Green Climate Fund Country Programme Grenada February 2019

In our beautiful island, the close links between sustainable development and the changing climate is eminent as we are amongst the countries most vulnerable to climate change.

Without sufficient international resources to build climate resilience, national development is no longer possible. In this regard, we have established the necessary national infrastructure for accessing and leveraging international climate finance and have started to implement various climate change related projects.

Based on existing climate policies and plans, such as the National Climate Policy, the National Adaption Plan (NAP) and the National Determined Contribution (NDC), the Green Climate Fund Country programme has been developed to serve our nation as a tool to access financing from the Green Climate Fund (GCF) and other international sources.

Grenada's Country Programme for the GCF consolidates major national priorities for climate resilience and sustainable development to work. While most of the priorities were not new ideas, the stakeholder process accompanying the development of concept notes and project ideas strengthened stakeholders' ownership across sectors and enabled us to move quickly towards project preparation. The various concept notes developed have been categorized into two main programmes, namely Climate Resilient Cities and Grenada's National Integrated Resilience Programme.

In developing each concept note and outlining the country's programme priorities, we collaborated closely with the private sector as well as the climate change focal points for each different sector. The crucial integration of gender considerations in the country's programme and its concept notes was ensured throughout the process by bringing gender focal points and experts to table.

The process of developing the Country Programme was conducted with the input of more than 70 stakeholders and experts from all climate related fields. Thereby taking advantage of recent studies as well as ensuring alignment with ongoing processes.

I would like to thank the Green Climate Fund and the German Federal Ministry for Economic Cooperation and Development (BMZ) for their financial support, the Permanent Secretary, the National Designated Authority, the Environment Division, the Climate Change Focal Point Network, the members of the National Climate Change Committee and the "Getting Grenada GCF ready (3G) project team, for their support throughout this process.

I am confident that the Country Programme will contribute significantly to Grenada's 2050 resilience agenda. Grenada is committed to partner with the GCF and national, regional and international accredited entities to timely implement this country programme. We cannot build our resilience alone –we seek a genuine and committed partnership to transform Grenada into a Smart Small State.

Sen. the Hon. Simon Stiell

Minister for Climate Resilience, the Environment, Forestry, Fisheries, Disaster Management and Information

1. Country Profile

Section 1 is intended to provide a brief overview of the country's key climate challenges, its socio-economic and development status as well as the national policy process to respond to climate change challenges.

Geographical location	South-Eastern Caribbean
Land area	348.5 km2
Population	111,454 persons, of which 55,451 female and 56,003 male (2018, source: worldbank.org)
Types of climate	Tropical, with rainy season during JUL–DEC and dry season during JAN–JUN.
GHG emissions profile	2014 emissions: 406.6 Gg Co2e, representing 0.0005% of total global emissions (source: Second National Communication 2018)
Key emitter sectors	Energy Industries (Electricity production) 32% of GHG emissions Domestic Transport 29% of GHG emissions Industrial Processes 14% of GHG Emissions Waste sector 11% of GHG emissions Commercial/Residential 9% of GHG Emissions AFOLU 4% of GHG Emissions (Source: Second National Communication 20182018, 2014 data)
Key climate risks	Hurricanes, coastal floods, terrestrial floods, coastal erosion, land loss (sea level rise), storms, increased frequency of extreme rainfall events (heavy rain, droughts), landslides, forest fires, ocean acidification, coral bleaching, heat waves, longer dry seasons, shorter rainy seasons, increased average temperature, intrusion of saline water into aquifers.
Vulnerable sectors	Agriculture, tourism, construction, transport (roads and bridges), building infrastructure, energy generation & distribution, forestry, water & sewage, communication infrastructure, health, education, social protection, ecosystems (incl. marine and terrestrial protected areas), financial services (insurance), coastal resources
NDA/FP	Ministry of Finance, Planning, Economic Development and Physical Development Ms. Isha Abraham, Deputy Permanent Secretary Mr. Titus Antoine, Head (Ag.) Department of Economic and Technical Cooperation Financial Complex, The Carenage, St. George's, W.I. Grenada
National/Regional AEs	CCCCC, CDB, DOE
International AEs	CI, GIZ, EIB, FAO, IDB, IFAD, IFC, IUCN, KfW, UNDP, UNEP, WFP, WMO, WB, WWF
Potential AEs nominated	Grenada Development Bank (GDB) Nomination of Ministry of Finance and/ or Ministry of Climate Resilience is being considered

1.1 Climate change profile

The information contained in section 1.1 below is based on and edited from information contained in Grenada's Second National Communication (SNC) to the UNFCCC (GoG 07/2017 – pending Cabinet approval).

Observed Climate Changes and Their Impacts

Rising Air Temperatures: As a result of its location close to the equator and a strong marine influence, the climate of tri-state Grenada is characterised by high and relatively unchanging temperatures year-round, as well as a dry season that lasts from January to May and a wet season that lasts from June to December. The annual average temperature ranges from a low of 28.3°C to a maximum average of 33.3°C. Decadal trends in monthly temperature recordings from the Maurice Bishop International Airport show that temperatures have risen steadily over time, with the 2000s being the hottest decade on record.

Changing Rainfall Patterns: Grenada experiences most of its rainfall during the North Atlantic Hurricane season which runs from June-December. Monthly rainfall observations at the Maurice Bishop International Airport indicate that the island of Grenada receives a total of 116 cm of rainfall per year. Decadal rainfall observations from the Maurice Bishop International Airport indicate that overall, the rainfall pattern of early season months and late wet season months has remained the same, and there has been a change in the amount of rainfall observed throughout the year, especially during the late wet season. There has also been a fluctuation in the number and timing of rainfall peaks throughout the year. In addition, the 1990's have been the driest decade since 1986, as monthly rainfall was below 14 cm for majority of the rainy seasons. During the late 2000's, Grenada was impacted by severe drought conditions which affected a number of areas of the country's economy. The 2009-2010 drought began in October 2009 ended in March 2010. Total annual rainfall recorded in 2009 at Point Saline Airport was the lowest in 24 years of records. While Carriacou and Petite Martinique generally receive lower levels of rainfall and can experience severe drought conditions during the dry season, during the 2009-2010 drought, conditions in Carriacou, were particularly severe; the majority of the rainwater cisterns that supply water to critical institutions and the public dried out and water had to be barged from Grenada to meet the needs of residents.

Increased Sea Surface Temperatures: Sea surface temperature (SST) has significantly warmed during the past 30 years over 70% of the world's coastline with the average rate of rise being 0.18 ± 0.16°C per decade. A recent study that examined the magnitude of long-term SST trends in the Wider Caribbean (WC) and the Antilles found that annual mean SST trends combining the sub-periods 1906–1969 and 1972–2005 are 1.32±0.41°C per century for the Antilles and 1.08±0.32°C per century for the WC. However, for the same regions during the sub-period 1972–2005, the corresponding trends are 1.41±0.68 °C per century and 1.18±0.49 °C per century, illustrating the warming intensification during the last four decades.

Greater Intensity of Hurricanes: A recent report indicates that over the period 1856 to 2012 there has been an increase in the number of hurricanes passing within a 100-km radius of Grenada. The report also notes a period of increased hurricane activity beginning in the year 2000 and that there was a sharp increase in the number of more intense storms (Category 4 and 5 hurricanes) starting in 2002. From 1950 to 2014, Grenada was impacted by three hurricanes that passed within 50 km of St. Georges; Hurricane Janet (1955), Hurricane Ivan (2004) and Hurricane Emily (2005). The report also notes that between 1950 and 2014 the islands of Petite Martinique and Carriacou have only been impacted by two hurricanes that passed within a radius of 50 km and the islands of Petite Martinique and Carriacou have not been impacted by a hurricane in the last 60 years. The IPCC has concluded that the frequency and intensity of the strongest tropical cyclones in the North Atlantic have increased since the 1970s and other studies also indicate an increase in the annual number of tropical storms over the last 30 years. In the Caribbean, inter-annual variations in rainfall and drought incidence are associated with the El Niño Southern Oscillation (ENSO) phenomenon. These cycles normally range from 3 to 7 years and are characterised by the warm phase El Nino period, where there are less active Tropical Atlantic Hurricane seasons and by the cool phase La Nina period of more active stronger storms.

Sea Level Rise (SLR): According to the IPCC, from 1901 to 2010, global mean sea level rose by 0.19 m and the rate of rise since the 1850s was larger than the average rate during the previous 2,000 years. Global mean SLR is projected to continue during the 21st century, with the rate of rise being greater than observed in recent decades and not uniform across regions. Observations from tidal gauges which are deployed across the Caribbean basin indicate that regional SLR is relatively consistent with global trends and range from 1.64 (+/- 0.80) mm/yr (Guantanamo Bay, Cuba) to 2.78 (+/- 0.60) mm/yr (Vaca Key, Florida).

Storm Surges: Grenada has historically been impacted by storm surges which are associated with weather events such as tropical storms and hurricanes. The storm surge produced by Hurricane Lenny in 1999 caused extensive damage to infrastructure along the west coast of the island and to Carriacou and Petite Martinique. In 2004, Grenada was impacted by Hurricane Ivan and eyewitness accounts indicate that Soubise in particular, experienced storm surges and wave run-up in excess of 3 m above sea level. The great majority of 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. Evidence of beach erosion is already present in Grenada (Grande Anse, Marquis Beach, Soubise Beach and Carenage) and further changes in the coastal profile would transform coastal tourism, with implications for destination competitiveness, property values, insurance costs, marketing and wider issues of local employment and economic well-being of thousands of persons.

Vulnerabilities: As a small island developing state Grenada is particularly vulnerable to the impacts of climate change, as evidenced by the impacts of extreme events and the occurrences of increased forest fires, crop loss, water shortages and incidence of pests and diseases occurring in recent years. Grenada's key economic sectors like agriculture and tourism are extremely vulnerable to the impacts of climate change. All of Grenada`s economic areas including towns and ports are located on the coast, with the single airport on the island being one of the most vulnerable in the region to sea level rise. Maintaining a healthy natural environment is also imperative to reduce vulnerability to climate change and ecosystem-based adaptation to climate change and sea level rise is a priority for Grenada.

Projected Climate Changes and Biophysical Impacts

According to the SNC, it is highly likely that future climate changes, including rising temperatures, variable rainfall and increasing drought, more intense tropical storms and hurricanes and sea level rise will have far-reaching biophysical impacts in Grenada. Climate model projections of future scenarios referred to below are based on both General Circulation Model (GCM) ensemble of 15 models and the Regional Climate Model (RCM), PRECIS, driven by two different GCMs (ECHAM4 and HadCM3) and forced by the A2, A1B and B2 IPCC marker scenarios.

Future Air Temperature: Mean annual temperatures in Grenada are projected to increase, irrespective of the scenario or model used. GCM projections indicate that Grenada can be expected to warm by 0.7˚C to 2.2˚C by the 2050s and 1˚C to 3.7˚C by the 2080s, relative to the 1970-1999 mean. This is consistent with projections from the IPCC Fifth Assessment Report (AR5), which indicates that the average air temperature in the Caribbean will rise by 1.4°C by 2081-2100 relative to 1986-2005. RCM projections driven by ECHAM4 and HadCM3 indicate much more rapid increases in temperatures over Grenada compared to the median projections from the GCM ensemble for the A2 scenario. RCM projections indicate increases of 3.2˚C and 2.4˚C in mean annual temperatures by the 2080s when driven by the ECHAM4 and HadCM3 respectively. The GCM ensemble projections for the same period range from 2 to 3.7˚C. Since the surface of land masses warm more rapidly than ocean due to their lower heat capacity, a more rapid warming over Grenada is seen in the RCM projections forced by the A2 marker scenario compared to the GCMs.

Future Rainfall Patterns: GCM projections of future rainfall for Grenada tend towards decreases in most models. Projected rainfall changes in annual rainfall range from -40 to +7 mm per month (-66% to +12%) by the 2080s across the three emissions scenarios. The overall decreases in annual rainfall projected by GCMs occur largely through decreased rainfall during the months of June to August and September to November. RCM projections of rainfall for Grenada are strongly influenced by the driving GCM providing boundary conditions. Driven by ECHAM4, RCM projections indicate a large proportional decrease over the months of June to August (-41%) and decreases over the periods of December to February (-21%); and March to May (-15%) resulting in a decrease in total annual rainfall (-22%). When driven by HadCM3, RCM projections indicate large proportional decreases in rainfall in December to February (-41%) and March to May (-47%) months resulting in a substantial decrease in annual rainfall (-29%). These results are consistent with other regional projections performed using PRECIS, which have also indicated drier conditions in the southern Caribbean, with drying occurring in the traditional wet season (June–October). Lengthening of seasonal dry periods and increasing frequency of drought are expected to increase demand for water throughout the region.

Future Intensities of Storms and Hurricanes: Projected increases in Sea Surface Temperatures as well as more recent projections of future increases in windspeed all 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.

Future Sea Surface Temperature (SST): GCM projections indicate increases in sea-surface temperatures throughout the year. Projected increases range between +0.9˚C and +3.1˚C by the 2080s across all three emissions scenarios. This is supported by the IPCC's AR5 which notes that based on projected temperature increase, there is high confidence that positive SST trends will continue well into the future.

Future Sea Level Rise: The IPCC (AR5) projects that net sea-level in the Caribbean will rise by 0.5-0.6m by 2081–2100 (relative to 1986–2005). However, other studies integrating land ice contributions have proposed a more dramatic increase globally, of up to 1.4 m by the year 2100, which would have severe implications if the regional rate of rise remains consistent with global trends. Despite the variances in projections, there is fundamental consensuses that mean sea level rise will continue during the 21st century.

Future Storm Surges: Changes to the frequency or magnitude of storm surges experienced at coastal locations in Grenada are likely to occur as a result of the combined effects of several factors: 1) Increased mean sea level in the region, which raises the base sea level over which a given storm surge height is superimposed; 2) Changes in storm surge height, or frequency of occurrence, resulting from changes in the severity or frequency of storms; and 3) Physical characteristics of the region (bathymetry and topography) which determine the sensitivity of the region to storm surge by influencing the height of the storm surge generated by a given storm.

Projected Biophysical Impacts

The biophysical impacts of future climate change and sea level rise on coastal resources are, but not limited to:

- 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;
- Prolonged dry periods, higher temperatures and increased rates of evapotranspiration will also negatively impact the water supply systems of the islands and increasing episodes of drought, based on the SPI (Standard Precipitation index) especially in the dry season would severely affect the calendar of farmers (planting dates…);
- Increasing ocean acidification and the inhibition of primary production processes and disruptions to 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 important fisheries habitats but also facilitate stabilisation 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.

Projected Impacts on Socioeconomic Sectors

Coastal Resources: Natural habitat destruction is one major issue of concern within the coastal zone of Grenada. For example, the removal of mangrove stands as a source of fuel (charcoal) is reducing the natural physical and biological functionality of this ecosystem. Furthermore, the harvesting of corals over time has resulted in the physical damage to the structure of reefs and the ecosystem function these provide. The destruction of sea grass beds to promote coastal development and the unsustainable and inappropriate fishing methods/practices are also issues of concern. Over-harvesting of specific species of reef fish and shellfish is also contributing to the exploitation of coastal resources. Furthermore, the fisheries resources have been negatively affected by inappropriate fishing activities; especially within the near shore areas of Grenada. Grenada's sandy beaches have also experienced changes due to anthropogenic activities. Previously, almost all sands used in the construction, transport and tourism industries in Grenada came from beaches and further exacerbated beach erosion. Presently, sand mining is only authorized at a few sites and only one entity is legally allowed to engage in sand-mining. This entity ceased mining since April 2016 and is now promoting the use of imported sand. Although recently curtailed, the removal of mangroves for hotel, marina or other coastal development, remains a significant threat. In some areas, mangroves are replaced by beaches (built) which may disrupt the natural ecological transition of coastal vegetation. In addition, increased sedimentation along with the introduction of sewage and other wastes from land into the sea has increased pressures on coastal resources. Other impacts include loss of tourism, recreation and transportation; increased risk of disease outbreaks and loss of cultural assets and historical values.

Water Resources: The major vulnerabilities impacting the water sector in Grenada are the extreme in rainfall patterns. On the one hand, heavy and intense rainfalls cause flooding and sedimentation that affect water quality. On the other, the increase in the occurrence of droughts due to lack of rainfall, especially in the dry season, increase in air temperature and evapotranspiration all lead to shortfalls in water supply and affect key sectors such as tourism and agriculture. Increasing demand for water based on current supply and demand trends for domestic, commercial and tourism-based consumption are other factors to consider.

Agriculture: Climate change threatens to progressively deteriorate food supply and economic growth in complex ways across tri-state Grenada. The potential for intensifying impacts and vulnerability has contributed to growing concerns about the long-term effects of climate change on the agricultural sector and food security, livelihoods of the poor and other vulnerable populations in Grenada. Understanding how local climate and other environmental variables (e.g. rainfall, temperature, potential evapotranspiration, vegetation and soils) are changing is therefore an absolute imperative. Despite the agriculture sector's low contribution to GDP and the reliance on food imports, agriculture is a significant source of local food supply and plays a major role in economic growth and diversification in Grenada. Grenada is a net importer of food and climate change impacts in supply countries will affect price and availability of food. Local farmers are already feeling the effects of climate change that is affecting domestic food production and food security. The Government of Grenada has identified the agriculture sector as one of the pillars of the national economy. Despite accounting for 6.2% of Grenada's GDP in 2015, agriculture makes a significant contribution to the livelihoods of many rural people and makes up almost 40% of total land use. The principal exports include nutmeg, cocoa, mace, cinnamon, banana, mango, and avocado. Grenada's agricultural sector is highly vulnerable to the existing climate variability and is susceptible to extended periods of drought. The end of century climate projection for tri-state Grenada shows a consistent drying trend across many different models and global warming scenarios. Tropical storms and hurricanes that are expected to be more frequent and more intense following climate change are also a major threat to crop production, especially key export crops such as nutmeg and cocoa. This will in all likelihood affect crop production and a greater reliance on irrigation water use. Also, the thriving tourism sector influences productivity in related sectors such as agriculture.

Fisheries and Coastal Ecosystems: Significant impacts from climate change and climate variability are expected to be experienced in the coastal and marine environments of Grenada over the next several decades. As fisheries and coastal ecosystems are part of an integrated social-ecological system, climate change will therefore have interconnected bio-physical and social impacts. These will be all the more significant as climate change and climate variability are expected to exacerbate existing stressors as well as introduce additional adverse impacts on fisheries and coastal ecosystems. Numerous pathways exist through which climate change can impact fisheries in Grenada. Causal variables of impact include SLR, altered precipitation patterns, varied ocean and coastal processes such as wind velocity, wave action and ocean currents and changes in chemical and physical oceanographic parameters such as pH and water temperature. Grenada and its dependencies are amongst the most vulnerable due to the high dependence on marine resources, and the high vulnerability of fisherfolk and fisheries infrastructure in the coastal zone. Consequently, effective adaptation measures for the fisheries sector are particularly critical for sustainable livelihoods, improved food security and protection of marine resources.

Human Health: Vector-borne diseases (particularly Dengue, Chikungunya and Zika virus) are a primary concern, due to the difficulty of vector management and the outbreak prone nature of these diseases. An increase in intense rainfalls and temperatures is likely to create favourable mosquito breeding conditions, making the control of these diseases a priority in the health sector. Rodent-borne diseases such as leptospirosis are prone to outbreaks during floods, when sewage can mix with drinking water supplies, increasing the risk of human infection. Heavy rainfall and hurricanes are often accompanied by an increase in water-borne diseases, when communities using pit latrines are flooded and their water supplies contaminated. Climate change presents significant risks to human population in developing countries and small island states as Grenada where health burdens are relatively high and the resources to adequately address these burdens tend to be limited. A number of determinants contribute to population vulnerability to injury and disease, and even more so under circumstances of a variable and changing climate. These determinants may operate in solo, but more often work in interconnected and complex ways:

- Location is one such determinant: increasing temperatures on outdoor workers in areas where temperatures are already high, as well the impact of extreme heat on health of persons living and working in congested, urban areas, increased flooding in coastal low-lying areas from sea level rise, and the impacts of reduced rainfall on rural farming communities and regions that might increase the risks of under-nutrition and water-related diseases;
- Vulnerability tends to be higher in low-income areas and regions, as limited access to resources do not allow for adequate preventative or adaptive measures;
- Vulnerability to disease and injury is also relatively higher in infants, youths and the elderly compared to other age groups, owing to reasons of physiology (mainly in children) and limited mobility and sub-optimal health in the elderly;

- Quality of, and access to public health infrastructure and service deployment are also crucial to determining vulnerability. The quality of other public service provision and infrastructure (water supply, sanitation, electricity, etc.) also plays a role in reducing or contributing to the vulnerability of the population to diseases and injuries.

Tourism: Grenada's tourism sector is one of the main drivers of economic growth, particularly with the decline in the agricultural sector. Tourism's significance as a foreign exchange earner, employer and catalyst for investment in Grenada is reflected in the commitments by the government, private sector and communities: for instance, one of the six strategic objectives outlined in Grenada's Growth and Poverty Reduction Strategy, 2014 – 2018, is "Developing Tourism and Hospitality Industries" to help improve the country's competitiveness both regionally and globally. The Government of Grenada plans to create conditions for the sustainable prosperity of the people and future generations through, amongst other things, developing "a world class service industry especially in tourism". However, the tourism sub-sector of Grenada is very likely to face a variety of vulnerabilities and challenges with climate change and sea level rise in the future. Amongst these expected impacts are:

- Increasing air temperatures may make conditions too hot for certain tourists, especially the elderly that make up a large percentage of tourists;
- Warming in the countries of origin, North America and Europe in particular, may cause more tourists to stay in their home countries in winter, the peak tourist season;
- The expected increase in the number and intensity of tropical storms and hurricanes may deter certain tourists to Grenada, although this threat is limited to the low tourist season;
- Sea level rise may exacerbate coastal erosion and loss of certain beaches and sunning and swimming activities;
- Ocean temperature increase and acidification will cause severe damages to coral reefs that are crucial habitats for fisheries and snorkelling and diving activities;
- On account of the impending threats of sea level rise, more frequent and intense hurricanes, damages to hotels and costal infrastructure (roads and bridges) may affect tourist activities;
- Insurance costs to hotels may also increase and when passed on to tourists, the costs may become prohibitive;
- If tourism is affected, other sectors and peoples employed in these sectors (agriculture, fisheries, transport, etc.) may also be affected through loss of employment;
- Airline travel costs may become prohibitively expensive if aircrafts emissions reductions incur additional airline travel costs.

Human Settlements and Infrastructure: The vulnerabilities of Grenada's people, communities and infrastructure are shaped by several factors, namely, natural, social, gender, economic and cultural which often interact in various, and sometimes complex ways to create vulnerable circumstances such as:

- Hurricanes and attendant storm surges are most notable in coastal areas where most of the settlements and infrastructure are located;
- Other physical factors such as topography and geology expose sections of the country (the coastal town of Gouyave) to climate-induced secondary hazards such as landslides and flooding, especially during or in the aftermath of extreme rainfall;
- Human activities (agriculture, construction and development, etc.) further contribute to slope destabilisation and landslide risk as significant construction activities occur on very steep slopes (>45°), and landslides often impact the road network (Constantine Main Road) and bridges (Lance and Hubble bridges);
- Grenada's relatively dense drainage and steep relief give rise to flash flood events during periods of heavy rainfall, which typically affect settlements and other infrastructure located close to rivers, especially those located near the lower stages of river channels and within coastal areas;
- Intense rainfall associated with tropical storms and hurricanes along with the mountainous terrain expose Grenada to incidents of land slippage and flash flood events: areas which are about 2 m below sea level such as St. Georges, Grenville, Hillsborough and the southwest peninsula of the island;
- Poverty and gender related issues also are major contributors to vulnerability (poorly constructed homes, etc.).

GHG Emission Trends

The Second National Communication to UNFCC reports the following GHG emission trends for 2000-2014:

Energy (Including Domestic Transport): For the Energy (including domestic transport) sub-sector GHG emissions in 2000 was 212.8 Gg CO2e and rose to 285.5 Gg CO2e in 2014, an increase of 34.2%. This increase was mainly attributed to Energy industries (power plants).

Industrial Processes: Important industrial sectors include cement (producing CO2 from the use of primarily limestone feedstock) and food and drink manufacture, chiefly sugar NMVOCs from fermentation and food production processes). In addition to the large manufacturing processes, emission from the use of fluorinated gases (HFC and SF6) used in refrigeration, air conditioning, fire equipment, aerosols and some foams are included in the industrial processes sector. For the Industrial Processes, sub-sector GHG emissions in 2000 was 1.4 Gg CO2e and rose to 58.3 Gg CO2e in 2014, 41 times the 2000 figure. This increase was mainly attributed to the dramatic increase since 1995 as chlorofluorocarbons (CFCs) banned by the Montreal Protocol were substituted by other agents.

Agriculture, Forestry and Other Land Use (AFOLU): In spite of ravages to the main commercial crops, namely nutmeg and cocoa, emissions from the sub-sector in 2000 was 16.6 Gg CO2e and rose modestly to 18.3 Gg CO2e in 2014, a meagre increase of 9.3 %. This small increase was mainly attributed to drought conditions even in the rainy season and to the destruction of crops caused by tropical storms and hurricanes. But enteric fermentation from animals and manure management showed slight increases in CH4 emissions. For the Forestry and Other Land Use sub-sector GHG emissions/removals in 2000 was 0.2 Gg CO2e and 0.0 Gg CO2e in 2014. This trend in this sub-sector was mainly because in 2004 and 2005 the sub-sector became a source of GHG emissions (887.1 Gg CO2e instead of a sink following ravages of the forests and other ecosystems by Hurricane Ivan (2004) and Tropical Storm Emily (2005): the fermentation of the destroyed forests and other ecosystems led to GHG emissions. But starting in 2006 and leading up to 2010, the regrowth of the forests and other ecosystems led the sub- sector to become once again a sequestration sink (-177.4 Gg CO2e).

Waste: For the waste sub-sector, the main GHG emitted is Methane (CH4) from landfills and wastewater handling. For the Waste, sub-sector GHG emissions in 2000 was 41.2 Gg CO2e and rose to 44.5 Gg CO2e in 2014, an increase of 8%. This increase was mainly attributed to the slight increase in population and residential, commercial and industries, especially tourism related activities, generating more solid waste and wastewater.

In summary, in 2014 the Energy subsector (including domestic transport) accounted for 70.22%; the Industrial Processes sub-sector accounted for 14.34%; the Waste sub-sector accounted for 10.94% and the Agriculture sub-sector accounted for 4.49% of GHG emissions when expressed as CO2e.

1.2 Development profile

Over the course of its 40-year history, Grenada's transition from a colonial to an independent economy was marked by an economy that remained anchored largely on traditional exports, including bananas and sugar, supported through preferential treatment, protection from competition through high tariffs and access to ODA. With the creation of the WTO and the development of NAFTA, trade gradually liberalized on a global and regional level. While small island states, such as Grenada, argued for special and differential treatment and continued unilateral preferences, such pleas were largely unsuccessful. As a result, the annual rate of economic growth in Grenada, and other small island states, began to decline and debt began to accumulate. While in many ways, Grenada's economic experience was similar to other OECS member states since 2001, hurricanes Ivan (2004) and Emily (2005) obliterated Grenada's economy and exacerbated its debt situation to a far greater extent than the others.

The debt to GDP ratio was 107% in 2013, which has constrained economic growth and poverty reduction. According to the IMF, "the Grenadian economy grew by about 3.9 percent in 2016, reflecting continued strong construction activity and steady external demand for Grenada's tourism services. The pace of restructuring of public debt was accelerated and Grenada's debt-to-GDP ratio declined to 83.4 percent at end-2016. (…) While recent progress is commendable, Grenada remains a small open economy susceptible to external shocks, including from natural disasters and swings in tourism demand and commodity prices. While prospects for debt sustainability have vastly improved, public debt is still relatively high and the authorities need to continue their efforts to reach medium term debt targets and to lower unemployment, raise productivity, and broaden the base of growth.". The impact of debt-creating exogenous shocks such as natural disasters has been considerable, with the OECS sub-region among the most disaster-prone in the world. Years in which the growth in debt-to-GDP ratios are largely unexplained by fiscal policy have tended to coincide with natural disasters, such as major hurricanes in 1998, 1999, 2004, 2007, and 2008, all of which had devastating effects (source: GPRS).

According to Grenada's Growth and Poverty Reduction Strategy 2014 – 2018 (GPRS), Grenada is at a crossroads where significant structural and institutional changes are required if economic growth and prosperity are to return and to be sustained. What is needed is an economy built on competitive advantage, entrepreneurship and the ability to adapt to changing economic conditions. The GPRS notes: "The challenging level of economic growth and unemployment recorded and forecasted for the Grenada economy signals the urgency for a fundamental change in the development paradigm, to that of the "New Economy" which will be driven primarily by endogenous knowledge, technology, innovation and entrepreneurship". The GoG envisions that the "New Economy" will comprise, inter alia, a world class tourism, yachting and marina destination, complemented by efficient business, finance and information technology services, an efficient light manufacturing sector, a well-diversified agricultural sector focused on "value added" products, a dynamic oil and gas and renewable energy sector, and a highly efficient agro-industrial sector cluster dedicated to oils and flavour extraction for health, food, cosmetic and pharmaceutical applications. The strategic objectives of the GPRS are:

1: Stabilizing the Macro-Economy	1.1 Boosting growth and job creation; 1.2 Improving fiscal sustainability; 1.3 Improving debt sustainability
2: Enabling the Business Environment	2.2 Enhancing international trade and market access capacity 2.3 Developing financial services for "pro-poor" growth (MAP) 2.4 Adopting a 'Doing Business' Agenda 2.5 Expanding the MSME sub-sector (MAP)
3: Leveraging the Growth Sectors	Development of: 3.1 Health and Wellness (Geriatric Care) 3.2 New Agriculture and Agribusiness 3.3 Tourism and Hospitality Industries 3.4 Energy Development and Energy Security 3.5 ICT and Management 3.6 Other Services Sectors (educational, construction, cultural, financial, professional, personal care);
4: Developing Sustainable Energy	4.1 Explore and exploit a hydro-carbon development strategy; 4.2 Up-scale investment in the development of clean and renewable sources of energy.

The Government of Grenada (GoG) started to develop the National Strategic Development Plan 2030, which includes the following projected strategic priorities: A caring society; governance; a competitive private sector; infrastructure, environment & ecology; innovation; and climate change and disaster management. Across these priorities, it is foreseen that the National Strategic Development Plan 2030 will be "climate-proofed", i.e. climate change considerations will be integrated across the strategic pillars.

Key development indicators for Grenada, the World and Latin America & the Caribbean (LAC) are listed below:

	Grenada	World	LAC
GNI, USD billions, Atlas method, 2018	1.1	84'303	5'580
GNI per capita, Atlas method, USD, 2018	9'780	11'101	8'700
GNI per capita at purchasing power parity, USD, 2018	14'270	17'902	16'111
GDP growth, %, 2018	4.8	3.0	1.5
GDP growth, average annual % growth, 1990-2000	3.5	2.8	3.1
GDP growth, average annual % growth, 2000-2018	2.1	2.8	2.9
Population density, people per sq. km 2018	328	60	32
Urban population, % of total population, 2016	36	54	80
Ease of doing business rank, 2017, out of 190 countries	142	1-190	49 (MEX) - 188 (VEN)
Human Development Index (HDI) rank, 2017, out of 189 countries	75	1-189	44 (CHL) - 168 (HTI)
Domestic credit to private sector (as % of GDP, 2017)	51	104	49

Source: World Development Indicators 2018, World Bank, except HDI - HDI website of UNDP

As regards social indicators, it is important to note that unemployment is very high (about 29%), particularly among youths, and poverty remains very high too. Approximately 38% of population live below the national poverty line with an estimated 2.4% being considered as indigent and an additional 14% being considered highly vulnerable.

1.3 Climate change response

1.3.1 National frameworks

Climate change policy

GoG adopted the following climate change policies discussed further below (both adopted in November 2017):

- The National Climate Change Policy for Grenada, Carriacou and Petite Martinique 2017-2021 (NCCP).
- The National Climate Change Adaptation Plan for Grenada, Carriacou and Petite Martinique 2017-2021 (NAP)

A number of additional policies are relevant in the context of climate change policy as follows:

- The Grenada Growth and Poverty Reduction Strategy 2014 – 2018 (GPRS)
- The National Strategic Development Plan 2030 (in elaboration)
- The 2011 National Energy Policy (NEP)
- The Energy Development Strategy (2010-2020)
- The GREENADA vision 2030, adopted in 2012
- The 2017 National Sustainable Development Plan 2030
- The Environmental and Natural Resources Policy Framework (in elaboration)
- Grenada's Protected Areas Systems Plan, 2012
- Integrated Coastal Zone Management Policy for Grenada, Carriacou and Petite Martinique, 2015
- Grenada National Water Policy 2019 (Final Copy)
- Grenada Forestry Policy and Strategy 2018 (Final Draft)

Grenada contributed to the UNFCCC process right from the beginning. The Convention entered into force on the tri-island state on 09 November 1994. In the following years, the Government produced a series of studies and policies:

- UNFCCC ratification (1994)
- Initial National Communication (INC 2000)
- Kyoto Protocol ratification (2005)
- Technology Needs Assessment: Adaptation Report (TNA 2007)
- National Climate Change Policy and Action Plan 2007-2011 (NCCP-AP 2007)
- Intended Nationally Determined Contribution, INDC (2015)
- Second National Communication (SNC 2017, in elaboration)

Table 1 includes a summary of Grenada's NDC targets.

Table 1: Summary of INDC/NDC targets		Estimated resources required USD $
Conditional	Adaptation: Grenada will undertake actions in the following areas: - Enhancing institutional framework; - Building coastal resilience; - Improving water resource management; and - Building the resilience of communities.	USD 161.43 million through 2025
	Mitigation: Grenada will undertake actions in the following areas: - Grenada commits to reducing its Greenhouse gas emissions by 30% of 2010 by 2025, with an indicative reduction of 40% of 2010 by 2030.	
Unconditional	N/A	

The objectives and strategies defined by the NCCP are included below:

NCCP objectives for 2017 – 2021	Policy objectives are to be achieved through the pursuit of 13 inter-related strategies:
a) Strengthen institutional structure to support coordination, mainstreaming and implementation of climate change adaptation and mitigation action, along with the systematic integration of climate change	i. Appoint sectoral climate change focal points and deliver institutional training and mentoring to extend the existing institutional responsibility for climate change beyond the National Climate Change Committee (NCCC), Environment Division and Division of Economic and Technical Cooperation (DETC).

adaptation into development policies, plans, programmes, projects, budgets and processes. b) Build climate resilience in the following priority thematic areas: water supply and sewage management; 'agriculture, agri-business and food security'; biodiversity and ecosystems; human health and coastal zone management. c) Facilitate climate smart (low carbon, climate resilient) infrastructure location, planning, design and maintenance, sustainable land management and reduce greenhouse gas (GHG) emissions in the electricity, transport, waste and forestry sectors. d) Integrate disaster risk management and climate change adaptation, and support funding applications for disaster risk management activities. e) Strengthen institutional arrangements for the collection, storage, analysis, sharing and use of climate, GHG emission and pollutant/chemical data and information to inform evidence-based decision making. f) Improve citizens' awareness of the causes, impacts and appropriate responses to climate change, so that they are in a better position to take independent action and support relevant public policies, and state and non-state activities. g) Access climate technologies for mitigation and adaption along with capacity building. Increase external climate finance support to Grenada's adaptation and mitigation process. h) Advocate for international action on climate change through foreign policy.	ii. Improve project coordination and continue convening NCCC meetings and the Sustainable Development Council to facilitate public participation in climate change decision-making. iii. Integrate adaptation into the National Sustainable Development Plan 2030 formulation and implementation, priority sectoral corporate plans, the Public Sector Investment Programme (PSIP) budget and approval process, and environmental impact assessments. iv. Strengthen data collection and analysis; introduce physical adaptation and mitigation interventions, stronger enforcement and incentives; and update law, regulations, policy and plans in the following priority thematic areas to build climate resilience: water supply and sewage management; 'agriculture, agribusiness and food security; biodiversity and ecosystems; and coastal zone management. v. Assess vulnerability of critical infrastructure assets (e.g. Dumfries, Maurice Bishop, and Pearls airports). Provide training and mentoring to enable building code and enforcement of the Physical Development Plan. Provide guidance and incentives for climate smart development and update policies and plans to ensure land and infrastructure development is climate smart. vi. Provide support to National Disaster Management Agency (NaDMA) in delivery and financing of climate-related disaster preparedness, response and recovery activities. vii. Build capacity of the Grenada Meteorological Service such that it can provide all sectors and types of organization with climate data and information that will help th to build resilience to a changing climate. viii. Establish and maintain a centralised GHG emissions data and information management system at the Energy Division. ix. Promote use of climate change educational materials in primary and secondary school and university programmes. Raise awareness within communities, NGOs and companies about climate change issues. Seek the participation of all levels of Grenadian society. Regularly update senior decision-makers on the latest developments in climate science, impacts and approaches. x. Promote and incentivise renewable energy and energy efficiency in the electricity, transport and waste sectors; sequester carbon through afforestation/reforestation activities. xi. Facilitate use of national budget, domestic and international private finance, and external grant and concessional funds, to adapt to and mitigate climate change. xii. Integrate and communicate climate resilience and mitigation into foreign policy. xiii. Promote foreign policy advocacy for international action on climate change.
The above mentioned NCCP objectives and strategies have been generated through a 'bottom-up' consultative process, cognizant of international UNFCCC commitments by Grenada, regional CARICOM policies (Climate Change and the Caribbean: A Regional Framework for Achieving Development Resilient to Climate Change 2009-2015; Delivering Transformational Change 2011-21: Implementing the CARICOM Regional Framework for Achieving Development Resilient to Climate Change; the CARICOM Energy Policy), and the draft Environmental and Natural Resources Policy Framework.	

As regards climate change mitigation and in order to foster the transition to a low carbon economy, fuelled mostly by renewables, the NCCP states that the GoG triggered several initiatives:

- Grenada's NEP contains a ten-year Sustainable Energy Action Plan (January 2010 - December 2019) with measurable indicators or milestones of progress.
- In 2015, the Government committed itself at the COP 21 (Paris), with the submission of Grenada's INDC to reduce greenhouse gas emissions by 30 % in 2025 and by 40 % in 2030 compared to 2010 levels.

The NCCP states that these reductions are to be achieved through policy changes in the electricity, transport, waste and forestry sectors. As regards electricity, the Government is currently drafting new sector legislation that will foster the use of renewable energies and will open the market for domestic and foreign investments in new and sustainable generation capacities. In order to further stimulate private investments in renewable energies and energy efficient technologies, the Government grants VAT and CET (CARICOM External Tariff) exemptions on such technologies. In addition, the Parliament passed the new Electricity Supply Act

(ESA), which allows for an opening of the electricity generation market, to enable more widespread installation and use of renewable energy technologies.

Goals for climate change adaptation have been defined in the Grenada National Adaptation Plan 2017-2021 (NAP):

Programs of Action (PoA)	Goals	Indicators
PoA01: Institutional arrangements	1. The institutional structure to support coordination, integration and implementation of climate change adaptation action is strengthened.	1.1 At least 12 Ministries/Agencies have active climate change focal points. 1.2 Evidence that national climate change committee meets on a regular basis and is functioning at the national level, involving the private sector, CBOs and NGOs (with specific attention given to youth and gender groups).
PoA02: Integration	2. Climate change adaptation is reflected in the process of the National Sustainable Development Plan 2030 formulation and implementation. 3. Climate change is systematically considered and budgeted for in new government projects.	2.1 Climate change adaptation is a cross-cutting topic In the National Sustainable Development Plan 2030. 3.1 All new Public Sector Investment Programme (PSIP) projects undergo the CCORAL screening. 3.2 50% of new PSIP projects that have ranked as "high climate change relevance" integrate adaptation considerations into the project design by 2021.
PoA03: Water availability	4. A climate-responsive water governance structure is established.	4.1 55% of institutional mechanisms taken to improve planning, management and efficient use of water resources.
PoA04: Food security	5. The foundation is laid for food availability, stability, access and safety amidst increasing climate change risks.	5.1 60% of agriculture officers are advising farmers to implement climate-smart agriculture (CSA) practices.
PoA05: Ecosystem reliability	6. The management and conservation of protected areas and other key ecosystems areas has improved.	6.1 Protecting and sustainably managing 20% of Grenada's marine, coastal and terrestrial ecosystems by 2021.
PoA06: Integrated Coastal Zone Management	7. The institutional, professional and technical capacity for integrated coastal zone management is built.	7.1 A Coastal Zone Management Unit is established by 2020.
PoA07: Resilient Infrastructure and sustainable land management	8. Selected infrastructure is located, planned, designed and maintained to be resilient to climate change, including increasingly extreme weather events; land is managed sustainably.	8.1 All ministries and government agencies with the mandate for land management have the capacity to use spatial data to inform decisions on sustainable land management. 8.2 Climate variability and change is integrated into policies and guidelines for physical planning and development.
PoA08: Disaster risk reduction and disease prevention	9. Funding for the implementation of actions focusing on reducing the risk posed by extreme weather events, as part of NaDMA's 5-year Country Programme is mobilized. 10. Climate-sensitive human disease surveillance and control is established.	9.1 At least two project proposals are submitted annually to potential donors and investors, commencing in 2017. 10.1 Climate information has been included in national disease surveillance systems to strengthen the analyses and use of climate sensitivity disease data.
PoA09: Climate and sea-level rise data and projections	11. Institutional arrangements for the collection, analysis and provision of climate-related data for use in decision-making are strengthened.	11.1 The Meteorological Office has established a central repository for climate related data that is operational with information being shared among agencies by 2020. 11.2 The National Hydrological and Meteorological Service is established and operational to collect climate related data from all available sources by 2021.
PoA10: Sustained public education and participation	12. An informed public that will demand and support public policies aimed at building national resilience to climate change.	12.1 Compared to the 2016 OECS survey, results of a repeated KAP (Knowledge, Attitudes and Practice) survey on Climate Change demonstrate improved results for Grenada by 2021.
PoA11: Climate financing	13. Successful project applications ensure external climate finance support to Grenada's adaptation process.	13.1 The GCF has granted Grenada financial support for readiness activities by 06/2017. 13.2 At least two project proposals to finance implementation of selected NAP activities are submitted to potential donors and/or investors annually, starting in 2017. 13.3 At least one proposal for funding of PoA03 has been submitted to the CCF and/or other potential sources of financing by 12/2017.

PoA12: Monitoring and evaluation	14. The implementation of proposed NAP measures is documented.	14.1 Assessment reports on the implementation of the NAP measures are released every 2 years and make recommendations on possible adjustments to the implementation process and for the update of the NAP document 2022-2027.
Source: Grenada National Adaptation Plan 2017-2022		

The indicative cost of NAP PoAs is:

PoA	Indicative cost in USD million	% of total
PoA 7 – Resilient Infrastructure and Sustainable Land Management	105.4	43%
PoA 3- Water availability	50.2	20%
PoA 4 - Food Security	47.4	19%
PoA 5 – Ecosystem Resilience	17.6	7%
PoA 6 – Integrated Coastal Zone Management	15.1	6%
PoA 9 – Climate and sea-level rise data and projections	7.0	3%
PoA 11 – Adaptation Financing	1.4	>1%
PoA 2 - Systematic integration of adaptation into development policies, plans, programmes, projects, budgets and processes	0.7	>1%
PoA 1- Institutional arrangements, inter-sectoral coordination and participation	0.3	>1%
PoA 10 – Sustained Public Education and Participation	0.3	>1%
PoA 8 – Disaster risk reduction and disease prevention	0.2	>1%
PoA 12 – Monitoring and Evaluation	0.2	>1%
Grand Total	245.7	100%

Institutional framework

Key institutional entities of the GoG to inform and coordinate climate policy implementation and climate finance include: The National Climate Change Committee (NCCC), the Sustainable Development Council (SDC), the Ministry of Finance (Planning, Economic Development and Physical Development) and the Ministry of Climate Resilience, the Environment, Forestry, Fisheries, Disaster Management and Information (Minister and Permanent Secretary, Head of Environment Division). A climate change focal point (CCFP) network at relevant ministries and statutory bodies was established, consisting of 20 members. The CCFP are responsible for integrating climate resilience strategies into government policies, strategies and actions; support Grenada's UNFCCC focal point to monitor and report the implementation of sectoral adaptation and/or mitigation priorities and support the mobilization of funds for implementation of adaptation and/ or mitigation activities. The NDA to the GCF is located at the Ministry of Finance (Deputy Permanent Secretary and Planning, Economic Development and Physical Development).

The NCCC is currently composed of the following members:

- Ministry of Climate Resilience, the Environment, Forestry, Fisheries, Disaster Management and Information (Minister and Permanent Secretary, Head of Environment Division)
- Climate Change Ambassador
- Ministry of Finance (Senior Project Officer at Planning, Economic Development and Physical Development)
- Ministry of Agriculture and Lands, Land-use Division (Land Use Officer)
- Ministry of Foreign Affairs (Foreign Service Officer)
- Grenada Ports Authority (1 member)
- National Disaster Management Authority (1 member)
- Independent experts (3 members)

The climate change focal point network at relevant ministries and statutory bodies includes:

- Ministry of Agriculture and Lands - Agriculture Division; Land-use Division
- Ministry of Carriacou and Petite Martinique Affairs and Local Government
- Ministry of Climate Resilience, the Environment, Forestry, Fisheries, Disaster Management and Information - Permanent Secretary; Environment Division; Fisheries Division; Forestry Division
- Ministry of Education and Human Resource Development

- Ministry of Finance - Planning, Economic Development & Physical Development; Physical Planning Unit
- Ministry of Foreign Affairs
- Ministry of Health, Social Security and International Business
- Ministry of Infrastructure Development, Public Utilities, Energy, Transport and Implementation - Energy Division
- Ministry of Tourism and Civil Aviation
- Ministry of Youth, Sports, Culture and the Arts
- Grenada Airport Authority
- Grenada Electricity Services Ltd.
- Grenada Ports Authority
- Grenada Solid Waste Management Authority
- National Disaster Management Authority
- National Meteorological Services
- National Water and Sewage Authority

Key stakeholders in climate policy and finance implementation include:

- Government ministries, departments and agencies.
- Citizens, communities and consumers.
- Companies, private sector.
- Research institutes.
- Civil society groups and Non-Governmental Organisations (NGOs).
- International development partners, including international, multilateral and bilateral partners.

Monitoring and predictive climate tools

Monitoring, evaluating and reporting is a critical component of Grenada's NCCP, NAP and NDC as it will enable Grenada to track the delivery of agreed measures, establish its effectiveness in reducing vulnerability and GHG emissions, create an opportunity for learning and adaptive management, and, fulfil reporting requirements with the UNFCCC and reporting requests from the Caribbean Community Climate Change Centre (CCCCC). Monitoring and evaluation (M&E) of adaptation measures will be undertaken as part of the NAP process. To undertake this, Grenada is receiving dedicated support from the NAP Global Network. M&E of mitigation measures will be undertaken as part of Grenada's UNFCCC reporting requirements, which include preparing, communicating and maintaining successive NDCs, national communications and biennial update reports.

Every two years, a progress report on the policy, NAP and NDC process will be developed and submitted to Cabinet, which will be discussed at the Sustainable Development Council. The report will be communicated to relevant stakeholders within Grenada and will be included in progress reports to the UNFCCC through national communications or submissions. These reports will be used to check if Policy, NAP and NDC implementation and concrete interventions are on track and whether the process or actions should be adjusted accordingly. They will also inform the revision of the NAP and NDC, which will occur at least by 2022.

1.3.2 Regional engagement

In 2009, the Caribbean Community (CARICOM) leaders together recognized the serious threat of climate change, when they signed the Lillendaal Declaration and tasked the Caribbean Community Climate Change Centre (5Cs) with producing a Regional Framework for Achieving Development Resilient to Climate Change. The Framework was followed by an Implementation Plan (2011-2021), which was approved by CARICOM heads of Government in March 2012.

Prior to the Conference of the Parties (COP) 21 in Paris 2015, Heads of State and Government of CARICOM Member States also adopted 'The CARICOM Declaration for Climate Action.' This declaration outlines the Caribbean region's priorities for the 2015 climate agreement, which include:

- limiting warming to below 1.5°C;
- creation of a compliance mechanism;
- development of finance measures, including improved and privatised access to funds by SIDS; and

- advocacy for loss and damage as a central and distinct element of the Paris Agreement, to be treated separately from adaptation.

At the regional level GoG cooperates closely with the OECS, CARICOM and the CARICOM regional agencies, including the CCCCC, Caribbean Institute for Meteorology and Hydrology (CIMH) and the Caribbean Disaster Emergency Management Agency (CDEMA).

1.3.3 Access to finance

See section 2.1.

1.4 Gaps and opportunities

While there is a relatively good understanding of climate change impacts, vulnerabilities and related policies and investment needs, the key challenges (and because of these: opportunities, always in the context of gender equality) include:

- Limitation of public sector financing capacity (including PSIP) and availability of funds to finance climate change projects, especially grant-based adaptation projects. This limitation should also be seen in the context of high public debt, economic reform challenges, high unemployment and poverty levels.

- Lack of direct access to major international funding sources, such as the GCF (the accreditation of the Grenada Development Bank, GDB, is proposed and would close this gap).

- Private sector engagement in climate finance.

- Limited capacity of local experts to develop and implement projects which are bankable / acceptable to international climate finance sources, such as the GCF.

The 2017 revision of the National Climate Change Strategy and Action Plan, 2007 – 2011 (NCCSAP) revealed that there were many gaps in accomplishing the strategic objectives of the NCCSAP:

- Climate-proofing (Goal 1) of present and future national development activities was conducted but in an incomplete way. This includes sector specific capacity building to enable application of new methodologies to support climate proofing through, for example, the Climate Change Online Risk Adaptation Tool (CCORAL).

- Strengthening the collection, analysis and use of climate-related data and impacts (Goal 2) resulted in the completion of a "Rapid Vulnerability Assessment" for a selected few sectors and agro-meteorological data is being collected for the agriculture sector. Traditional information exists on climate-related impacts; however, this is not adequately documented. Many data collection gaps exist and where data is collected, the analytic process is not available in a user-friendly format. There remains a need to record and provide information and data for all climate relevant sectors, in a user-friendly format to enable all stakeholders to support decision-making processes.

- Building local human capacity to assess and respond to climate change (Goal 3), including through the access and use of appropriate technologies, was improved to a limited extent in some sectors such as agriculture and fisheries. However, interventions are not sufficient to produce long-lasting impacts. There is a need for training in all sectors and for their inter-sectoral linkages to take an integrated approach to engage all levels – Government (planning), private, community, civil society and others.

- Reductions of greenhouse gas emissions (Goal 4), through increased energy efficiency and the use of renewable energy was largely due to the phase out of Chlorofluorocarbon (CFCs) and Hydrochlorofluorocarbons (HCFCs) and the ongoing efforts to phase down high-GWP Hydrofluorocarbons (HFCs). Numerous initiatives for renewable energy have been established, but there are gaps that address other GHG emissions. By using the data and findings derived from the Technology Needs Assessment exercise and the Second National Communication, priority actions will be identified.

- Eliminating unsustainable livelihood and development practices that increase climate change vulnerabilities (Goal 5) were translated into several environmental laws. Several initiatives have been implemented including, the prohibition of sand mining, the voluntary re-planting of mangroves and the management of coral reefs. A key challenge remains enforcement of current and future laws. Added to which, through increased public awareness, the Government aims to promote and enforce management strategies that conserve the environment.

- Sustained public education programming (Goal 6) was conducted in the form of demonstration projects and outreach events. Media work and the development of tools for education, e.g. the 'How to become a Greenz Climate Champion toolkit', were published and teachers have been trained on climate change. There remains, however, a challenge about

sensitizing the public about sustainability and the need to change behaviour. This requires continuous efforts and increased resources for climate change education and outreach through schools and civil society-based organizations.

- Foreign policy advocacy for international action on climate change (Goal 7) remains a prerequisite to access international climate finance. Though significant progress was made, the quality of the contributions to international consultation processes could be increased with the allocation of sufficient resources for international consultations on climate change.

- Joint implementation and networking with Organisation of Eastern Caribbean States (OECS) and CARICOM partners and with other Small Island Developing States (Goal 8), combined with active collaboration within OECS, CARICOM and the Alliance of Small Island States (AOSIS), cemented members positions on climate change issues within climate negotiations via active collaboration with OECS, CARICOM and AOSIS on climate change positions in the climate negotiations. As a result, common positions were identified, and SIDS meet frequently. Challenges remain regarding the coordination between bilateral and regional representation at international level. There is a need for sufficient and adequate resources to enable coordination between national and regional partnerships and provide opportunities for sensitisation at all political levels.

- Grenada is also dependent on the importation of expensive fossil fuels to meet its energy production and transportation needs. Grenada is committed to reducing greenhouse gas emissions in the context of the UNFCCC Paris Agreement. In response to this, citizens, companies, non-state actors and Government ministries, departments and agencies, are already taking concrete action to build resilience, improve energy efficiency/renewable energy use and reduce GHG emissions to climate variability and change. While action is underway, an up to date framework is needed to ensure efficient and effective use of available resources.

- The main gaps on addressing climate change on a national level, include measures that address; a) temperature increase, b) changing weather patterns, especially rainfall, c) natural hazards, like tropical storms, d) sea level rise and coastal ecosystems (on land and in the water), and e) low-carbon emission infrastructure, especially in the energy and transport sector.

2. Country Agenda and GCF Engagement

Section 2 is intended to provide a summary of national plans in view of GCF operational modalities and investment criteria.

2.1 Institutional arrangements

The National Designated Authority to the GCF is the Head of the Division of Economic and Technical Cooperation (DETC), located at the Ministry of Finance, Planning, Economic Development and Physical Development. This strategic positioning of the NDA function is useful for several reasons:

- Allows for coordination and alignment of financial and technical assistance from various foreign sources.
- Ideal for coordination with PSIP processes.
- The cross-cutting nature of the work of the Ministry of Finance Planning, Economic Development corresponds well to the cross-cutting nature of climate finance.

Further and as detailed in section 1.3.1., the important roles of the NCCC, the Sustainable Development Council, the Climate Change Focal Point Network, the UNFCCC Focal point in the Environment Division and the National Designated Authority in the Department of Economic and Technical Cooperation should be highlighted.

An overview of climate finance engagements with key international partners is included in table 2 below.

Table 2. Relationships with Existing Accredited Entities and relevant partners

International
Regional
Local

Entity/Partner Name	Area/s of focus	Engagement in country	Status; efforts to strengthen engagement with GCF
Approved GCF projects			
European Investment Bank (EIB)	GCF FP038 "Geeref Next" focusing in 28 countries including Grenada	Implementation work plan to be prepared and consulted with Government. Fully financed by the GCF. GCF equity USD 250M, GCF grant USD 15M; equity co-financing USD 500M from private sector investors incl. USD 30M from EIB.	Approved Directly engaged.
DOE Antigua and Barbuda	GCF FP061 "Integrated physical adaptation and community resilience … in … three Eastern Caribbean SIDS"	Implementation work plan in consultation with Government in preparation. Fully financed by the GCF. US$20M	Approved Directly engaged.
GIZ	GCF FP059 "Climate Resilient Water Sector in Grenada (G-CREWS)"	In-country presence. Implementation work plan in consultation with Government in preparation. GCF grant EUR 35.29 M; co-finance EUR 6.767M including Germany EUR2.5, GoG/NAWASA/GDB EUR 4.267M	Approved Directly engaged.
GIZ	GCF readiness - Getting Grenada GCF-Ready (3G)	In-country presence. GCF readiness project focusing on NDA strengthening and Country Programming under implementation. Fully financed by the GCF, EUR 336'558.	Ongoing Directly engaged.
New York University	Climate Resilient Cities: Grenada	No in-country presence. Project is designed to lead to several new GCF Concept Notes. The program is to empower Grenada, to lead the way on climate change, especially as it pertains to reducing vulnerabilities in small coastal cities of small island states through a coordinated program of action and complementary projects. (US$600,855)	Ongoing Directly engaged.
CCCCC	Strengthening institutional and implementation capacity for delivery of climate change investment projects: Grenada	Readiness Support in the following Areas: a) Country capacity for engagement with GCF b) Country programming process c) Climate finance accessed US$$399,929.00	Approved: Directly engaged

Mitigation Projects			
EU/GRENLEC	Wind Energy - Carriacou	The project is to reduce reliance on imported fossil fuel for electricity generation. It includes a 1-2 megawatts wind farm and energy storage system, with an intelligent control system and was intended to reduce diesel consumption by 40-60 percent in Carriacou. EUR 3.9M.	Not started
IDB/ EU/CDB	Sustainable Energy for the Eastern Caribbean Program (SEEC)	Increasing the uptake of Renewable Energy and Energy Efficiency with financially-viable, climate-friendly investments for the six independent countries of the Organization of the Eastern Caribbean States (OECS): Antigua and Barbuda, Grenada, St. Vincent and the Grenadines, the Commonwealth of Dominica, Saint Kitts and Nevis, Saint Lucia (EUR21.27M – GEF EUR 4.25M).	Under implementation
CDB	15MW Geothermal Development Project: Phase 2 & 3	Project cost: USD 128M	Phase 1 Ongoing. Financing required for Phase 2 & 3
Adaptation Projects			
OFID/KFAED	Agriculture Feeder Roads Phase III	This project involves the rehabilitation of 22 agricultural feeder roads (40Km; 25 Miles) and building of five bridges in the parishes of St. Andrew, St. Mark, St. John, St. George, St. David and in Carriacou. Total financing for the project amounts to US$37.71 (EC$101.82) provided as follows: OFID – US$20M (EC$54M); and KFAED – US$17.71 (EC$47.82M).	About to commence
CDB	Extreme Rainfall / Gouyave Flood Mitigation Project	Flood Mitigation measures on the St. John's River and relocation of persons living on the riverbank. US$23M	Ongoing/Delayed
GIZ/UNDP	Integrated Climate Change Adaptation Strategies (ICCAS) for Grenada	Increase resilience to climate change risks through integrated adaptation strategies. Budget: EUR 6.7M	About to complete
GEF	GEF 6 - Grenada Climate Resilient Agriculture for Integrated Landscape Management Project	To operationalize integrated agroecosystem management through mainstreaming biodiversity conservation in the production landscape and increasing resilience of agricultural system. Budget: EC$9.95M	Approved
GEF	GEF 5 - Ridge to Reef Project	To ensure that biodiversity and ecosystem functions within and around marine and terrestrial PAs in Grenada are better protected from threats through the adoption of an integrated "ridge to reef" approach that increases protected area management effectiveness and applies targeted sustainable land management practices. Budget: US$ 3.2 M	Ongoing
DFID/CDB	Grenada Western Corridor Upgrade Project	The project intends to upgrade and build climate change resilience in the western road corridor from St. George's to St. Marks'. Project cost: EC$M 46.7	Ongoing
World Bank/CIF	Regional Disaster Vulnerability Risk Reduction Project (RDVRP)	To measurably reduce the vulnerability to natural hazards and climate change impacts in the Eastern Caribbean. US$35M	About to complete
KFW/TNC/WB	Support for Caribbean Challenge Initiative (CCI)	Regional platform supporting members to harmonize their approach to marine and coastal conservation in order to promote sustainable communities.	Ongoing
GEF	Climate Change Adaptation In the Eastern Caribbean Fisheries	The objective of this project is to increase resilience and reduce vulnerability to climate change impacts in the Eastern Caribbean Fisheries Sector, through introduction of adaptation measures in fisheries management and capacity building of fisherfolk and aqua culturists. Project cost: EC$M 1.27	Ongoing
OECS	GCCA/OECS Climate Change Adaptation Project	To improve the resilience of the natural resource base of the OECS countries through land policy improvement and sustainable land management. Project cost: EC$M 32.9	Ongoing

2.2 Roles and contributions of key stakeholders

To arrive at the GCF Country Portfolio included in section 2.4, the following consultations were carried out:

Table 3: Overview of consultation processes

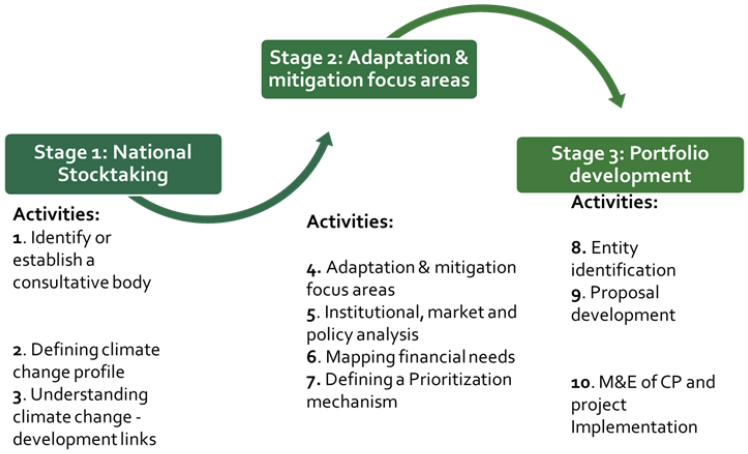
Stakeholder group	Date of consultation	Type or objective of consultation	Outcome
All climate change stakeholders	2017	NCCP validation	Official submission of NCCP
Cabinet	2017	NCCP adoption	NCCP adoption
All adaptation stakeholders	2017	NAP validation	NAP validation, inlcuding NAP investment priorities
Cabinet	2017	NAP adoption	NAP adoption, inlcuding NAP investment priorities
NCCC	2018	Prioritization of thematic project areas to be included in GCF Country Programme portfolio	List of thematic priorities which was used for determining working groups for the GCF Concept Note development workshop
NDA, GIZ, consultants	2018	Prepare for the GCF Concept Note development workshop	Finalization of workshop working group focus and participants
2-5 thematic experts (inlcuding national government, NGO, and techncial experts) for each working group tasked with Concept Note elaboration. Note: inlcuded cross cutting gender specialist.	2018	Elaborate ca. 10 new draft GCF Concept Notes	>10 draft GCF Concept Notes largely aligned with GCF policies, overall national climate change project pipeline and NCCC priorities
GCF Structured Dialogue with the Carribean	2018	Discussion of selected new Concept Notes and project pipeline	Feedback was used to further develop draft Concept Notes
Stakeholder consultations	2018-2019	Discussion and finalization of selected new Concept Notes and project pipeline at executing entity, wider stakeholder, NCCC and Cabinet level	Feedback used to further develop and finalize draft Concept Notes
Ntl. validation workshop	2019 (tbd)	Validation of the present Country Programme including project pipeline	
GCF review	2019-2020 (tbd)	Review of submitted Concept Notes	
Cabinet review/approval	2019-2020 (tbd)	Review and approval of Concept Notes endorsed by the GCF	

2.3 Identification of country priorities for the GCF

To arrive at the GCF Country Portfolio included in section 2.4, the following was taken into account:

- INDC, NCCP and NAP investment priorities as outlined in section 1.3
- The results of a Climate Finance Readiness Mission to Grenada, January 05 - 09, 2015 carried out by CDB, GIZ and CCCCC.
- Recently concluded, proposed new and ongoing climate change projects funded by other entities than the GCF as per section 2.1.
- PSIP project pipelines and prioritization.
- GCF engagement realized to date.
- NCCP thematic prioritization in light of all above items.

The activities outlined in the graph below (representing GCF guidance) served as guiding steps towards developing the Grenada GCF Country Programme. These were intended to support and identify the activities that represent the highest impact and potential for transformation across mitigation and adaptation.



The following notes apply for each of the activities included in the above graph:

1. The main consultative body in Grenada is the NCCC which has overseen the Country Programme and project pipeline development process. To develop the present Country Programme and project pipeline, stakeholder consultations have been carried out as well, including as part of the Concept Note development workshop referenced below.

2. Information for defining Grenada's climate change profile largely stems from systematic literature review, in particular the (I)NDC, NCCP, NAP and Second National Communication (SNC). It is to be hoped that additional and more refined information will become available in the future.

3. The climate change – development links included in the present version of the Country Programme resulted both from a policy review, as well as from discussions with relevant Ministries and key stakeholders, including study of the PSIP.

4. Adaptation and mitigation focus areas could then be identified based on NCCC prioritization and NCCP/NAP priorities, underlining that all GCF result areas are relevant for Grenada and often cross-cutting, integrated concepts will yield the highest impact, efficiency and paradigm shift.

5. More specific institutional, policy and market analysis were implemented at project concept level as part of a dedicated GCF Concept Note development workshop held in August 2018, bringing together 2-5 sectoral experts from various institutions for each of the identified adaptation and mitigation focus areas. This workshop also facilitated integrated project conceptualization, alignment among different projects under preparation (as well as past and expected climate

change projects funded from other sources than GCF), alignment with GCF investment criteria and other relevant GCF policies (e.g. ESS, RMF/PMF, gender, climate impact focus, private sector engagement, co-financing, incremental / full cost calculation methodologies; concessionality, etc.), as well as choice (or narrowing down) of options of Accredited Entities to eventually develop and hopefully implement the projects. Further, this workshop produced for each project a road map leading to eventual proposal approval by the GCF Board. Overall, the workshop resulted in a very high national ownership of the proposed project pipeline.

6. Mapping of financial needs at the macro level was informed by Grenada's INDC and NAP, relevant information included in adopted polices or other relevant documents, study of state budget process and budget envelopes of current government action plans. At project level, initial draft budgets for proposed new projects were elaborated during the mentioned GCF Concept Note development workshop. For proposals already approved, data from respective Funding Proposals and other documents published on the GCF website were used.

7. The prioritization mechanism applied for the proposed project pipeline is the result of all above mentioned steps. Since the current project pipeline, although large, does not cover all mitigation and adaptation investment needs yet, no further prioritization was carried out following the above-mentioned Concept Note development workshop. The challenge rather is to further refine and align proposed measures during Concept Note finalization and Funding Proposal development. In addition, the proposed initial project pipeline will have to be enhanced and completed in future editions of the Country Programme.

8. Entity identification is in some cases concluded and agreed, in some cases, however, further discussions with desired and/or interested entities are still to take place in the process leading to Concept Note and Funding Proposal completion.

9. Proposal development is underway or completed in several cases as reported in section 2.4 of the present Country Programme. For a number of new proposed Concepts, Funding Proposal development is still to be done and, in some cases, this will be challenging, ideally requiring PPF and readiness support as indicated in section 2.4 of the present Country Programme.

10. M&E of Country Programme and project implementation will constitute activities that have to be and will be implemented in the future.

2.4 Country Portfolio

The following list summarizes Grenada's current GCF project pipeline, whereas detailed are provided in tables 4-7:

Country projects/programmes pipeline as part of Grenada's National Integrated Resilience Programme (see table 4 for details):

No.	Title	Budget / GCF contribution	Status
01	FP020 Sustainable Energy Facility for the Eastern Caribbean (multi-country – 5 SIDS)	USD 191M / USD 80M	Under implementation
02	FP038 Geeref Next (multi-country – 29 countries)	USD 765M / USD 265M	FP approved 04/17
03	FP059 Climate-Resilient Water Sector in Grenada	USD 49M / USD 41.1M	FP approved 03/18
04	FP061 Integrated Physical Adaptation and Community Resilience in 3 Eastern Caribbean SIDS (multi-country)	USD 20M / USD 20M	FP approved 03/18
05	Climate Resilient Private and Commercial Properties	USD 10M / USD 9M (est.)	CN in development
06	Climate Resilient Agriculture for Food Security	USD 15M / USD 10M (est.)	CN in development
07	Carbon Neutral Street Lighting and Energy Efficiency	USD 10M / USD 10M (est.)	CN in development
08	Transitioning to Plug-In Electric Vehicles Grenada	USD 43M / USD 39M (est.)	CN in development
09	15 MW Geothermal Development Project	USD 128M / USD 12M (est.)	CN in development
10	Climate Resilient Health Sector	USD 25M / USD 20M (est.)	CN in development
11	Climate Resilient Roads, Ports, Power, Communication & Public Buildings Infrastructure Project	USD 70M / USD 50M (est.)	CN in development
12	Building Coastal and Land Based Ecosystem Resilience in Grenada	USD 20M / USD 18M (est.)	CN in development

Country projects/programmes pipeline as part of Grenada's Climate Resilient Cities Programme (see table 4 for details):

No.	Title	Budget / GCF contribution	Status
13	Protecting Wharf Road in the Carenage from Sea Level Rise, Inundation, Nuisance Flooding and Storm Surges	TBD	CN in development
14	Protecting the Southern Corridor from Extreme Precipitation Events and Protect Grand Anse Beach from Sea Level Rise	TBD	CN in development
15	Protect the Maurice Bishop International Airport from Sea Level Rise and from Erosion Caused by Storm Surge	TBD	CN in development
16	Address Sea Level Rise, Reef Loss, and Watershed Management by Redesigning the Grenville Coastal Road from Marquis to Grenville	TBD	CN in development
17	Stopping the Flow of Untreated Sewage from St. George into the Sea Through the Use of Green Sewerage Treatment Options	TBD	CN in development
18	Community-Based Ecosystem Restoration Project Focused on Integrated Watershed Management	TBD	CN in development
19	Densification and Climate-Resilient Urban Expansion Initiative St. George	TBD	CN in development
20	Comprehensive Climate Change Capacity Building Initiative	TBD	CN in development

Country Project Preparation pipeline (see table 5 for details):

No.	Title	Budget/GCF contribution	Status
21	PPF request for project #5: Climate Resilient Private and Commercial Properties	TBD	PPF request to be elaborated in 2019

22	PPF request for project #6: Climate Resilient Agriculture for Food Security	TBD	PPF request to be elaborated in 2019
23	PPF request for project #8: Transitioning to Plug-In Electric Vehicles Grenada	TBD	PPF request to be elaborated in 2019
24	PPF request for project #10: Climate Resilient Health Sector	TBD	PPF request to be elaborated in 2019
25	PPF request for project #11: Climate Resilient Roads, Ports, Power, Communication & Public Buildings Infrastructure Project	TBD	PPF request to be elaborated in 2019
26	PPF request for project #12: Building Coastal and Land Based Ecosystem Resilience in Grenada	TBD	PPF request to be elaborated in 2019
27	PPF requests related to projects #13-#20.	TBD	PPF request to be elaborated in 2019

Country Readiness programme pipeline (see table 6 for details):

No.	Title	Budget/GCF contribution	Status
28	Getting Grenada GCF-Ready (3G)	EUR 336'558 / EUR 336'558	Under implementation
29	Climate Resilient Cities: Grenada	USD 600'855 / USD 600'855	Under implementation
30	Strengthening Institutional and Implementation Capacity for Delivery of Climate Change Investment Projects: Grenada	USD 399'929 / USD 399'929	Under implementation
31	Direct Access Entity support project	To be determined	Request to be elaborated and submitted in 2019
32	Adaptation planning readiness project	To be determined	Request to be elaborated and submitted in 2019
33	Private sector readiness project	To be determined	Request to be elaborated and submitted in 2019

Accreditation pipeline (see table 7 for details):

Title	Budget/GCF contribution	Status
Grenada Development Bank (GDB)	TBD	2019 (expected)
Ministry of Finance and/or Ministry of Climate Resilience	TBD	After 2019

Total proposed GCF commitment in present project pipeline:

Projects #01-12 and #28-30 only	USD 442M / USD 242M

Note: For projects #01, #02 and #04, total budget was divided by the # of eligible countries.

Table 4: Country projects/programmes pipeline				
Project Title	Description	Accredited Entity		Submission timeframe
#01: FP020 Sustainable Energy Facility for the Eastern Caribbean	Financing commercial Geothermal Energy (GE) projects whilst strengthening legal and regulatory frameworks to underpin the development of GE potential in the East Caribbean region. This project focuses on 5 countries inlcuding Grenada.	IDB (the Executing entity is CDB)		FP Approved 10/16
Fund level strategic impacts		Total financing:		Status
1		GCF: USD 80M	Other: USD 111M	Under implementation
Action	Lead	Timeline		
Implementation of project activities in Grenada	*IDB, CDB, NDA*	To be determined		

Project Title	Description	Accredited Entity		Submission timeframe
#02: FP038 Geeref Next	Catalysing private sector investment for renewable energy and energy efficiency projects across the developing world. This project focuses on 29 countries inlcuding Grenada.	EIB		FP Approved 04/17
Fund level strategic impacts		Total financing:		Status
1, 3		GCF: USD 265M	Other: USD 500M	FP approved 04/17
Action	Lead	Timeline		
Implementation of project activities in Grenada	*EIB, NDA*	To be determined		

Project Title	Description	Accredited Entity		Submission timeframe
#03: FP059 Climate-resilient Water Sector in Grenada	Creating a climate resilient water sector in Grenada through increased freshwater availability and demand reduction measures.	GIZ		FP approved 03/18
Fund level strategic impacts:		Total financing:		Status
5, 6, 7		GCF: USD 41M	Other: USD 8M	FP approved 03/18
Action	Lead	Timeline		
Project implementation start	GIZ, NDA	2019		

Project Title	Description	Accredited Entity	Submission timeframe
#04: FP061 Integrated physical adaptation and community resilience in 3 Caribbean SIDS	Strengthening the resilience of three Caribbean islands to climate change-related threats by improving the hurricane resilience of community buildings, homes, and businesses, and through flood prevention measures.	Department of Environment of Antigua and Barbuda (DOE)	FP approved 03/18
Fund level strategic impacts:		Total financing:	Status
5, 7, 8		GCF: USD 20M / Other: ---	FP approved 03/18

Action	Lead	Timeline
Project implementation start	DOE, NDA	2019

Project Title	Description	Accredited Entity	Submission timeframe
#05: Climate Resilient Private and Commercial Properties (SAP)	Proposed components as discussed to date include: Component 1: Testing laboratory for modelling, simulation and testing of building material Component 2: Enabling framework for resilient private buildings Component 3: Concessionary loan financing for Mitigation Technologies Component 4: Grant Financing of Adaptation Measures	GDB (currently in stage I of the accreditation procedure)	Concept Note to be submitted to the GCF in 2019 (expected)
Fund level strategic impacts:		Total financing:	Status
1, 3, 5, 7		GCF: USD 9M est. / Other: USD 1M est.	Concept Note to be submitted to the GCF in 2019 (expected)

Action	Lead	Timeline
Finalization of SAP Concept Note	GDB, NDA	2019 (expected)
Elaboration SAP Funding Proposal	GDB, NDA	2019-2020 (expected)

Project Title	Description	Accredited Entity	Submission timeframe
#06: Climate Resilient Agriculture for Food Security in Grenada	Proposed components as discussed to date include: Component 1: Research and Development Component 2: Build Resilience of Agricultural Systems and Livelihoods of Rural Communities to Climate Change Risks Component 3: Promoting Investment in Resilient Agricultural Development Component 4: Development of Systems to Assess Risks, Vulnerabilities and Adaptation Options Component 5: Promotion of Energy Efficient and Low Emission Technologies in the Local Food Value ChainComponent 6: Capacity Development	Targeted AE: FAO	Concept Note to be submitted to the GCF in 2019 (expected)
Fund level strategic impacts:		Total financing:	Status
4, 5, 6, 7, 8		GCF: USD 10M est. / Other: USD 5M est.	Concept Note to be submitted to the GCF in 2019 (expected)

Action	Lead	Timeline
Discuss draft CN with FAO	NDA	2019 (expected)
Finalize/submit CN to GCF	NDA	2019 (expected)

Project Title	Description	Accredited Entity	Submission timeframe
#07: Grenada Carbon Neutral Street Lighting and Energy Efficiency Project	Proposed components as discussed to date include: 1. Climate Vulnerability Assessment and Risk Proofing of Streetlighting and Solar PV Infrastructure 2. Investments to Improve Efficiency of Streetlighting System and Upscale Capacity 3. Investments in Renewable Energy to Power Street Lighting System 4. Financial Facility to Improve Accelerate the Purchase of Energy-Efficient Lighting and Appliances: 5. Policy Framework for Energy-Efficient Products: 6. Capacity Building and Stakeholder Engagement	Targeted AE: UNEP	Concept Note to be submitted to the GCF in 2019 (expected)
Fund level strategic impacts:		Total financing:	Status
1, 3, 5, 7		GCF: USD 10M est. / Other: ---	Concept Note to be submitted to the GCF in 2019 (expected)

Action	Lead	Timeline
Discuss draft CN with AE	NDA	2019 (expected)
Finalize/submit CN to GCF	AE/NDA	2019 (expected)

Project Title	Description	Accredited Entity	Submission timeframe
#08: Transitioning to Plug-In Electric Vehicles Grenada	Proposed components as discussed to date include: 1. Enabling Regulatory Environment and Policy Framework Established 2. Investment in Plug-In Vehicles (PEV), Charging Infrastructure and Solar Power Energy Generation for Charging Stations Promoted 3. PEV Charging Infrastructure Developed 4. Capacity Developed and Stakeholder Consultations Completed	Targeted AEs: CDB, GDB	Concept Note to be submitted to the GCF in 2019 (expected)
Fund level strategic impacts:		Total financing:	Status
1, 2, 3, 7		GCF: USD 39M est. / Other: USD 4M est.	Concept Note to be submitted to the GCF in 2019 (expected)

Action	Lead	Timeline
Discuss draft CN with CDB, GDB	NDA	2019 (expected)
Finalize/submit CN to GCF	AE/NDA	2019 (expected)

Project Title	Description	Accredited Entity	Submission timeframe
#09: 15 MW Geothermal Development Project	Proposed components as discussed to date include: 1. Elaboration of a integrated National Energy Transition Strategy 2. Conduct exploration slimhole drilling 3. Complete appraisal drilling and achieve bankability 4. Complete production drilling and construction 5. Operation and maintenance; training	TBD	Concept Note to be submitted to the GCF in 2019 (expected)
Fund level strategic impacts:		Total financing:	Status
1		GCF: USD 12M est. / Other: USD 116M est.	Concept Note to be submitted to the GCF in 2019 (expected)

Action	Lead	Timeline
Discuss draft CN with AE	NDA	2019 (expected)
Finalize/submit CN to GCF	AE/NDA	2019 (expected)

Project Title	Description	Accredited Entity		Submission timeframe
#10: Climate Resilient Health Sector	Proposed components as discussed to date include: 1. Build Capacity of the Health Care System Disease Surveillance, and to Monitor, Assess and Respond to Climate Change Health Risks 2. Strengthen the Regulatory Framework for Mainstreaming the Impact Climate Change into National Health Plans and Policies 3. Build Climate Resilience into The Health Infrastructure in Line with the Smart (Safe & Green) Health Care Facilities Concept 4. Improve Primary Health Care Structure to Reduce the Impact of Climate Events on Food and Nutrition Security 5. Knowledge Management and Exchange Improve Strategies for Knowledge Exchange 6. Health Sector Reform for Responsiveness to Climate Change to Make the System More Responsive and Adaptive to Climate Change Events	TBD		Concept Note to be submitted to the GCF in 2019 (expected)
Fund level strategic impacts:		Total financing:		Status
6		GCF: USD 20M est.	Other: USD 5M est.	Concept Note to be submitted to the GCF in 2019 (expected)

Action	Lead	Timeline
Discuss draft CN with AE	NDA	2019 (expected)
Finalize/submit CN to GCF	AE, NDA	2019 (expected)

Project Title	Description	Accredited Entity		Submission timeframe
#11: Climate Resilient Roads, Ports, Power, Communication, and Public Buildings Infrastructure Project	Proposed components as discussed to date inlcude: 1. Increased Resilience of the National Road and Port Infrastructure. 2. Increased Resilience of Power and Communication Infrastructure. 3. Increased Resilience of Public Buildings. 4. Establishment of Safe Food, Water Storage, and Power Generation Facilities at key Public Facilities.	TBD		Concept Note to be submitted to the GCF in 2019 (expected)
Fund level strategic impacts:		Total financing:		Status
3, 5, 6, 7, 8		GCF: USD 70M est.	Other: USD 50M est.	Concept Note in development

Action	Lead	Timeline
Discuss draft CN with AE	NDA	2019 (expected)
Finalize/submit CN to GCF	AE, NDA	2019 (expected)

Project Title	Description	Accredited Entity		Submission timeframe
#12: Building Coastal and Land Based Ecosystem Resilience in Grenada	Proposed components as discussed to date inlcude: 1. Operationalizing of the Integrated Coastal Zone Management (ICZM) Plan: 2. Restoration of degraded coastal ecosystems (coral reefs, sea grass beds, mangroves) and the implementation of measures to increase resilience of these ecosystems. 3. Implement an aggressive reforestation and forest management regime to build forest resilience and maintaining ecosystems services provided by a healthy forest. 4. Stakeholder Engagement to Facilitate Community Involvement and Buy-in at all Levels of Implementation and Capacity Building	Targeted AE: CCCCC		Concept Note to be submitted to the GCF in 2019 (expected)
Fund level strategic impacts:		Total financing:		Status
5, 8		GCF: USD 18M est.	Other: USD 2M est.	Concept Note to be submitted to the GCF in 2019 (expected)

Action	Lead	Timeline
Discuss draft CN with AE	NDA	2019 (expected)
Finalize/submit CN to GCF	AE, NDA	2019 (expected)

Project Title	Description	Accredited Entity		Submission timeframe
#13: Protecting Wharf Road in the Carenage from Sea Level Rise, Inundation, Nuisance Flooding and Storm Surges	Proposal for protecting Wharf Road in the Carenage/St. George's from sea level rise, inundation, nuisance flooding, and storm surges by building a raised promenade/sea barrier that will also allow for walking and cycling, with the sub-goal of catalysing economic revitalization.	TBD		Concept Note to be submitted to the GCF in 2019/2020 (expected)
Fund level strategic impacts:		Total financing:		Status
5, 7		GCF: TBD	Other: TBD	Concept Note to be submitted to the GCF in 2019/2020 (expected)

Action	Lead	Timeline
Develop CN	New York University (NYU) & stakeholders	2019 (expected)
Discuss draft CN with AE	NDA	2019-2020 (expected)
Finalize/submit CN to GCF	AE, NDA	2019-2020 (expected)

Project Title	Description	Accredited Entity		Submission timeframe
#14: Protecting the Southern Corridor from Extreme Precipitation Events and Protect Grand Anse Beach from Sea Level Rise	Proposal for redesigning the corridor along the coast road from the Carenage to the International Airport to relieve traffic congestion as well as promote public transportation, walking and cycling, address drainage issues caused by the increase in extreme precipitation events; and protect Grand Anse beach from sea level rise.	TBD		Concept Note to be submitted to the GCF in 2019/2020 (expected)
Fund level strategic impacts:		Total financing:		Status
2, 5, 7		GCF: TBD	Other: TBD	Concept Note to be submitted to the GCF in 2019/2020 (expected)

Action	Lead	Timeline
Develop CN	New York University (NYU) & stakeholders	2019 (expected)
Discuss draft CN with AE	NDA	2019-2020 (expected)
Finalize/submit CN to GCF	AE, NDA	2019-2020 (expected)

Project Title	Description	Accredited Entity		Submission timeframe
#15: Protect the Maurice Bishop International Airport from Sea Level Rise and from Erosion Caused by Storm Surge	Proposal to protect the Maurice Bishop International Airport from sea level rise, with a specific focus on erosion caused by stronger storm surge.	TBD		Concept Note to be submitted to the GCF in 2019/2020 (expected)
Fund level strategic impacts:		Total financing:		Status
5, 7		GCF: TBD	Other: TBD	Concept Note to be submitted to the GCF in 2019/2020 (expected)

Action	Lead	Timeline
Develop CN	New York University (NYU) & stakeholders	2019 (expected)
Discuss draft CN with AE	NDA	2019-2020 (expected)
Finalize/submit CN to GCF	AE, NDA	2019-2020 (expected)

Project Title	Description	Accredited Entity		Submission timeframe
#16: Address Sea Level Rise, Reef Loss, Watershed Management by Redesigning the Grenville Coastal Road	Proposal to address sea level rise, reef loss, and watershed management by redesigning the Grenville coastal road from Marquis to Grenville to serve as a barrier against sea level rise and promote walking, cycling and public transit; re-seeding barrier reefs to break incoming waves and preserve habitat; and improving watershed management practices.	TBD		Concept Note to be submitted to the GCF in 2019/2020 (expected)
Fund level strategic impacts:		Total financing:		Status
2, 4, 7, 8		GCF: TBD	Other: TBD	Concept Note to be submitted to the GCF in 2019/2020 (expected)

Action	Lead	Timeline
Develop CN	New York University (NYU) & stakeholders	2019 (expected)
Discuss draft CN with AE	NDA	2019-2020 (expected)
Finalize/submit CN to GCF	AE, NDA	2019-2020 (expected)

Project Title	Description	Accredited Entity		Submission timeframe
#17: Stopping the Flow of Untreated Sewage from St. George into the Sea	Carbon neutral proposal for stopping the flow of untreated sewage from St. George into the sea through the use of green sewerage treatment options.	TBD		Concept Note to be submitted to the GCF in 2019/2020 (expected)
Fund level strategic impacts:		Total financing:		Status
3, 6, 7, 8		GCF: TBD	Other: TBD	Concept Note to be submitted to the GCF in 2019/2020 (expected)

Action	Lead	Timeline
Develop CN	New York University (NYU) & stakeholders	2019 (expected)
Discuss draft CN with AE	NDA	2019-2020 (expected)
Finalize/submit CN to GCF	AE, NDA	2019-2020 (expected)

Project Title	Description	Accredited Entity		Submission timeframe
#18: Community-Based Ecosystem Restoration Focused on Integrated Watershed Management	Support community groups in crafting small projects for integrated watershed management. These projects will build local social resilience, create green jobs, restore habitat, and increase the capacity of the local watershed to absorb runoff from extreme events.	TBD		Concept Note to be submitted to the GCF in 2019/2020 (expected)
Fund level strategic impacts:		Total financing:		Status
4, 5, 6, 8		GCF: TBD	Other: TBD	Concept Note to be submitted to the GCF in 2019/2020 (expected)

Action	Lead	Timeline
Develop CN	New York University (NYU) & stakeholders	2019 (expected)
Discuss draft CN with AE	NDA	2019-2020 (expected)
Finalize/submit CN to GCF	AE, NDA	2019-2020 (expected)

Project Title	Description	Accredited Entity		Submission timeframe
#19: Densification and Climate-Resilient Urban Expansion Initiative St. George	Design a climate sensitive plan for the development of urban St. George, including options to densify the urban area, address slum development, introduce public transportation, and facilitate the provision of public services.	TBD		Concept Note to be submitted to the GCF in 2019/2020 (expected)
Fund level strategic impacts:		Total financing:		Status
2, 3, 7		GCF: TBD	Other: TBD	Concept Note to be submitted to the GCF in 2019/2020 (expected)

Action	Lead	Timeline
Develop CN	New York University (NYU) & stakeholders	2019 (expected)
Discuss draft CN with AE	NDA	2019-2020 (expected)
Finalize/submit CN to GCF	AE, NDA	2019-2020 (expected)

Project Title	Description	Accredited Entity		Submission timeframe
#20: Comprehensive Climate Change Capacity Building Initiative	Propose a comprehensive program for capacity building activities that will empower Grenada to confront challenges emanating from climate change, including the introduction of vocational education options, improvement of environmental education at the secondary and primary levels, climate education in the medical school, and public sector trainings in the use of sea level rise estimates and precipitation and extreme events models.	TBD		Concept Note to be submitted to the GCF in 2019/2020 (expected)
Fund level strategic impacts:		Total financing:		Status
5, 6, 7		GCF: TBD	Other: TBD	Concept Note to be submitted to the GCF in 2019/2020 (expected)

Action	Lead	Timeline
Develop CN	New York University (NYU) & stakeholders	2019 (expected)
Discuss draft CN with AE	NDA	2019-2020 (expected)
Finalize/submit CN to GCF	AE, NDA	2019-2020 (expected)

Table 5: Country Project Preparation pipeline				
Project Title	**Description**	**Accredited Entity**		**Submission timeframe**
#21: Climate Resilient Private and Commercial Properties	Elaboration of feasibility study, ESIA, FP and other documents required for FP submission related to project pipeline item #5: Climate Resilient Private and Commercial Properties	Targeted AE: GDB		2019
Fund level strategic impacts		**Total financing:**		**Status**
1, 3, 5, 7		GCF: TBD	Other: TBD	PPF request to be elaborated

Action	Lead	Timeline
CN & PPF request development	AE, NDA	2019

Project Title	**Description**	**Accredited Entity**		**Submission timeframe**
#22: Climate Resilient Agriculture for Food Security in Grenada	Elaboration of feasibility study, ESIA, FP and other documents required for FP submission related to project pipeline item #6: Climate Resilient Agriculture for Food Security in Grenada	Targeted AEs: FAO		2019
Fund level strategic impacts		**Total financing:**		**Status**
4, 5, 6, 7, 8		GCF: TBD	Other: TBD	PPF request to be elaborated

Action	Lead	Timeline
CN & PPF request development	AE, NDA	2019

Project Title	**Description**	**Accredited Entity**		**Submission timeframe**
#23: Transitioning to Plug-In Electric Vehicles Grenada	Elaboration of feasibility study, ESIA, FP and other documents required for FP submission related to project pipeline item #8: Transitioning to Plug-In Electric Vehicles Grenada	Targeted AEs: CDB, GDB		2019
Fund level strategic impacts		**Total financing:**		**Status**
1, 2, 3, 7		GCF: TBD	Other: TBD	PPF request to be elaborated

Action	Lead	Timeline
CN & PPF request development	AE, NDA	2019

Project Title	Description	Accredited Entity		Submission timeframe
#24: Climate resilient health sector	Elaboration of feasibility study, ESIA, FP and other documents required for FP submission related to project pipeline item #10 Climate resilient health sector	To be determined		2019
Fund level strategic impacts		**Total financing:**		**Status**
6		GCF: TBD	Other: TBD	PPF request to be elaborated

Action	Lead	Timeline
CN & PPF request development	AE, NDA	2019

Project Title	Description	Accredited Entity		Submission timeframe
#25: Climate Resilient Roads, Ports, Power, Communication, and Public Buildings Infrastructure Project	Elaboration of feasibility study, ESIA, FP and other documents required for FP submission related to project pipeline item #11: Climate Resilient Roads, Ports, Power, Communication, and Public Buildings Infrastructure Project	To be determined		2019
Fund level strategic impacts		**Total financing:**		**Status**
3, 5, 6, 7, 8		GCF: TBD	Other: TBD	PPF request to be elaborated

Action	Lead	Timeline
CN & PPF request development	AE, NDA	2019

Project Title	Description	Accredited Entity		Submission timeframe
#26: Building Coastal and Land Based Ecosystem Resilience in Grenada	Elaboration of feasibility study, ESIA, FP and other documents required for FP submission related to project pipeline item #12: Building Coastal and Land Based Ecosystem Resilience in Grenada	To be determined		2019
Fund level strategic impacts		**Total financing:**		**Status**
5, 8		GCF: TBD	Other: TBD	PPF request to be elaborated

Action	Lead	Timeline
CN & PPF request development	AE, NDA	2019

Project Title	Description	Accredited Entity		Submission timeframe
#27: PPF requests related to projects #13-#20	Elaboration of feasibility study, ESIA, FP and other documents required for FP submission related to project pipeline items #13-20	To be determined		2019
Fund level strategic impacts		**Total financing:**		**Status**
TBD		GCF: TBD	Other: TBD	PPF request to be elaborated

Action	Lead	Timeline
CN & PPF request development	AE, NDA	2019

Table 6. Country Readiness programme pipeline			
Title	**Description**	**Delivery Partner**	**Submission timeframe**
#28: *Getting Grenada GCF-Ready (3G)*	Establishing and strengthening the National Designated Authority (NDA) and development of a strategic framework for engagement with the Fund, including the preparation of a country programme.	GIZ	Submitted
		Total financing:	Status
		EUR 336'558.-	Approved, under implementation
Action	**Lead**	**Timeline**	
Complete project	NDA, GIZ, consultants, GCF	2019	

Title	**Description**	**Delivery Partner**	**Submission timeframe**
#29: *Climate Resilient Cities: Grenada*	The project focuses on making the cities of St. George & Grenville climate resilient through: 1. A comprehensive mitigation strategy 2. Preparations for sea level rise, hurricanes 3. Ecosystem restoration and water-system reinforcement 4. Urban densification and climate-resilient urban expansion 5. Capacity building for green development This project is designed to lead to several new GCF Concept Notes.	New York University	Submitted
		Total financing:	Status
		USD 600'855.-	Approved, under implementation
Action	**Lead**	**Timeline**	
Complete project	NDA, NYU, consultants, GCF	2020	

Title	**Description**	**Delivery Partner**	**Submission timeframe**
#30: *Strengthening Institutional and Implementation Capacity for Delivery of Climate Change Investment Projects: Grenada*	Strengthening institutional and implementation capacity for delivery of climate change investment projects	CCCCC	2019
		Total financing:	Status
		USD 399'929	Approved
Action	**Lead**	**Timeline**	
Project implementation	CCCCC, NDA	2019 -2020	

Title	**Description**	**Delivery Partner**	**Submission timeframe**
#31: *Direct Access Entity support project*	TBD. Ideas discussed to date include: • Systematic capacity development of direct access candidates in GCF project development/implementation • Implementation of new fiduciary standards	To be determined	2019
		Total financing:	Status
		To be determined	To be elaborated
Action	**Lead**	**Timeline**	
Submit readiness request	GDB, Ministry of Finance and/ or Ministry of Climate Resilience, NDA	2019 (expected)	

Title	Description	Delivery Partner	Submission timeframe
#32: *Adaptation planning readiness project*	TBD.	To be determined	2019 (expected)
		Total financing:	Status
		To be determined	To be elaborated
Action	Lead	Timeline	
Submit readiness request	NDA	2019 (expected)	

Title	Description	Delivery Partner	Submission timeframe
#33: *Private sector readiness project*	TBD.	To be determined	2019 (expected)
		Total financing:	Status
		To be determined	To be elaborated
Action	Lead	Timeline	
Submit readiness request	NDA	2019 (expected)	

Table 7. Accreditation pipeline

Entity Name	Type	Action	Lead	Timeline
GDB	Direct National	Q&A during stage 1 and 2 of accreditation	GDB, GCF	2018/2019
Ministry of Finance and/ or Ministry of Climate Resilience	Direct National	Gap analysis against GCF accreditation standards to be elaborated, followed by possible readiness support	NDA, GCF	2019/2020

3. Monitoring and evaluation of Country Programme implementation

The intention is to update Grenada's GCF Country Programme annually, focusing first of all on updates to the project pipeline, whereas other sections would be updated only if major new and relevant information becomes available - examples for factors triggering such non-pipeline updates include:

- new and better data and information on expected climate changes impacts in Grenada become available;
- new or updated relevant policy is developed or adopted;
- new international good practice or GCF guidelines related to GCF Country Programming become available; and
- relevant GCF operational policies are being changed, etc.

The NDA, after consultation with the NCCC and considering GCF guidance and advice that may be provided by Grenadian stakeholders, will determine the exact scope of updates and revision. In line with Grenada's NDA policies and procedures, Country Programme updates and revisions will be drafted by qualified external experts under the coordination and guidance of the NDA and be based on comprehensive and meaningful stakeholder engagement and always include gender-responsive approaches. Prior to finalization, draft updates and revised versions of the Country Programme will be discussed in the NCCC and wider stakeholder meetings convened by the NDA.

Continuous updates to and improvement of the Country Programme will guide future project development and implementation in line with latest available information and good international practice and thereby improving the impact and efficiency of the projects and programs funded by the GCF in Grenada.

Monitoring and evaluation of the Country Programme and GCF portfolios in Grenada will follow the recommendations, requirements and schedules communicated by the GCF to the NDA. The NDA will engage in creating and realizing alignment and efficiency gains wherever possible with other relevant processes, including for example the planned process of updating Grenada's INDC.

The present Country Programme should be considered as a living document, including in the context of the GCF being a relatively young institution and considering the fact that many lessons are still be learned (list not necessarily complete) from implementing the GCF as an institution, from a large number of GCF projects proposed and financed all over the world, from learning about direct access implementation and as a result of proposed and planned significant capacity development efforts in Grenada and elsewhere. It is also for this highly challenging, evolving and creative process that an annual update of the Country Programme is planned.

Overall, the expectation is that the implementation of the Country Programme will significantly advance the achievement of national policy goals as well as Grenada's objectives towards a low carbon and climate resilient society and economy.