declining farm revenue.

47. Saltwater intrusion due to sea-level rise will lead to loss of crops and this is exacerbated by a decrease in groundwater recharge through decreasing rainfall. The major open wells in Carriacou and Petite Martinique are within 100m of the shoreline thus making them highly vulnerable to salt water intrusion.

48. Livestock farming is concentrated on the low lying, drier areas of the country. One third of the local supply of cattle, sheep and goat is produced in Carriacou, where the density of pastured animal population is three times larger than in Grenada. Lowest animal yields are expected due to reduced grass yields, since Carriacou experiences less rainfall than any other area in the country during drought conditions.

49. The impact on fisheries would mainly stem from the increase in sea surface temperatures. According to the NAP, warmer waters may drive pelagic species away from the tropics in search of cooler temperatures and could potentially alter breeding and migration patterns. The negative impacts of CC are expected in various life stages of commercial fish, coral reefs, sea grass beds and mangroves, with implications for livelihoods, food security and availability of seafood for the tourism sector.

50. Climate change poses a severe threat to Grenada's water supply, given that it relies on surface water sources and rainwater catchment. Although there are watershed areas in Carriacou and Petite Martinique, catchment and storage capacity are much less. Hence rainwater harvesting and desalination activities are implemented to supply water needs. Some public buildings (e.g. schools) and private persons (e.g. farmers) have rainwater harvesting systems installed, but this is not standard practice in Grenada (NAP, 2017).

51. Although 54,600 cubic meters of water are available on mainland Grenada during the rainy season, yields drop to 31,800 cubic meters during the dry season. Whereas, demand is 45,500 cubic meters during the rainy season and 54,600 cubic meters during 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%, which will lead increasingly to droughts (NAP, 2017). Rainwater harvesting in Carriacou and Petite Martinique is the standard traditional practices for water supply. The very first community rainwater harvesting system was commissioned by NaWaSA in Blaize, St. Andrew's on mainland Grenada. Some public buildings (e.g., schools) and private persons (e.g., farmers) have rainwater harvesting systems installed, but this is not standard practice in Grenada (NAP, 2017).

52. Saltwater intrusion into coastal groundwater aquifers, due to sea level rise will further limit the availability of water in the future. In addition, the projected increased frequency of heavy rainfall events will aggravate the problem of more frequent water supply outages due to high turbidity in the raw water supply. Additionally, infrastructural damage from extreme weather events (hurricanes, storms and flooding) may interrupt reliable water distribution during and after a weather event (NAP, 2017).

53. Apart from climate change, environmental degradation presents a number of challenges. Agricultural activities have also contributed to ground water pollution and increased demand for

irrigation, affecting the quality, quantity and availability of surface and groundwater supplies (NAP, 2017). Along coastlines, unsustainable practices that increase vulnerability include: uncontrolled or poorly managed exploration of coral reefs; sand mining on beaches; use of sensitive land and marine areas for developmental purposes and mangrove harvesting for firewood. On land, improper land use practices and storage of water facilitate the spread of disease-carrying vectors, such as the *Aedes aegypti* mosquito.

54. Although Grenada's drought management plan details the operating procedures for managing water demand ([Government of Grenada, 2019](#)), and a real-time monitoring station was installed in 2007 at Kick 'Em Jenny volcano, most communities lack early warning systems (EWS) to facilitate communication between the National Disaster Management Agency (NDMA) and communities, including farmers ([Charles 2014](#)). In this case, it has been identified during the implementation of SAEP, that there is a lack of tailored climate information products for farmers. There is limited knowledge and ability to properly use agroclimatic information for local decision-making (planting, harvesting, etc.) to respond timely to climate risks and hazards induced by climate variability and change. The application and use of agroclimatic information projections are limited by the lack of capacity in agricultural advisory services and inefficient dissemination mechanisms.

55. In 2007, Grenada became a member of the Caribbean Catastrophe Risk Insurance Facility Segregated Portfolio Company (CCRIF SPC) parametric windstorm and earthquake insurance policy and excess rainfall coverage was added to Grenada's policy in 2014 ([World Bank 2018](#)). Though the country is a member of CCRIF SPC's insurance policy, the loss calculated from past rainfall related disasters was below the policy's attachment point and did not trigger a payout. As a result, in 2017, Grenada sought donor assistance to purchase natural hazard insurance at an increased level of coverage to ensure that fiscal policies are not derailed by natural hazards ([USAID, 2021](#)).

## **VI. Rationale**

56. As a SIDS, Grenada suffers from a high level of vulnerability, both to economic downturns but also to climate change and variability. The structural change from an agricultural-based economy to a service-based economy has created a high dependency on food imports, the abandonment of agricultural lands, and high levels of unemployment in rural areas, particularly among youth (IFAD, 2019). More broadly, the low levels of adoption of climate smart technologies and techniques, especially in agriculture and fishing, due to the inability of farmers and fishers to access finance from financial institutions to invest and adopt those technologies exacerbate vulnerability, especially in the rural sector. The SAEP Programme has been addressing some of these challenges under its Enterprise Business Development Component (see section VII), which will be further expanded by the current project.

57. For the above reasons, the Government of Grenada has two strong priorities, which emerge from its national policies, and from the meetings with IFAD: (i) improving water storage and management; and (ii) climate smart agriculture, to improve incomes and the resilience of its farmers to climate change. The proposed new Project is designed to assist the Government of Grenada in addressing both of these two priorities, linking entrepreneurship and start-up businesses to climate smart agriculture and services, with a focus on youth (IFAD, 2019).

58. IFAD has been operating in Grenada since 1981, establishing a solid partnership with the Government of Grenada for addressing poverty in rural areas. IFAD has designed and supported four projects for a total cost of US\$ 30 million (with IFAD financing of US\$ 15 million), co-financed by the Caribbean Development Bank (CDB) (IFAD, 2019).

59. IFAD has a comparative advantage in supporting rural communities and agricultural development projects, in strengthening rural enterprises, in participatory approaches, gender equity and in market driven business development. This support is evident through the implementation of the Grenada Rural Enterprise Project (GREP), (2003-2011) which focused on both enterprise development and human and social capacity building. While the social component of the project was addressed, the enterprise development component was not fully materialized. This resulted in the establishment of the Market Access and Rural Enterprise Development Programme (MAREP), (2011-2018) which focused on providing opportunities for community organizations, youth, women and men from rural communities for entrepreneurship/business development through accessing assistance for skills training, capacity development and grant financing for small business enterprises on an individual and group basis. MAREP's implementation promoted a capacity-building process that started to yield results in its last two years of implementation, with a network of specialized institutional partners that are aware of the needs of the rural poor and willing to ensure sustainability after programme completion. Drawing on the lessons learnt from MAREP, the need for the revitalization of the agricultural sector through sustained and effective climate change practices and management, as well as youth involvement in the sector became a priority for rural development. In addition, IFAD has increasingly started working on climate change adaptation projects in the region (i.e., in Central America) (IFAD, 2019).

## VII. Scaling up

60. This program will leverage the organizational structures and capacities put in place for the IFAD financed Grenada's **Climate Smart Agriculture and Rural Enterprise Programme (SAEP)** (2018-2024). The SAEP Programme targets two of the most vulnerable groups within the rural poor, that is (i) the unemployed and underemployed men and women, with a focus on youth (age 16-35); and (ii) smallholder farmers (full- and part-time), vulnerable to climate change and variability. With a view of targeting these two groups and achieving the development objectives in an efficient and effective way, the Programme is being implemented with two main technical components: (i) Enterprise Business Development (EBD); (ii) Climate Smart Agriculture (CSA).

61. The proposal will build on lessons and gaps identified within the SAEP program to complement Climate Smart Agriculture (CSA) technologies and practices, develop a harvesting and distribution water system, and implement reforestation and restoration efforts both along the coastal areas as well as in the hinterland. The project will ensure symbiotic collaboration to ensure a holistic approach towards ensuring increased resilience capacities in Grenada and scale up climate investments in an effective and efficient manner. More specifically, the proposal will scale up the successful youth engagement including the initiative of grant to effectively support business opportunities (Component 1 of SAEP) and expand the interventions on the adoption of CSA approaches (Component 2 of SAEP).

62. The project will build on IFAD's strategy for reducing poverty in Grenada which is based on the following three main principles: (i) focusing on youth, as an asset that rural communities may promote to the forefront of change and development; (ii) identifying and promoting rural entrepreneurship as a driver for change and improvement; and, (iii) fostering the sustainability of beneficiaries' business initiatives through capacity building and the adoption of CSA approaches; and go one step further to ensure a holistic and sustained exit from poverty through climate informed approaches.

63. The SAEP Programme until 2021 has made significant advances despite delays in implementation due to limited technical staff from the onset and the lockdown period in 2020 due to COVID 19 pandemic. Advances were recorded in the **Enterprise Business**

**Development Component** where over three hundred (300) youth received vocational and skills training (VST) in twenty-two (22) market driven courses such as PV (Solar) panel installation, web development, agro-food processing, crop production, fish processing, etc. Also, over three hundred (300) youths received training in Entrepreneurial Skills where they were provided with skills in record keeping, use of information and communications technologies (ICT) in business, mathematics, entrepreneurial skills development. Approximately forty percent (40%) have received access to grant financing to effectively test their business and hand holding support has been provided by IFAD within that component.

64. Additional advances were also noted in the **CSA Component** of the Programme. Despite the limitations with the global pandemic and the shortage of dedicated technical staff, the component was able to provide support to 200 farmers and fishers within Grenada. In addition, practical training and community awareness sessions in CSA practices were provided to over 180 farmers, fishers and extension workers in composting, sustainable animal feeding, Hazard Analysis Critical Control Point (HACCP), provision of safety at sea, yam production, sea moss cultivation and processing, fish handling and processing, and importance of the use of four stroke engine to fishers and farmers in Grenada. Provision was also made for marketing services to over 100 farmers, fishers and sea moss farmers in brand development, marketing linkages, market training and social media advertising. Capacity Building was provided to Extension and Fisheries Assistants assigned to the Programme in over twenty-two (22) CSA subject areas which included: water management, nutrition training, composting, farm layout and animal husbandry of small ruminants and poultry. Advancements were also made in the Farm Access Roads and Irrigation aspect of the Programme. Field verification of forty potential rainwater harvesting and intake sites have commenced. Training in the use of an AGRI System to support rainwater catchment for community farm irrigation was completed by CIAT team with officers in the Ministry of Agriculture, Lands & Forestry (MALF) and the National Water and Sewage Authority (NAWASA). Design (climate resilience) of three farm access roads in Grenada have commenced with a local consulting firm with plans to complete the designs for approximately fourteen roads and commence the rehabilitation of these roads in 2021. These roads will provide access to farmers and fishers to markets and will assist in the safe transportation of their produce. With these advances in mind, the Adaptation fund will continue in the provision of Climate Smart Agriculture services which will build on the support provided by the SAEP Programme.

## **Project/Programme Objectives**

65. **The project objective** is to increase climate resilience and adaptive capacity in farming and fishing communities in Grenada through a people-centred approach, by fostering adoption and innovation of new climate smart technologies and practices through climate smart agriculture (CSA) practices and technologies for agriculture and livestock, and sustainable fishing practices for fisheries.

66. It aims to promote climate resilience and adaptive capacity in farming and fishing communities of Grenada, Carriacou and Petite Martinique and foster innovation of new climate smart technologies and practices with a CSA approach by upgrading and improving untreated water (developing a harvesting and distribution water system) to address increased variability in rainfall patterns and its significant impact on agriculture and livestock production, fostering innovation and introduction of new climate smart technologies and practices for agriculture and fisheries, and increasing awareness and capacity building among the broader population and in the Caribbean regarding early warning systems and the need to prepare for extreme weather events and other impacts of climate change.



## Project/Programme Components and Financing:

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
1. Rehabilitation and improvement of a water harvesting and distribution system to address increased variability in rainfall patterns;	<p>1.1 Stakeholder mapping, needs assessments and workshops delivered to determine priorities and appropriate solutions for the development of a harvest and distribution water system, including water cisterns to aid in water catchment for small farmers and poor households</p> <p>1.2 Training programmes designed and trainers trained to build capacity among communities to upgrade water collection systems and to test water quality.</p> <p>1.3 Restoration of public ponds to improve water catchment and storage for farmers during unpredictable dry season in Carriacou</p> <p>1.4 Beneficiaries identified and grants provided for crop farming and live barriers using forest species to reduce soil erosion and increase soil absorption of runoff precipitation</p>	1.1. Communities are enabled to upgrade and improve untreated water to address increased variability in rainfall patterns and its significant impact on agriculture and livestock production	3,598,700
2. Innovation and introduction of new climate smart technologies and practices through awareness, capacity-building, and investments	<p>2.1 Training programmes designed and implemented to build capacity among youth and women in climate smart agriculture and sustainable fishing practices.</p> <p>2.2 Awareness-raised through the production of leaflets, posters, radio, TV and internet campaigns to encourage the wider population to implement adoption of low or no cost sustainable practices</p> <p>2.3 Beneficiaries identified and grants disbursed to small farmers/fishers and rural households for increasing resilience to CC and variability.</p> <p>2.4 Capacity-building workshops are designed for institutional development and to identify and promote Farmers good practices</p>	2.1 New climate smart technologies and practices are adopted, especially among women and youth	3,178,359
3. Introduction of early warning systems and data, along with associated regional knowledge exchange, to reduce vulnerabilities and exposure to risks in agriculture and fisheries sectors.	<p>3.1 Workshops designed and held to update risk and vulnerability assessments at a national level.</p> <p>3.2 Awareness raised through the production of leaflets, posters, radio, TV and internet campaigns on climate change issues and solutions</p> <p>3.3 Knowledge exchange and sharing of outcomes and lessons with regional actors through workshops.</p>	3.1 Climate vulnerabilities and exposure to risks in agriculture and fisheries sectors are reduced through the utilization of early warning systems and data, promotion of broader awareness of climate change risks among the broader population, and promotion of the sharing of outcomes and lessons at a regional level.	1,563,955



	<p>3.4 Creation of a database for farmers to share information and associated capacity-building to enable information sharing and identifying priority practices and products, including by climate zone, as well as in database management and results monitoring.</p> <p>3.5 Sustainable business created through the Business Grant Financing Programme.</p>	
6. Project/Programme Execution cost		875,576
7. Total Project/Programme Cost		8,341,014
8. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)		783,410
<b>Amount of Financing Requested</b>		<b>10,000,000</b>

### Projected Calendar:

*Indicate the dates of the following milestones for the proposed project/programme*

Milestones	Expected Dates
Start of Project/Programme Implementation	July 2024
Mid-term Review (if planned)	July 2027
Project/Programme Closing	June 2030
Terminal Evaluation	September 2030

## PART II: PROJECT / PROGRAMME JUSTIFICATION

### A. Describe the project / programme components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.

67. This concept note has been conducted on a stakeholder-driven process and has focused on sectors ranked as highly vulnerable to the impacts of climate change and extreme events, which are also of high socio-economic value for Grenada as they create jobs, especially for young people and women. These sectors include agriculture, fisheries, tourism, water, food security, infrastructure and health, and the ecosystems that underpin them.

68. **Geographical Targeting.** The project targets vulnerable communities in all the 7 parishes of Grenada, Carriacou & Petite Martinique. It incorporates special consideration of women and youth, based on the rationale that diversifying rural economies and creating climate resilient employment opportunities are key to reduce poverty levels on a sustainable basis.

69. **Target Group.** The target population includes i) unemployed and underemployed, typically landless, with a focus on youth and women; and ii) smallholder farmers, small-scale livestock producers and fisherfolks vulnerable to climate change and variability. Youth account for 31 percent of Grenada's population, but 33 percent of the country's poor ([IFAD, 2021](#)). While 39.5 percent of all males were deemed to be poor, 36 percent of all females (however, women are left behind in many ways, including access to social services and climate resources). Of those categorized as poor, 65.1 percent are employed and 34.9 percent are unemployed. The unemployment rate for the poor was 10 percentage points higher than the national unemployment rate of 24.9 percent. And, of those employed, 31.5 percent are deemed to be poor (the working poor). The poor are over-represented in construction and agriculture/fishing sectors of the economy.

70. In agriculture and fishing communities, changes in consumption is often tied to natural disasters and other uncontrollable events, thus increasing the risk of persons in these sectors to fall into poverty. Current farming practices are highly vulnerable to climate change, variability, and shocks, are of low profitability and thus provide little income; farmers face limited opportunities to improve their livelihoods. By increasing the profitability of farms, the project will improve the economic situation and resilience to changing climatic variables of the target groups, both through climate change adapted own production of food and through increased income. The project will be careful that on-farm labor demand does not involve employment of children in violation of national and international laws and agreements.

71. The target groups will be fully aligned with the gender targeting approach empowering rural women, young people and their communities by building a more inclusive economy by pioneering with other leading agencies the innovative approach of using Household Methodologies (HHMs). This approach addresses the persistent pattern of gender inequality, particularly among farming and fishing families and their communities (IFAD, 2019).

72. The project proposes the implementation of a set of **concrete adaptation options** in targeted major agricultural crops, and livestock and the fishing sector. These options scale-up the SAEP interventions in this area (Climate-Smart Agriculture Component). Furthermore, complementary innovative resilience-building measures will be introduced, in particular for

climate-smart water management (Component 1) and dissemination of Climate Information (Component 3). A set of enabling actions designed to strengthen national capacities and institutions is interlinked to the concrete adaptation measures which will lead to building the resilience of the cocoa and nutmeg value chains, increase the production of high-value and exotic fruits and food, including soursop, as well as the fishing practices in the most vulnerable areas to climate change in seven (7) parishes of Grenada. Concrete adaptation measures are direct application of integrated climate resilient production, post-harvest and marketing systems, following up on the experience of the SAEP's Component 2, as described in paragraphs 60-64. New technologies and best knowledge aim at promoting the paradigm shift and behavioral change in the nutmeg and cocoa production, fishing practices and generating linkages to markets (IFAD, 2019).

73. The project is structured around three mutually reinforcing components with activities that promote innovative gender-sensitive adaptive measures integrated with practices and technologies successfully tested in previous interventions.

### **Component 1: Rehabilitation and improvement of a water harvesting and distribution system to address increased variability in rainfall patterns**

74. This component will address increased variability in rainfall patterns and its significant impact on agriculture and livestock production, increasing Grenada's resilience to the expected above-average temperatures and below-average dry-season rainfalls, the long-lasting drought periods in the seven (7) parishes of Grenada, Carriacou and Petite Martinique. The AF Funding will be used to promote community resilience and adaptive capacity to climate change by increasing the availability of water through floodwater harvesting and groundwater recharge (IFAD, 2019).

75. The project will promote alternatives for water capture, storage, conservation, utilization and protection of water sources, including efficient irrigation systems, small-scale water harvesting schemes for human consumption and irrigation, small drainage works, improvement of water management and drainage systems to reduce drought risk. It will also boost restoration & climate proofing of irrigation water systems/infrastructure and drainage systems to ensure structural climate resilience and farmers' long lasting access to markets. Finally, it will promote upgrading or building of small/medium traditional resilient structures to address droughts and unpredictable rainfall patterns.

76. **Outcome 1.1:** Communities are enabled to upgrade and improve untreated water to address increased variability in rainfall patterns and its significant impact on agriculture and livestock production

77. The activities for this component will be as follows:

- a. Develop a harvesting and distribution water system including water cisterns and restored public ponds for water catchment;
- b. Invest in water cisterns to aid in water catchment for small farmers and poor households;
- c. Increase water use efficiency using protective agriculture irrigation to minimize treated water usage;
- d. Restore public ponds to improve water catchment and storage for farmers during unpredictable dry season in Carriacou; and
- e. Plant forests to support mixed crop farming, intercropping and agroforestry to reduce soil erosion and increase water absorption capacity). The tree species will be identified at Funding Proposal stage; it will be ensured that selected tree species are resilient to

- observed and projected climatic variables;
- f. Develop participatory Operation and Maintenance (O&M) Plans with local communities of the project investments.
78. The expected Outputs include:
- 1.1 Stakeholder mapping, needs assessments and workshops delivered to determine priorities and appropriate solutions for the development of a harvest and distribution water system, including water cisterns to aid in water catchment for small farmers and poor households.
  - 1.2 Training programmes designed and trainers trained to build capacity among communities to upgrade water collection systems and to test water quality.
  - 1.3 Restoration of public ponds to improve water catchment and storage for farmers during unpredictable dry season in Carriacou.
  - 1.4 Beneficiaries identified and small grants provided for restoration of degraded sites impacted by climate change hazards to increase water absorption capacity.
  - 1.5 Water User Committees established and tasked for water management and operations and maintenance.

## Component 2: Innovation of new climate smart technologies and practices (CSA) through awareness building

79. This component will help the Government of Grenada by complementing and scaling up interventions initiated in the Climate Smart Agriculture and Rural Enterprise Programme (SAEP). Adaptive technologies will target rural farmers from the 7 parishes of Grenada, Carriacou and Petite Martinique by enabling them to adopt innovative CSA practices, especially among young farmers, women and other vulnerable people from poor rural communities. The AF Funding will help promote financing, investment, awareness, capacity building & knowledge dissemination of lessons learned on climate-smart agriculture and adaptation planning through training initiatives, activities, plans, systematization of best practices and replication of models (IFAD, 2019).

80. **Outcome 2.1:** New climate smart technologies and practices are adopted, especially among women and youth. Through delivery of small grants to project beneficiaries, the project will promote the access of quality inputs (seeds, seedlings, biofertilizers, biopesticides, and composts), agricultural tools, small-scale drip irrigation kits, solar pumps, and processing and storing materials and equipment.

81. Under this outcome, it is expected that:

- Greater numbers of youth and women engage in agriculture / fishing knowledgeable about and capable of adopting CSA and CSSF practices using entrepreneurial approaches.
- Greater capacity is built among youth and women in fishing handling and processing, seafaring and traditional boat-building.
- Rural communities have participated in awareness raising activities and have identified a catalogue of low or no cost sustainable practices.
- Investments in sustainable practices identified and implemented and used by farmers and fishers for using sustainable practices on regular basis.
- Institutions acquire greater capacity to identify and promote CSA practices, including best practices.

82. The planned activities under this Component include:
- a. Training of small-scale fishers in safety at sea and use of climate information with focus on young persons. Trainings will include catch handling and processing, reduction of losses, and other responsible fishing practices;
  - b. Support small farmers and rural households for renewable energy (bio-gas, solar, wind etc.);
  - c. Support towards business financing and investment for farmers and fishers to adopt and innovate in climate smart technologies and practices;
  - d. Support the establishment of resilient food production systems to withstand drought and other climate change hazards;
  - e. Technical and marketing support for diversified crop production with focus on high-value commodities;
  - f. technical support for CSA farming practices and techniques, including adoption of more efficient water management and conservation measures (e.g., drip irrigation systems, rain-water harvesting systems, terracing, mulching and small drainage works);
  - g. Assess the feasibility of establishing a weather index insurance in Grenada;
  - h. Capacity-Building of extension workers and technicians on climate change adaptation technologies for crop production and post-harvesting;
  - i. Establishment of Farmer Field Schools, demonstration plots, exchange visits to promote knowledge dissemination on resilience-building measures; and
  - j. Climate-proofing of processing and storage facilities for crop and fish products.
83. These activities will support the uptake and implementation of climate-resilient measures for small-scale farmers, livestock producers and fisherfolks. The activities have been tailored to reduce vulnerabilities and promote community-led adaptive actions. As such they incorporate climate-sensitive aspects. During the preparation of the full project proposal, the proposed activities will be revised and/or consolidated to respond to communities' adaptation needs.
84. The expected Outputs include:
- 2.1 Training programmes designed and implemented to build capacity among youth and women in climate smart agriculture and sustainable fishing practices.
  - 2.2 Awareness-raised through the production of leaflets, posters, radio, TV and internet campaigns to encourage the wider population to implement adoption of low or no cost resilient practices.
  - 2.3 Beneficiaries identified and distribution of resilience kits (production inputs, tools and small-scale equipment) through small grants bidding allocated to small farmers/fishers and rural households for increasing resilience to CC and variability.
  - 2.4 Capacity-building workshops on adaptive measures delivered to technical counterparts and extension services.
  - 2.5 Training materials and knowledge products on climate smart agricultural and fishery practices published.
  - 2.6 Dissemination of climate-smart practices across the vulnerable agroecosystems, and along degraded coastal areas.

### **Component 3: Introduction of early warning systems to reduce vulnerabilities and exposure to risks agriculture and fisheries**

85. This component will reinforce the climate risk management capacity of vulnerable communities. A climate risk screening tool will be introduced with associated risk mitigation

measures to reduce (current and vulnerabilities, enhancing early warning systems and packaging of results for end-users and strengthening technical capacity to apply needs-based climate and weather information products and early warning systems in agriculture and fisheries sectors. The AF Funding will provide support at local scale, by tailoring agricultural production and fisheries to these challenges with provision of knowledge, training and early warning systems that will enable farmers and the fishing communities to adapt their production methods and techniques to climate change trends promoting also the reduction of vulnerabilities and weather risks. (IFAD, 2019) This will support the increased adoption and improved use by farmers of accessible climate services and information to reduce agroclimatic risks. As a result, the project will allow to provide timely and reliable information to local users on the main climatic threats and crop management recommendations to avoid losses. This component includes the design and implementation of early warning platforms for agriculture and fisheries that provide accurate and timely information to farmers and fisherfolks.

86. **Outcome 3.1:** Climate vulnerabilities and exposure to risks in agriculture and fisheries sectors are reduced through the utilization of climate information generated from early warning systems, awareness-raising of climate change risks among the broader population, and knowledge dissemination and lessons at a regional level. The project will support the acquisition of automatic weather stations,

87. Under this outcome, it is expected that:

- Reduced vulnerability at national level to climate-related hazards and threats.
- Strengthened awareness among the broader population of climate change issues and solutions at the local level.
- Strengthened awareness and ownership of adaptation and climate risk reduction processes at the regional level.
- Strengthened capacity to collect, manage and share information about crops and climate zones.

88. This component includes the following activities:

- a. Support the use of climate and weather forecasts and organize campaigns on climate change risks for improved awareness and knowledge outreach, with special focus on youth and women;
- b. Sharing of outcomes and lessons learned with regional actors (regional institutes/ Organization of Eastern Caribbean States (OECS) territories) through workshops; and
- c. Implement a Climate-smart Entrepreneurship Training (e.g., training for extension Officers, 4H clubs, etc.) and support adaptive business development through a Business Grant Financing programme, in coordination with the Grenada Investment Development Corporation (GIDC).

89. The expected Outputs include:

- 3.1 Workshops designed and held to update risk and vulnerability assessments at a national level.
- 3.2 Awareness raised through the production of leaflets, posters, radio, TV and internet campaigns on climate change issues and solutions
- 3.3 Knowledge exchange and sharing of outcomes and lessons with regional actors through workshops.
- 3.4 A knowledge platform of good adaptation practices and lessons learned by the project established. This online repository will be included in the knowledge products managed by the Ministry of Agriculture and provided free access to all registered

farmers and external users  
3.5 Climate-smart business promoted through the Business Grant Financing Programme.

**B. Describe how the project/programme provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project/programme will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.**

90. Grenada, like other countries in the Caribbean, is at a crucial period of development. Having weathered the early challenges of a post-colonial economy, this country has had to address several financial, economic, political and other factors, including natural forces, which have adversely affected its quest to improve the welfare of its citizens. Indeed, these challenges have significantly impacted on agricultural growth and development, and may be categorized under five broad headings:

- a. Low general economic growth rates and high debt to GDP ratios;
- b. Loss of export markets for the main agricultural sector products (bananas) and loss of domestic markets to rising food imports;
- c. Rising rural unemployment and the decline of rural agricultural industry;
- d. Rising health care costs due to changing consumption habits and demographic; and
- e. Increasing vulnerability to climate change and external shocks that require more Government resources to be devoted to social programmes to protect food security (Collymore, Little and Spence Joint Venture, 2016).

91. In this context, there are opportunities in increasing local agricultural and agro-processing production through improving yields and marketing linkages in a climate change resilient way, with better planning to supply the peak demand of the hospitality industry. This requires a business approach and entrepreneurship drive that is currently not widespread in the farming community. By attracting youth to agriculture with technology driven approaches and putting in place the required support services, the Programme expects to bring about the missing links that are currently preventing an increase in income for rural poor (IFAD, 2019).

92. The overall focus of this project is to enhance the adaptive capacity of 10,000 smallholder farmers and fishers (3,400 households) with a particular focus on women, who will be at least 50 percent of project beneficiaries through the sustained improvement of food production and water supply in a changing climate. Specifically, interventions will strengthen climate resilience and address the vulnerability of food systems (crop and livestock production and fishery) and livelihoods (rural workers, players across the targeted value chain, MSMEs, inputs and financial services providers, etc.) to climate change, in order to sustainably increase agricultural productivity and improved incomes in Grenada, Carriacou and Petite Martinique in a changing climate.

93. This project will enable communities in Grenada to upgrade and improve untreated water to address increased variability in rainfall patterns and its significant impact on agriculture and livestock production; encourage the adoption of and innovation in new climate smart technologies and practices, especially among women and youth; and introduce early warning systems and climate information, along with associated regional knowledge exchange, to reduce vulnerabilities and exposure to risks in agriculture and fisheries sectors. The project aims at providing direct support to producers (with emphasis on women and young people) in their transition to more sustainable agricultural production practices and adaptation to climate change

while facilitating their access to markets, and to boost awareness of CSA approaches at the national level, while promoting regional exchanges.

94. From initial consultations and preliminary assessments, the expected benefits will be the following:

**Economic:**

- At least 80% of targeted small-scale producers (farmers and livestock) will diversify and improve their livelihoods through the adoption of climate-smart practices and technologies such as adapted varieties and breeds, water-saving and water conservation, use of climate information for planning and decision-making and cope with climate change hazards.
- Revenues of smallholders will increase up to 30% thanks to sustainable crop intensification, improved soil fertility, water supply and reduction of post-harvest losses.
- Fishers will improve catching capacity by 20% thanks to distribution of fishing materials (nets and fishing hooks).

**Environmental:**

- Rainwater harvesting ponds and water cisterns will increase water availability for households and farming uses by 40%.
- Land under climate-resilient management will increase by 20% thanks to the dissemination of regenerative and agroecological practices.
- Mitigation co-benefits (increased carbon sequestration, restoration of degraded ecosystems) will be assessed during the development of the full project proposal.

95. With regards to water management, the project will also provide benefits in terms of health, environmental integrity and biodiversity conservation, and poverty reduction, through rehabilitation of existing water infrastructure, ensuring appropriate flows and conservation, ensuring hygienic use of rainfall water, and improving water harvesting for production processes among other practices

**Social:**

- 200 New jobs will be created for women and youth groups involved in processing cash crops such as cocoa, nutmeg and vegetables.
- The participation of at least 50% of women and 30% youth will be sought for training and farmer field schools' activities.

96. Other socio economic benefits will come from the all activities related with sustainable land and water management techniques and sanitation facilities, along with water quality monitoring, are also expected to have benefits for local health and communities within the 7 parishes of Grenada, Carriacou and Petite Martinique, while the diversification and sustainable management of major agricultural crops and fish farming will also have benefits on overall nutrition and improved income (IFAD, 2019).

**Gender aspects:**

97. From initial assessment, women in Grenada are particularly vulnerable to climate change shocks and stressors for a number of aspects as follows:

- Weak technical and financial capacity to implement CSA measures



- Limited farmland tenure rights and access to productive assets
- Lack of climate-proofed processing and storing facilities
- Limited participation across the food value chains to diversify livelihoods
- Demanding household's roles and responsibilities

98. The project will adopt a gender-sensitive approach whereby the participation of women will be strongly promoted across of project activities. By implementing this approach, interventions will yield equitable adaptation outcomes and impacts and will provide men and women with equal opportunities to build resilience and increase their capacity to adapt to climate change impacts, for instance through full access to and participation in the training activities, grants, and advocacy initiatives outlined as part of the outputs. Finally, the project seeks to address data and knowledge gaps by ensuring that rural and fisher women, as well as youth and other vulnerable groups, take part and contribute to the knowledge building and exchanges activities included in this project, from Farmers best practices to regional exchanges.

99. The most vulnerable populations identified by IFAD will receive capacity building on the implementation of best climate resilience business models in nutmeg, cocoa, soursop, and fishing value chains. They will also receive climate-resilient water infrastructures as described above (technologies, equipment, climate proofed roads, storage and warehouses) (IFAD, 2019).

### **C. Describe or provide an analysis of the cost-effectiveness of the proposed project/programme.**

100. The project promotes an integrated approach to sustainably improve and diversify livelihoods of vulnerable communities in a changing climate. The proposed bundled interventions foster a scaling up approach from SAEP combined with dissemination of innovative adaptive measures. In this regard, the implementation of climate-smart measure is derived from tailored cost-effective practices that conserve soil and water resources and sustainably increase productivity of food and cash crops. Selected climate-resilient practices have already proven their effectiveness in SIDS and recompiled in technical compendiums for broader dissemination. Likewise, establishment of early warning enhance the readiness capacity of producers and fishers by mitigating losses and damages. The climate-proofed small-scale processing and storage facilities, equipment and materials will reduce post-harvest losses in an effective way.

101. The activities proposed in this project will lead to easily identifiable benefits for local communities. The Adaptation Fund project will build on the investments made for the implementation of SAEP's Programme, in order to scale up successful interventions and develop synergies. This partnership will boost the cost-effectiveness of both investments, particularly because this project will benefits from structures, monitoring systems and measures implemented under SAEP. Other benefits expected are: improved coordination and communication, the application of common procurement, and supervision procedures (reducing costs).

102. The project will use proven mechanisms for community participation, consultative processes and other capacity building exercises (for farmers, SAEP staff, and skilled youth, among others), government's involvement and technology transfer.

103. The project will work with existing community structures such as the Nutmeg Association,

the Cocoa Association and the fishing and farming community leaders and organizations, where applicable, which are being strengthened with the SAEP Programme and the AF project areas that will promote additional community-based activities. Approaches to make major agricultural crops including nutmeg, cocoa, soursop, high value exotic crops and the fishing sector more productive have so far been focused either on the production chain – technical production standards (inputs) and management cycle, or the marketing issues that regulate prices (outputs). It is increasingly recognized that a single adaptive action on a select element of the nutmeg or cocoa cultivation cycle (for example, seed enhancement alone) will be less effective than if accompanied by adaptive actions in all other elements of the cultivation cycle, including climate resilient production that helps to stabilize and/ or increase yields. Therefore, maximum resilience impact and adaptive approaches can only be achieved through the implementation of adaptations in each of the aspects of the production of major agricultural crops including nutmeg and cocoa cycle (input management, cultivation practices, and harvest management) and reduce land degradation.

**D. Describe how the project/programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national adaptation plan (NAP), national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.**

104. Compared to other sectors, various documents, reports, studies and data are available for the interface water/adaptation in Grenada, Carriacou. Grenada recognizes the need to develop the enabling environment for climate change adaptation in a coherent manner into the national programmatic priorities, policies and plans, understanding the relevant present and future vulnerabilities to risks from climate change and having appropriate responses through the identification of resilience building activities to guide the island to a climate resilient decision-making by applying a participatory and consultative process with relevant stakeholders and partners to generate Grenadian ownership. (IFAD, 2019).

105. Therefore, this project has been designed to contribute to Grenada Nationally Determined Contribution (NDC) and the adaptive measures are aligned with the National Adaptation Plan (NAP), the Grenada National Climate Change Policy (NCCP) and other relevant strategies and action plans.

106. The **NAP 2017-2021** is clearly identifying agriculture, tourism and water as the main priority sectors that require immediate and urgent implementation of adaptive actions. This is reflected in the promotion of climate-smart agriculture, conservation of biodiversity and natural resources and contribution to the mitigation targets set in the NDC. All these priorities are fully aligned and embedded in the proposed practices for this project.

107. The project will also contribute to the Agenda 2030 and specifically to Sustainable Development Goals (SDGs) SDG1 (no poverty); SDG 2 (zero hunger); SDG 13 (climate action) (IFAD, 2019).

108. The government of Grenada has recognized the importance of agriculture and fishing in the reduction of rural poverty, better household incomes and increased climate resilience during time crop production and fishing periods. The **National Sustainable Agriculture Development Plan (NSADP)** has been the key government strategy for sector development. The national institutions relevant to this project are: the Ministry of Finance, Ministry of Economic Development, Planning, Tourism, ICT, Creative Economy Agriculture and Lands, Fisheries &

Cooperatives; the Ministry of Social Development, Housing and Community Empowerment; Ministry of Carriacou and Petite Martinique Affairs and Local Government; Ministry of Climate Resilience, the Environment and Renewable Energy; Grenada National Training Agency; Grenada Investment Development Corporation; Grenada Development Bank; and the Marketing and National Importing Board.

#### **National Climate Change Adaptation Plan (2017-2021)**

109. Having a National Climate Change Adaptation Plan (2017-2021) for Grenada, Carriacou and Petite Martinique contributes significantly to the national sustainable development agenda of Grenada and will help to exemplify the challenges faced in adapting to climate change by providing through this kind of proposal a series of concrete steps and solutions on how to address these in a practical manner. (NAP, 2017). This project is aligned with the NAP for Grenada, Carriacou and Petite Martinique (2017-2021), Grenada's Climate Change Policy, Grenada's National Determined Contributions (NDCs), Grenada's National Agriculture Plan, Grenada's national strategic development targets and the C21.

#### **National Sustainable Agriculture Development Plan (NSADP)**

110. CARICOM's Climate Change Implementation Plan (2011-2021) National Agriculture Plan (2015-2030) is available and seeks to highlight the development of national agricultural policies, action plans and initiatives targeting small producers linked to regional strategies.

#### **National Water Policy**

111. A vulnerability assessment and an action plan for the water sector in Grenada are available. A more detailed vulnerability assessment is available for the Chemin watershed. The majority of proposed actions were taken from the existing action plan and adjusted where required. A National Water Policy and a draft drought plan are available.

#### **CARICOM's Climate Change Implementation Plan (2011-2021)**

112. The Implementation Plan for CARICOM's Climate Change Implementation Plan (2011-2021) involves: establishing how regional and country bodies will work together; securing investment to support the action plan; proposing a monitoring and evaluation system; and obtaining buy-in from Governments and relevant funders across the region. Extensive consultations have been held with national, regional and international stakeholders to ensure that key concerns and priorities are addressed.

113. The project is also fully aligned with Goal 3 of the **Grenada's Climate Change Policy 2017-2021** which is building local human capacity to assess and respond to climate change including through the access and use of appropriate climate smart agriculture techniques and technologies, especially in the sector of agriculture and fisheries where improvements have been limited so far.

114. The **Grenada's National Agriculture Plan 2015-2030**, which presents the vision of a globally competitive agricultural sector that contributes to economic growth, food and nutrition security, poverty alleviation and environmental conservation. The project is fully aligned to the five strategic focus areas identified in the Plan: (i) increasing agricultural production and exports, strengthening the linkage between agriculture and tourism; (ii) enhancing food security by reducing the food import bill; (iii) strengthening resilience and improving preparedness to address CC impacts and extreme events; (iv) investment in infrastructure and institutional and human resource capacity development; and (v) fostering partnerships with regional counterparts and development partners. The NAP identifies priority commodities and classifies them according to their utilization for increasing food security, exports, supply of the tourism industry or import substitution. Most of the crops and livestock products identified are produced by smallholders, and the most relevant have been included in this project, such as fruit trees

(nutmeg, cocoa, mangoes, breadfruit and soursop), vegetables (hot peppers, tomatoes, cabbages and callaloo), roots and tubers (dasheen, sweet potatoes, cassava), poultry, pigs and goats.

**Gender policies:**

115. Gender equity was a priority area within the Growth and Poverty Reduction Strategy 2014-2018, as part of the thematic focus Developing Competitiveness with Equity. The strategic objectives were: mainstreaming gender; and policy intervention to support gender equality. Gender analyses are carried out for major projects. A National **Gender Equality Policy and Action Plan (GEPAP)** was approved in 2014 for implementation from 2014 to 2024. In the National Sustainable Development Plan (2020-2035) gender equality is integrated as a cross-cutting theme under the Ministry of Social Development, Housing and Community Empowerment. The National Gender Equality Policy and Action Plan (GEPAP, 2014-2024) recognizes men’s and women’s complementary roles, and commits to increase their equitable access to productive resources and entrepreneurial opportunities in the agriculture and tourism sectors, so to facilitate the nation’s goals of agricultural diversification, food security, economic growth, poverty reduction, and sustainable development. Similarly, the policy recognizes and integrates the complementary roles of men and women into policies and programmes on disaster management, climate change, and natural resource development. These objectives are fully aligned and integrated in the project in which women represent half of the beneficiaries. The project will also adopt gender-responsive approaches on the basis of gender analysis to ensure that activities are tailored on women’s needs, and will report sex-disaggregated data. A detailed Gender Analysis and action plan will be elaborated during full proposal design process.

**E. Describe how the project/programme meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.**

116. The Programme will ensure compliance with national established protocols and regulations. The project, will include at full design an environmental and social management framework (ESMF) through IFAD’s Social, Environmental and Climate Assessment Procedure (SECAP) inclusive of an environmental and social management plan (ESMP). The project will build on the PMUs experience in implementing IFAD, and other internationally funded, operations to ensure compliance with environmental and social safeguards.

**F. Describe if there is duplication of project/programme with other funding sources, if any.**

117. The project will build upon the achievements of the “Climate-smart Agriculture and Rural Enterprise Programme (SAEP)” that will be completed (mid-2024) by the time this project will be initiated (likely towards end of 2024 or early 2025). This way synergies and complementarities will be established benefiting the AF investment with lessons, proven adaptive technologies and successful experiences that will be scaled up. This will include the dissemination of agroecological practices, use of adapted varieties and breeds, climate-smart irrigation systems, climate-proofed rural infrastructure and facilities among others. SAEP aims to promote rural business development and CSA practices in rural areas of Grenada. By combining sustainable CSA practices with the development of agroprocessing enterprises, the programme is expected to lead to a significant increase in production and income levels. The goal of the programme is to contribute to the reduction of poverty and vulnerability in rural communities, benefiting around 3,400 households (25 per cent of all rural poor households in the nation). SAEP commenced implementation in 2018, and is expected to complete

implementation in 2024.

118. SAEP forms part of a Rural Development Unit (RDU) with the Basic Needs Trust Fund (BNTF), a government initiative geared towards the adaptation of an integrated approach to rural development issues to strengthen the coordinating framework for poverty reduction and inclusive growth in Grenada. Its 2 main components for the delivery of support to targeted beneficiaries are as follows: 1) The Enterprise Business Development Component, which is geared at supporting ongoing and start-up businesses in rural areas through capacity building, technical services and financing, with a focus on youth; 2) The CSA Component, which will be a major investment in the Agriculture sector, is aimed at increasing the sustainability of small farmers through the adaptation of climate-smart agricultural practices. The rehabilitation of rural roads and drainage systems and improvement and construction of irrigation and water systems are also areas of intervention by the Programme.

119. This Programme has potential synergies with various projects at the regional and national level that are complementary to the proposed intervention (for example, the IICAS project promoted by the GIZ mentioned above and the WB financed project supporting value chains). IFADs SAEP programme in Grenada includes institutional arrangements that have been designed to promote coordination by involving key actors in decision making, such as the National Climate Change Committee (NCCC) that has an overall perspective of projects promoting CSA adoption.

120. The Programme will also look at establishing synergies with the FAO/IFAD regional grant “Strengthening decent rural employment opportunities for young women and men in the Caribbean”, which has the objective to promote rural youth employment in six countries of the Caribbean, including Grenada. The grant’s objectives are to: (a) facilitate a common sub-regional policy and programme development process with governments, stakeholders and partners, including rural youth and farmer organizations; (b) develop and promote an evidence-based knowledge platform as the basis for information-sharing, training and capacity-building in rural youth employment generation and entrepreneurship; and (c) facilitate access to employment and the adoption of innovations and best practices for enterprise development among young people. At present the activities of the grant are delayed due to the complexity of managing and engaging in numerous countries at the same time. A remedial action plan is being developed by FAO and by the local Country Project Management Team of Grenada to recover the delay. (IFAD, 2019)

121. There is no potential overlap with the climate smart agriculture activities implemented by SAEP Programme; rather this project will scale up and disseminate the practices and technologies that have been proven successfully adopted. Therefore SAEP’s staff will ensure to fulfill also this AF project outcomes and outputs and will contribute to upscale and integrate the programme and the AF project.

122. The table below addresses synergies with other programmes and projects already being implemented in Grenada.

Project and funder	Main activity	Synergies	Duplication
Climate Smart Agriculture and Rural Enterprise Programme (SAEP) – IFAD	<ul style="list-style-type: none"> <li>Promote rural business development and climate-smart agricultural practices in rural areas of Grenada</li> <li>Contribute to the reduction of poverty and vulnerability in rural communities, benefiting around 7,500 households (54 per cent of all rural poor households in the nation)</li> </ul>	Lessons learnt from the SAEP programme will be used to improve the outcomes of the AF project to focus on climate resilience and building adaptive capacity in farming and fishing communities	None

<p>Project for a Climate Resilient Water Sector in Grenada (G-CREWS) – GCF/GIZ</p>	<ul style="list-style-type: none"> <li>• Increase the capacity of NAWASA’s water supply (raw and freshwater storage, groundwater resources) to provide the required potable water resources despite climate change. Increased storage and more in-built flexibility through the interconnection of pipelines and sustainable groundwater systems will enhance NAWASA’s availability to react to dry spells when less surface water is available, as well as to the increased frequency of heavy rainfall events with local impacts.</li> <li>• Installation of larger on-site storage capacities at critical infrastructure like medical centres to reduce exposure to climate-induced scarcity of piped water.</li> <li>• Improvements in the ability to respond to heavy rainfall and other disaster events through disaster-proof infrastructure and comprehensive emergency response plans, which will help to ensure that water supply interruptions are minimised.</li> </ul>	<p>The AF project will help G-CREWS in water management and storage for production by improving domestic water access by upgrading and improving untreated water to address increased variability in rainfall patterns and its significant impact on agriculture and livestock production, better health conditions of the targeted populations, and engage women in charge of domestic water supply for diverse purposes.</p>	<p>None</p>
<p>OECS Regional Agricultural Competitiveness-World Bank</p>	<ul style="list-style-type: none"> <li>• Development of agricultural value chains in Grenada and St. Vincent (around US\$ 4 million for Grenada)</li> <li>• Promotes the development of competitive clusters in the agricultural and fisheries sectors, involving key players in each value chain.</li> </ul>	<p>OECS does not exclude the smallholder sector, but is focused mainly on the aggregators and agro-processors as driving entities and does not include specific measures to ensure the engagement of smallholders and the poor.</p> <p>The AF project will build synergies and become complementary by enabling poor farmers to benefit from the development of competitive value chains, by improving production, increasing yields by increasing climate resilience and adaptative capacity in farming and fishing communities</p>	<p>None</p>
<p>Rural Finance and Community Improvement Programme – IFAD</p>	<ul style="list-style-type: none"> <li>• Rural finance support to smallholder farmers</li> </ul>	<p>Lessons learned from IFAD’s experience with community rural finance will help in designing sustainability pathways for the AF project.</p>	<p>None</p>
<p>Smallholder commercialization Programme (SCP) Global Agriculture and Food Security Programme – IFAD</p>	<ul style="list-style-type: none"> <li>• Small-scale irrigation development</li> </ul>	<p>Lessons learnt from the IFAD project will be used to improve the outcome of the AF project related to increasing crop yields and mainstreaming sustainable agricultural practices</p>	<p>None</p>

**G. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.**

123. Learning and knowledge management are integrated throughout the project starting from integrating the lessons learned from SAEP Programme, as well as other relevant projects implemented in Grenada.

124. The project will generate knowledge by developing water collection and catchment solutions, identifying Farmer and Fisher resilient and sustainable best practices, conducting early warning studies and reports, farming and fishing sustainable and resilient best practices, and recommending adaptation and resilience measures. There is also a regional dimension of knowledge generation through regional exchanges on best practices and solutions.

125. The project will assess the viability of implementation weather index insurance to address crop failure and explore the viability of green rural finance to support energy efficient technologies, the project will also design tools for knowledge dissemination to the farmer and fishing level. This will be in the form of best practices manuals and guides for tree crop production, reforestation and restoration practices, fish farming, CSA practices that will be implemented and a EWS tool to disseminate agriculturally related meteorological data and pest management warnings.

126. Additionally, the project will develop case studies that will help disseminate lessons learned and foster replication or scaling up of successful climate smart crop production enhancement. Whenever possible, and building from surveys as relevant, the project will facilitate baseline studies for future interventions on nutmeg, cocoa, soursop, and fishing sectors.

**H. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.**

127. In response to the request from the Government of Grenada through the Ministry of Finance, IFAD seeks to continue its financing of rural development projects in the country. This project concept note has been developed by IFAD for the Adaptation Fund project in the agricultural and fishing sectors in 7 parishes of Grenada, Carriacou and Petite Martinique based on upscaling key previous IFAD project activities.

128. The project design team organized a stakeholder mapping exercise to identify the key players, define their role, expectations and interests and possible benefits arising from and project activities that could be assigned to them. In addition, IFAD's targeting and SECAP tools have been used to ensure compliance with safeguards and development of a comprehensive Grievance Redress Mechanism. A preliminary design mission was carried out in December 2019, and a draft concept note was jointly elaborated with the main government counterparts. During the mission, individual meetings were held with the Ministry of Finance, the Ministry of Agriculture, Lands and Forestry, the Ministry of Social Development, SAEPs Programme staff, and other relevant actors and organizations. During the pandemic, virtual meetings and communications were held with a cross-ministry task force put together for this purpose by the Government of Grenada. The final concept note project proposal is the result of this consultative process.

129. Furthermore, in the context of IFAD's supervision missions and mid-term review, the AF proposal has been discussed with Government institutions to ensure alignment with country's priorities, and introduced to SAEP project beneficiaries leveraging on the information and experience of the SAEP project to feed into the concept note. More in-depth interaction and exchanges with relevant stakeholders will be conducted during the development of the full project proposal.

130. Findings from preliminary consultations with key stakeholders highlighted the following challenges of vulnerable communities particularly for women and youth to strengthen their resilience to climate shocks and stressors: (1) inability to find jobs, especially those paying enough to adopt adaptive measures; (2) lack of financial access to microcredits and loans for climate-proofing investments; (3) lack of analysis and understanding of climate impacts on by poor, vulnerable women and young people; (4) failure/lack of technical capacity to implement climate-smart technologies; and (5) absence of key social support mechanisms, services and safety nets for women and young people in need, often compounded by lack of help-seeking knowledge, even when support services exist (IFAD, 2019).

131. The project is rated as Category B according to the preliminary assessment against the AF's Environmental and Social Policy (ESP) and benchmarking with IFAD's SECAP. In compliance with the Adaptation Fund's ESP, this project is designed to avoid environmental and social harms by integrating risk assessment and management throughout the process of project development as well as implementation. The project is being screened for its environmental and social impacts, identified in the table below, and follow-up assessment is planned for the risk (albeit low) of reforestation (i.e., due to the potential introduction of invasive species). A full review of compliance against AF's ESP and IFAD's SECAP will be conducted during the full proposal development.

132. The Concept has been drafted with reference to the Gender Policy of the Adaptation Fund. A fully fledged Gender Analysis and Costed Action Plan will be prepared during the development of the full project proposal. With respect to access and equity, it has included women at all steps of consultations held so far towards the drafting of this Concept Note, and will continue to do so during the development of the Proposal and implementation stages. The process has also worked to capture the specific experiences, demands and concerns of women regarding climate adaptation and resilience, as well as their role in the design and implementation of solutions.

#### **I. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.**

133. This project will scale up interventions from SAEP and promote innovative adaptive measures in a simultaneous and integrated manner. Project activities will be further revised and updated following consultations at project proposal stage to refine their eligibility and compliance with AF requirements. As such, the proposed financing package would be additional to the business-as-usual rural development interventions given the specific focus on building resilience and improving the adaptive capacity of vulnerable communities. The scaling up portion of the SAEP would represent 34% of project budget whereas the innovative package of measure contributes to 56% of project budget.

134. The AF funding will be used to strengthen climate resilience and improve the adaptive capacity of smallholder farmers and fishers in Grenada through a community-based adaptation approach, by scaling up and promoting innovative climate smart measures. The AF resources will be used for the implementation of three integrated components:



- **Component 1:** Rehabilitation and improvement of a water harvesting and distribution water system;
- **Component 2:** Dissemination of gender-sensitive CSA technologies and practices through investments, capacity-building and awareness;
- **Component 3:** Introduction of early warning systems and climate information, and promotion of south-south cooperation knowledge exchange.

135. Component 1 will address negative impacts of climate change hazards on the water supply systems of the islands, especially in the dry season would severely affect the calendar of farmers. Component 2 implements climate smart agriculture and sustainable fishing practices to address the impacts of climate change on crops, livestock and fisheries production. Component 3 improves the climate information received by farmers and fisherfolks to reduce vulnerabilities and exposure to risks in agriculture and fisheries sectors and improve their decision making under climate uncertainty.

136. Planned activities, outcomes and outputs from this AF proposal, will be replicated at national level, with regional exchanges on best practices.

**J. Describe how the sustainability of the project/programme outcomes has been taken into account when designing the project/programme.**

137. The project proposes climate change adaptation measures through improved water harvesting, training and support for farmers (especially women and youth), and dissemination of climate information and regional exchanges on early warning systems. Sustainability of interventions will be assured through ownership, empowerment and improved adaptation benefits flowing to the targeted communities. Operations and maintenance of water infrastructure will be provided through the private user fees whereas for processing and storage facilities O&M this will be covered by projected increases in income. A full economic and financial assessment of the cost effectiveness of adaptation measures will be presented in the full design. Adaptive practices will be integrated in extension system support and systematized in knowledge products.

138. By combining investment support with capacity-building, and awareness raising, the proposal seeks to boost the sustainability of the project outcomes beyond the timeline of project implementation. More specifically, it will strengthen existing local capacity and institutional arrangements to ensure that the project interventions continue once the project ends. At the same time, participatory operating and maintenance (O&M) plans will be developed in consultation with the local communities to ensure that the project investments are maintained over time.

139. The project will build on the achievements and investments of SAEP in particular on the dissemination of CSA. The promotion and continued implementation of adaptive measures will be ensured through institutional arrangements with line ministries and extension services. The project interventions are aligned with country strategies and plans so to ensure ownership and capitalization of the investments within the scope of the COSOP.

140. The project will support institutional strengthening for organizations and smallholder farmers and fishing communities as well as all actors affected by climate change along the entire value chains. The project will work through other national and private institutions and will strengthen national capacities on climate resilient value chains and will ensure that the government will commit in the budget appropriations or other minimum levels of investments for

scaling up the best practices supported by this AF project. The established and/or further improved local capacity of smallholder farmers and fisherfolks and their organizations, will provide the foundation for the long-term sustainability of the project interventions. At the same time, the work with national and private institutions and the mechanisms created or strengthened by the project will provide the institutional support needed at the local level to ensure that the project interventions are sustainable over time. Access to small grants for dissemination of adaptive measures will focus on vulnerable beneficiaries and initiated on a revolving funding mechanism with participation of financial intermediaries to roll out its continued implementation and expansion.

141. In summary, AF components will foster institutional capacity development, and policy engagement will focus on institutionalizing the outcomes of the project. Dialogues and stakeholder consultations and stakeholder mobilization achieved through capacity-building will help to achieve sustainability. A strong focus on building local knowledge, capacities– as well as strong project focus on ensuring gender equality in all operational matters are expected to lead to social sustainability.

#### K. Provide an overview of the environmental and social impacts and risks identified as being relevant to the project/programme.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the Law		<b>No risk</b> Relevant national, regional and district authorities have been and will continue to be consulted during the proposal development process to ensure compliance with all relevant laws. The full project proposal will carry out an analysis of relevant laws and detail the project's compliance with said laws.
Access and Equity		<b>Low/no risk</b> During implementation, the project will ensure that no activity will interfere with access to basic services or exacerbate existing inequities. The project will promote the equitable access to activities and assets by youth and women in targeted communities. When designing and planning the activities, project managers will ensure that any activity with communities targets vulnerable groups such as women and youth. This risk will be further assessed during full proposal development
Marginalized and Vulnerable Groups		Marginalized and vulnerable groups, especially youth and women, have been and will continue to be consulted during the proposal development process to ensure that their identified threats, priorities and mitigation measures are reflected. This project will empower vulnerable groups to make decisions on concrete adaptation actions, valuing their traditional and local knowledge. This project will encourage and enable youth and women to adopt CSA practices. Additionally, this project will respect land, property and customary rights, ensuring ESMP compliance. This risk will be further assessed during full proposal development
Human Rights	X	<b>Low/no risk</b> This project affirms the rights of all people and does not violate any pillar of human rights.
Gender Equity and Women's Empowerment		<b>Medium</b> The development of the full project proposal will align with both the AF's and IFAD's policies on gender inclusion. It will reflect the percentage of women working in the agricultural sector in Grenada. The project will ensure that at least 50 percent of the beneficiaries will be women and it will apply the same principles laid out in project targeting. The consultation process in the design of the full project document will ensure and monitor for satisfactory women inclusion, participation and consultation.
Core Labour	X	<b>Low/no risk</b>

Rights		The project will ensure respect for international and national labour laws and codes, as stated in IFAD's policies.
Indigenous Peoples		<b>Low</b> During the development of this Pre-Concept, no stakeholders or communities have raised concerns around the violation of indigenous peoples' rights. Even so, the project will ensure respect for indigenous peoples in Grenada, following SECAP/ESMP.
Involuntary Resettlement	X	<b>No risk</b> The project does not foresee any resettlement.
Protection of Natural Habitats		<b>Medium risk</b> No activities envisioned to adversely impact protected areas or high value conservation areas. Relevant measures will be included in project Environmental and Social Management Plan. This risk will be further assessed during full proposal development.
Conservation of Biological Diversity		<b>Low Risk</b> This risk will be further assessed during full proposal development.
Climate Change		<b>Medium</b> The project area is highly susceptible to climate shocks; the project will not generate any significant emissions of greenhouse gases and will not contribute to climate change in any other way. This risk will be further assessed during full proposal development.
Pollution Prevention and Resource Efficiency		<b>Medium risk</b> The project will not release pollutants. It is based on the principles of efficiency, minimization of material resource use. This risk will be further assessed during full proposal development.
Public Health		<b>Low risk</b> No adverse impact on public health related issues is envisaged. This risk will be further assessed during full proposal development.
Physical and Cultural Heritage		<b>Low risk</b> No potential impact identified on the physical and cultural heritage of the project areas.
Lands and Soil Conservation		<b>Medium risk</b> The project will promote sustainable land management practices from solid waste management to conservation agriculture. The activities will not negatively affect land and soil conservation. This risk will be further assessed during full proposal development.

## **PART III: IMPLEMENTATION ARRANGEMENTS**

### **A. Describe the arrangements for project / programme implementation.**

142. The project will be executed by the Ministry of Economic Development, Planning, Tourism, ICT, Agriculture and Lands, Fisheries & Cooperatives of the Government of Grenada through the Rural Development Unit (RDU) – Climate Smart Agriculture and Rural Enterprise Programme (SAEP) Office and the Basic Needs Trust Fund (BNTF) Office. SAEP and BNTF, together, have four areas of intervention: Rural Enterprise Development; Rural Infrastructure Development; Agriculture Transformation; and Vocational and Skills Training (VST). It has developed capacities in core support areas for project development and management such as Monitoring & Evaluation, Finance and Procurement Through these projects, they are involved in community development, rural advisory services with a focus on climate change and adaptation, Vocational and Entrepreneurial Skills Training to youth, management of grant schemes to beneficiaries and investments in rural infrastructure. The implementation approach is to engage specialized, permanent, bodies as partners in implementation that through the intervention may build capacities, bring innovation and provide sustainability to project intervention after completion.

143. The SAEP Office has a relatively small staff. It engages in specific contractual arrangements with specialized bodies or contractors –contracts and Memoranda of Understanding- with a wide range of implementing partners as required for delivering services to beneficiaries. The approach to memorandums of understanding (MOUs) is results based as a means to ensure the attainment of targets. It may recruit additional specialists as needed, who would be responsible for the day-to-day management and implementation of project activities, covering overall management and supervision of implementing partners, making use of existing capacities in M&E, fiduciary and procurement services. SAEP has a Programme Steering Committee (PSC) composed of a wide range of stakeholders, including line Ministries and public agencies, the private sector and beneficiaries, this PSC provides overall guidance and is chaired by the Ministry of Economic Development.

144. The proceeds of the AF would be kept in a specific Project Bank account. The accounting system would keep record of all project transactions separate from other SAEP and BNTF activities and meeting the needs of all stakeholders. Detailed implementation arrangements would be developed during the full-sized design phase.

145. The project would maximize synergies with the structures and capacity developed through the SAEP, and a one-year overlap between SAEP and this project would ensure avoiding effort duplication and building specific capacity for project implementation in a short period of time, rendering launching and start-up shorter and more efficient. The SAEP is currently providing training and capacity building to youth, farmers and fishers through MOUs with the line ministries responsible for Rural Advisory Services, with the Grenada Investment Development Corporation (GIDC) and several VST service providers. It has specific partnerships for promoting gender equity and nutrition with the corresponding specialized departments of the GOB. The GIDC is managing a start-up grant scheme for youth with an independent evaluation committee and the SAEP Office is managing a CSA grant scheme for promoting the adoption of sustainable practices, also involving an independent evaluation committee.

### **B. Describe the measures for financial and project / programme risk management.**

Risk	Impact	Probability of Occurrence (Low/Medium/High)	Mitigation Measures
Insufficient capacities to appropriately manage the day-to-day implementation and management of the project.	High	Low	The SAEP Office has administrative and financial management experience and will assume the fiduciary management functions of the project. Additional staff will be hired once to cover the AF specific requirements.
The risk that a country's political developments result in delays or the potential reversal of key political decisions and commitments (including approval and implementation of laws and regulations, and timely counterpart funding) that underpin the project's success is low. The government is stable and next general elections are foreseen for 2027.	High	Low	The project is aligned with Grenada's national policy planning, which should garner buy-in from key stakeholders. The project will also mitigate this risk through awareness raising, capacity building and exchange visits to help sceptics understand the value of the project.
Extreme weather events. Grenada is susceptible to extreme weather events, such as hurricanes and tropical storms, as well as drought conditions during dry seasons. These weather shock can have a direct impact on crops and damage infrastructure.	High	Medium	The programme will introduce climate smart infrastructure and will ensure that climate adaptation measures are implemented. In addition, by enhancing water harvesting and management, it will help ensure that farmers are better equipped to extreme weather events. Finally, by improving early warning systems, the programme will help local stakeholders to better anticipate and detect climate-related phenomena such as extreme weather events.
Low interest and capacity of smallholders to adopt new climate smart approaches and technologies.	Moderate	Low	The programme will pay attention to technical capacity building and training. It will carry out demonstrations, raise general environmental and climate change awareness, and train farmers on the economic and environmental benefits for the adoption of climate smart agriculture.
The risk that the project may cause significant pollution to air, water, and land, and inefficient use of finite resources that may threaten people, ecosystem services and the environment at the local, regional, and global levels.	Moderate	Low	Potential pollution risks have been identified and avoidance/mitigation measures are to be included in the environmental and social management plan ESMP.
The risk that the project may cause significant threats to or the loss of biodiversity, availability of diversified	Moderate	Low	The project does not work in protected areas or areas of high biodiversity significance and does not promote

nutritious food, ecosystems and ecosystem services, territories of the indigenous peoples, or the unsustainable use/production of living natural resources.			expansion of activities into such areas.
Country procurement law and regulations exist but there are no manuals.	Moderate	Low	IFAD provides capacity building and support. In ongoing operations, WB and IDB bidding documents have been utilized to ensure quality.

**C. Describe the measures for environmental and social risk management, in line with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.**

146. The objective of the project is to increase climate resilience and adaptive capacity in farming and fishing communities in Grenada through a people-centered approach, by fostering adoption and innovation of new climate smart technologies and practices through climate smart agriculture (CSA). During the full project design, the project will finalize an environmental screening and assessment in accordance with the funds Environmental and Social Policy and IFADs Environmental, Climate and Social Assessment Procedure (SECAP). The project will produce, execute and closely monitor an Environmental and Social Management Plan (ESMP).

147. The concept aims to create an enabling environment for climate change adaptation at the institutional level and to contribute to increasing the resilience of local communities (in particular young women and men). It will achieve this by upgrading and improving untreated water (developing a harvesting and distribution water system) to address increased variability in rainfall patterns and its significant impact on agriculture and livestock production, fostering innovation and introduction of new climate smart technologies and practices, and increasing awareness and capacity building among the broader population and in the Caribbean regarding early warning systems and the need to prepare for extreme weather events and other impacts of climate change.

148. The activities in this project and the way they will be designed, planned and implemented will ensure the minimization of any risk for negative social impacts. The full-sized project will be designed through a participatory and consultative process giving beneficiaries and stakeholders the opportunity to contribute and raise concerns at every level. The project targeting methodology, that will be refined during the full project design mission, will include both youth and women.

**D. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan, in compliance with the ESP and the Gender Policy of the Adaptation Fund.**

149. Project Monitoring and Evaluation (M&E) will be led by the M&E officer who will work closely with the implementing partners. The M&E system will: (i) produce, organize and disseminate the information needed for the strategic management of the project, (ii) document the results and lessons learned for internal use and for public dissemination on the achievements and (iii) respond to the information needs of Adaptation Fund, IFAD and the Government on the activities, immediate outcomes and impact of the Project. A monitoring and evaluation manual that will describe a simple and effective system for collecting, processing, analysing and disseminating data will be prepared in the first year of the Project. Capacity-

building will be carried out for M&E functions to allow tracking of project implementation and results.

150. Baseline data from the SAEP climate vulnerability assessment will be incorporated into the baseline study. The Mid-Term Review (MTR) will be carried out in year 3. It will assess operational aspects such as programme management and implementation of activities as well as the extent to which the objectives are being fulfilled and corrective actions needed for the programme to achieve impact.

151. A Final Evaluation will be conducted three months before project closure which will include the programme completion survey. The Programme completion survey (impact evaluation) will include the same set of questionnaires included at baseline to allow for comparison against baseline results. In addition, a panel of households will be interviewed to provide a thorough analysis of programme impact. Moreover, analysis will be done by type of beneficiary, region and gender of household head.

**E. Include a results framework for the project proposal, including milestones, targets and indicators, including one or more core outcome indicators of the Adaptation Fund Results Framework, and in compliance with the Gender Policy of the Adaptation Fund. Demonstrate how the project / programme aligns with the Results Framework of the Adaptation Fund**

152. To be fully detailed at full design stage.

**F. Demonstrate how the project/programme aligns with the Results Framework of the Adaptation Fund**

Project Objective(s) <sup>1</sup>	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
The <b>project goal</b> is to increase climate resilience and adaptive capacity in farming and fishing communities in Grenada through a people-centered approach, by fostering adoption and innovation of new climate smart technologies and practices through CSA.				
1. Rehabilitation and improvement of a harvesting and distribution untreated water system to address increased variability in rainfall patterns	Number of people that benefit from the rehabilitation and improvement of water systems	Outcome 4: Increased adaptive capacity within relevant development sector services and infrastructure assets	4.2. Physical infrastructure improved to withstand climate change and variability-induced stress	3,598,700
2. Innovation of new climate smart technologies and practices (CSA) through awareness & capacity building	Number of people that have adopted climate smart technologies and practices	Outcome 8: Support the development and diffusion of innovative adaptation practices, tools and technologies	8. Innovative adaptation practices are rolled out, scaled up, encouraged and/or accelerated at regional, national and/or subnational level.	3,178,359
3. Introduction of early warning systems to reduce vulnerabilities and exposure to risks in agriculture and fisheries	Number of people trained on climate vulnerability reduction in agriculture and	Outcome 1: Reduced exposure to climate-related hazards and threats	1. Relevant threat and hazard information generated and disseminated to stakeholders on a	1,563,955



	fisheries		timely basis	
Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)
1.1 Communities are enabled to upgrade and improve untreated water to address increased variability in rainfall patterns and its significant impact on agriculture and livestock production	Number of water system facilities rehabilitated and/or improved	Output 4: Vulnerable development sector services and infrastructure assets strengthened in response to climate change impacts, including variability	4.1.2. No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by sector and scale)	3,598,700
2.1 New climate smart technologies and practices are adopted, especially among women and youth.	Number of climate smart technologies <sup>1</sup> and practices adopted by communities	Output 8: Viable innovations are rolled out, scaled up, encouraged and/or accelerated.	8.1. No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated	3,178,359
3.1 Climate vulnerabilities and exposure to risks in agriculture and fisheries sectors are reduced through the utilization of early warning systems and data, promotion of broader awareness of climate change risks among the broader population, and promotion of the sharing of outcomes and lessons at a regional level.	Number of events, workshops and trainings on climate change issues implemented  Number of people receiving tailored climate information for resilience strengthening (planning and decision-making processes).	Output 1.1: Risk and vulnerability assessments conducted and updated	1.1. No. of projects/programmes that conduct and update risk and vulnerability assessments (by sector and scale)	1,563,955

<sup>1</sup> The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

**G. Include a detailed budget with budget notes, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.**

153. To be fully detailed at full design stage.

**H. Include a disbursement schedule with time-bound milestones.**

154. To be fully detailed at full design stage.

<sup>1</sup> The meaning of technologies refers to a combination of approaches, practices, know-hows and techniques. Indeed, the project intends to scale up successful experiences from SAEP (such as alternative method of pest control utilizing colour traps as a mechanical means; establishment of *trichanthera gigantea* as an alternative cheap feeding source for small ruminants and as a soil and water conservation method; introduction of new variety of grasses resilient to harsh temperatures and contain high protein content which can be used for farming; etc.) and promote innovative adaptation measures that were not included in the SAEP such as dissemination of climate information services to producers and fishers.

## PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

**A. Record of endorsement on behalf of the government<sup>2</sup>** *Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:*

<p><i>Name: Lennox J. Andrews</i></p> <p><i>Position: Minister</i></p> <p><i>Ministry: Ministry of Economic Development, Planning, Tourism, ICT, Creative Economy, Agriculture and Lands, Fisheries &amp; Cooperatives</i></p>	<p><i>Date: December 15<sup>th</sup> 2022</i></p>
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Ref. No.  
In replying the above  
Number and date of this  
Letter should be quoted  
  
Ref. No.: (473) 440-0366/7/8/9  
Email: [registry@tourism.gov.gd](mailto:registry@tourism.gov.gd)



MINISTRY OF ECONOMIC DEVELOPMENT,  
PLANNING, TOURISM, ICT, CREATIVE  
ECONOMY, AGRICULTURE AND LANDS,  
FISHERIES & CO-OPERATIVES  
4<sup>TH</sup>FLOOR, MINISTERIAL COMPLEX,  
SIR ERIC M. GAIRY  
BOTANICA GARDENS,  
ST. GEORGE'S,  
GRENADA, W.I.

## LETTER OF ENDORSEMENT BY GOVERNMENT

15<sup>th</sup> December, 2022

To: The Adaptation Fund Board  
c/o Adaptation Fund Board Secretariat  
Email: [Secretariat@Adaptation-Fund.org](mailto:Secretariat@Adaptation-Fund.org)  
Fax: 202 522 3240/5

**Subject: Endorsement for the concept note titled "Increasing climate resilience and adaptive capacity among Farming and fishing communities in Grenada"**

In my capacity as Designated Authority for the Adaptation Fund in Grenada, I confirm that the above national project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Grenada. The objective of the project is to increase climate resilience and adaptive capacity in farming and fishing communities in Grenada through a people-centred approach, by fostering adoption of new Climate Smart Agriculture (CSA) practices and technologies for agriculture and livestock, and sustainable fishing practices for fisheries.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by the International Fund for Agricultural Development (IFAD), and executed by the Ministry of Economic Development, Planning, Tourism, ICT, Creative Economy, Agriculture and Lands, Fisheries & Cooperatives.

Please accept the assurances of my highest consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Lennox J. Andrews".

**Hon. Lennox J. Andrews**

Minister, National Designated Authority for the AF  
Ministry of Economic Development, Planning, Tourism, ICT, Creative Economy, Agriculture, and Lands,  
Fisheries & Cooperatives

## B. Implementing Entity certification

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (National Agriculture Plan 2015-2030; Grenada National Sustainable Development Plan 2020-2035; Grenada National Adaptation Plan 2017-2021; National Climate Change Policy for Grenada, Carriacou and Petite Martinique 2017-2021; National Biodiversity Strategy and Action Plan 2016-2020) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

Implementing Entity coordinator:

Mr Tom Mwangi Anyonge

*Director a.i*

*Environment, Climate, Gender and Social Inclusion Division*

Date: \_09 September 2023

e-mail: [ecgmailbox@ifad.org](mailto:ecgmailbox@ifad.org)

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ECG Division

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Project contact person: Mr Oliver Page, Regional Climate Change and Environment Specialist, Latin America and the Caribbean, ECG-LAC Division, IFAD

e-mail: [o.page@ifad.org](mailto:o.page@ifad.org)