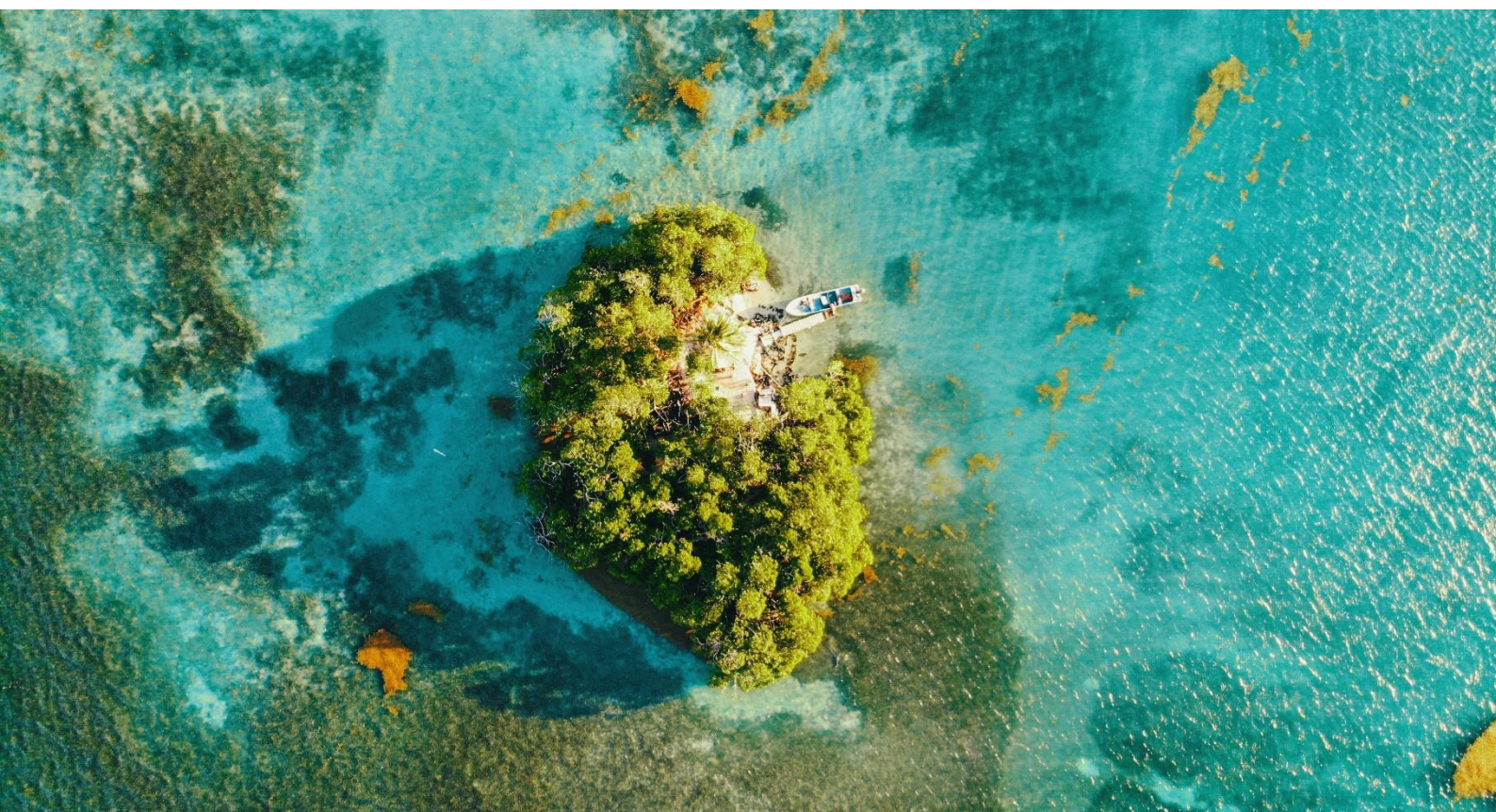




BELIZE

Updated Nationally Determined Contribution



August 2021

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Cover photo by Kevin Quischan.

1 Executive Summary

This document contains Belize's updated national contributions under the Paris Climate Change Agreement. Belize submitted its first Nationally Determined Contribution in 2016 and is now submitting this updated version ahead of the 26th Conference of Parties to the United Nations Framework Convention on Climate Change which is to be held November 2021. This updated version benefits from the availability of more robust data on land use trends and emission factors over the previous version of the NDC submitted in 2016, including the availability of Belize's first Forestry and Other Land Use (FOLU) sector Greenhouse Gas Inventory showing long-term trends in emissions and removals since 2001. It also carefully considers national capacity and circumstances as well as the availability of technological advancements. It therefore represents an ambitious improvement in the planning and projections of national commitments over the previous NDC, which was largely underpinned by generalized assumptions and deficiencies in data needed for accurate projections in the FOLU sector. As a result, a direct comparison between the first NDC and this updated NDC, in terms of the magnitude of CO₂e commitments pertaining to the FOLU sector, cannot be made without considering the increase in accuracy of projections. Belize considers the improvements made in the process to develop more realistic, transparent and achievable NDCs in all sectors as a demonstration of its high ambition goals.

Climate change is already affecting the livelihoods of Belizeans. Belize, as a small country with relatively minor contributions to global greenhouse gas emissions, has limited capacity to contribute to mitigation of global climate change. However, the country is committed to achieving the ultimate objective of the Convention and supports the even more ambitious target to limit the increase in global average temperature to 1.5°C, compared to pre-industrial levels.

As a member of the High Ambition Coalition, Belize has committed to increasing emissions reduction ambition in this updated NDC, including through the use of nature-based solutions in the FOLU sector intended to increase removals, whilst underpinning the NDC development process with more robust and realistic data and projections in all sectors. Belize is committed to developing a long-term strategy aligned with achieving net zero global emissions by 2050.

The NDC for Belize is consistent with the overall goal of the Growth and Sustainable Development Strategy (GSDS) which encompasses medium-term economic development, poverty reduction, and longer-term sustainable development. The GSDS is the nation's primary planning document and outlines four critical success factors for the development of our country and to ensure a better quality of life for all Belizeans, living now and in the future.

The development of the updated NDC has included broad stakeholder engagement including participation of vulnerable populations in an inception workshop for the NDC update process. Throughout the development of the updated NDC, progress has been validated through engagement with a technical committee of sector leads, including representation of indigenous peoples. Broader engagement of civil society and project owners was facilitated during an engagement phase. The actions and targets included in this updated NDC have undergone a gender and vulnerable group scoring analysis, which produced recommendations for increasing the gender sensitivity of both the medium-term implementation of the NDC and the long-term low emissions development strategy under development.

The primary GHG emitters are the energy, agriculture, waste, and industrial processes and product use (IPPU) sector. The FOLU sector is a net sink of GHG emissions due to GHG removals from forest growth that occurred in the country, which are the main driver of the historical GHG emission profile of Belize.

As a Small Island Developing State, Belize recognizes that the health and integrity of coastal ecosystems are vital for the health of people and the planet. "Blue carbon", e.g. basin, fringe and island mangrove and seagrass ecosystems, play many important roles as a nature-based solution to climate change with mitigation, adaptation, and resilience co-benefits. These ecosystems sequester and store significant amounts of carbon, help to ameliorate flooding of low-lying areas on the mainland, safeguard frontline communities and

infrastructure from climate impacts and build greater resilience, making their healthy function a triple-win for Belize by contributing to the national carbon sink, offsetting sea level rise and coastal erosion while expanding habitat for biodiverse resources, and supporting a more resilient tourism and aquaculture industry.

Climate change is already having significant impacts on Belize's territory, population and key economic sectors. Impacts experienced in the country to date include sustained droughts, floods, increased coastal erosion and changing precipitation patterns. In the future, these effects are expected to increase, thereby threatening the physical and social infrastructure in Belize. Agricultural yields are sensitive to changes in precipitation, temperature and extreme weather. Tourism, which accounts for the most income of any sector is impacted by sea level rise, coral bleaching and impacts on biodiversity. Critical support systems including water resources, health and energy are likewise impacted by the increasingly variable climate in the region. Belize also hosts globally significant ecological resources including rainforest, mangrove forests, wetlands and coral reefs which are under threat from a warming world. Belize considers adaptation as a high priority given its vulnerability to natural hazards and climate-related shocks.

Targets included in this updated NDC are estimated to avoid a cumulative emissions total across all sectors of 5,647 KtCO₂e between 2021 and 2030¹ (peaking at 1,080 KtCO₂e in avoided emissions in the year 2030²). As mentioned previously, this revised commitment is not necessarily comparable to the commitment in the first NDC due to improvements in data underlying the projections. Never-the-less, there is a 5% increase in overall commitments in this updated NDC. Key sector targets include: a 63% increase in GHG removals related to the Agriculture, Forestry and Other Land Use (AFOLU) sector and an increase of renewable energy projects for grid connected electricity generation. Targets also include a number of sectoral actions to build resilience and develop capacity to adapt to the impacts of climate change in key economic sectors and supporting systems. As part of the High Ambition Coalition, Belize announced its intention to develop a long-term low emissions development strategy, which will include targets for mitigation in key sectors to 2050.

This updated NDC reflects Belize's commitment to enhancing its climate ambition. Notably, ambition has been integrated into the updated NDC through the following enhancements:

- Improvements in the data availability and analysis of projections underpinning commitments, especially in the FOLU sector
- Realistic and achievable commitments
- Increased ambition through expanded sectoral targets
- Expanded coverage of gases covered in targets to include N₂O and Methane in AFOLU interventions
- Further specification of targets including addition of time frames, quantified emissions reductions and other outcomes
- Increased transparency in the development of targets
- Detail on the financing, monitoring and implementation of actions included in the NDC.

The targets and actions set out in this document demonstrate Belize's commitment to supporting the implementation of the Paris Agreement including:

- A set of mitigation targets in line with a global goal to keep global warming to below 2 degrees Celsius by 2100

¹ Maintaining deforestation outside of protected areas below 0.6% annually, in line with the REDD+ strategy, could deliver an additional 24 MTCO₂e in avoided emissions.

² These estimates are based on preliminary calculations developed by IRENA, FAO, UNFCCC, Vivid Economics, the FOLU roundtable and CfrN. Avoided emissions estimates are based on a BAU scenario informed by data from Belize's GHG inventory submitted in its first BUR and reflects existing policies, and is projected from 2020.

Belize's Updated Nationally Determined Contribution

- A set of adaptation actions designed to develop resilience of critical systems and populations in Belize
- Consideration of the costs of delivering actions identified and level of climate finance resources to support delivery of these actions.

Government of Belize has also taken a number of steps towards mobilizing finance for climate change activities from domestic and international sources. Recognizing the importance of climate finance aspects, the Climate Finance Working Group has been established under the Belize National Climate Change Committee (BNCCC) to provide guidance to the national efforts to access, manage and effectively use climate finance. The Government of Belize has increased public capital investment in climate change, especially on resilience building aspects.

The mitigation targets and actions included above are estimated to cost close to USD\$ 1.39 billion between 2021 and 2030. Recognizing funding that is already committed, the funding gap to deliver these actions is estimated at USD\$ 1.24 billion. Considering recoverable costs in the energy and waste sector, this gap could fall to USD\$ 607 million.

The targets and actions included in the NDC related to adapting to the impacts of climate change are estimated to cost a total of USD\$ 318 million between 2021 and 2030. Recognizing funding that is already committed, the funding gap to deliver these actions is estimated at USD\$ 146 million.

The implementation of the targets and actions covered by this NDC will be coordinated by the Belize National Climate Change Office (NCCO), through advice and guidance provided by the Belize National Climate Change Committee (BNCCC). Relevant ministries and stakeholders are represented on the BNCCC. An NDC Implementation Plan will be developed to set out annual targets, funding conditionalities and requirements and responsible parties for activities required to deliver the actions and targets included in the NDC. The NDC Implementation Plan will include specific consideration of how to incorporate stakeholder engagement and delivery of actions to promote a just transition in Belize.

In coordination with the NDC implementation plan, a series of evaluation systems will be put in place to monitor annual progress against targets and actions for both mitigation and adaptation.

2 Introduction

This document contains Belize's updated national contributions under the Paris Climate Change Agreement. Belize submitted its Nationally Determined Contribution in 2016 and is submitting an updated version of these commitments ahead of the 26th Conference of Parties to the United Nations Framework Convention on Climate Change which is to be held November 2021.

The targets and actions included below reflect relevant policies, strategies and plans in sectors relevant to climate change mitigation and adaptation. They are an extension and application of the focus on climate change in Belize's key development plans, including the Growth and Sustainable Development Strategy. Links to the Sustainable Development Goals are highlighted for each target and action presented.

The NDC also summarizes the plans for implementing the actions set out, including activities to finance and monitor progress.

3 National context

3.1 Background

Climate change is already affecting the livelihoods of Belizeans. Belize, as a small country with relatively minor contributions to global greenhouse gas emissions, has limited capacity to contribute to mitigation of global climate change. However, the country is committed to achieving the ultimate objective of the Convention and supports the even more ambitious target to limit the increase in global average temperature to 1.5°C, compared to pre-industrial levels. In light of these realities, Belize's Nationally Determined Contribution (NDC) is guided by its commitment to strategically transition to low carbon development while strengthening its resilience to the effects of climate change.

Belize is an upper middle-income country with a population of 400,000 (2018), 42% (or about 170,000) of whom live in poverty (2009). Belize was ranked 110/189 (2019) on the comprehensive Human Development Index.³

The national territory covers a land area of approximately 22,967 km², including 280 km of coastland. The mainland makes up 95% of the territory, and 5% is represented by more than 1,060 small islands or Cayes.

In 2019, GDP amounted to USD\$ 2 billion and has experienced between 2-3% annual growth over recent years. The economy is dominated by the service sector (70% of output), including a significant tourism sector. Agriculture and industry are also significant. Reflecting the importance of tourism to the country's economy, Covid-19 has had a major impact on growth, with an expected 15% contraction estimated in 2020.⁴

Belize has a relatively high debt to GDP ratio of 90%. The unemployment rate is 9.4% (2018). Gender inequality is in line with global averages, and Belize is ranked 89 of 189 countries.

3.2 Climate change in Belize

3.2.1 Impacts of climate change

Global climate change is one of the most serious threats to sustainable development in Belize. Impacts experienced in the country to date include sustained droughts, floods, increased coastal erosion and changing precipitation patterns. Combined, these climate changes and related phenomena are having significant impacts on many environmental, physical, social and economic systems within the country. In the future, these effects are expected to increase, thereby threatening the physical and social infrastructure in Belize.

According to the recent systematic country diagnostic by the World Bank Group, Belize is one of the most affected countries in the world by weather related events and other natural hazards. As such, Belize incurs annual losses of close to 4% of GDP due to natural disasters (Carneiro, 2016).

Key vulnerabilities identified include:

- Hurricanes and tropical storms causing severe losses from wind damage and flooding due to storm surges and heavy rainfall
- Belize City is especially vulnerable to flood damage due to its low-lying land and exposed positions on the coast; low lying topography makes the country's coastal areas especially vulnerable to sea level rise

³ <http://hdr.undp.org/en/countries/profiles/BLZ>

⁴ ECLAC (2020) 'Preliminary Overview of the Economies of Latin America and the Caribbean' https://repositorio.cepal.org/bitstream/handle/11362/46504/65/PO2020_Belize_en.pdf

- Extreme temperatures affecting crops and livestock
- Home to the second largest barrier reef; its species are especially vulnerable to global warming
- Among small states, Belize ranks 3rd for susceptibility to natural disasters and 5th at risk for climate change⁵
- Ranked 120 (59th most vulnerable) out of 181 countries on vulnerability score⁶

Projected climate change impacts for Belize include a rise in temperature of between 2°C and 4°C by 2100, a 7-8% decrease in the length of the rainy season, a 6-8% increase in the length of the dry season and a 20% increase in the intensity of rainfall in very short periods. Other expected impacts include increased erosion and contamination of coastal areas, sea level rise, flooding and an increase in the intensity and occurrence of natural hazards such as hurricanes. Many of the effects of climate change are already being felt on the low lying coastal zone and are expected to have significant impacts on many environmental, physical, social and economic systems in Belize.

In the agriculture sector, Belize expects a projected loss of production within the range of 10% to 20% which could lead to million dollars in lost revenue by the year 2100. The fisheries sector is also under threat from warmer sea surface temperatures, ocean acidification, sea-level rise, and extreme weather events. A decline in this industry can significantly affect Belize's food security as well as GDP. It would also affect over 3,500 licensed fishers, which could lead to an annual loss of approximately USD\$ 12.5 million per year.

The tourism industry in Belize, which is largely nature based and dependent on natural resources, will primarily be affected by extreme weather events, flooding, inundation, saltwater intrusion and erosion which will occur as a result of rising sea levels. Climate change will threaten the health of Belize's coral reefs and will affect water supplies and physical property, all of which are critical for the sustainability of the sector. The combined effects of reduced tourism demand, loss of infrastructure, loss of beaches and the loss of the barrier reef can result in the reduced income of approximately USD\$ 24 million per year. In 2015, Belize, like much of the Caribbean Basin, saw the introduction of a new economic and ecological challenge with the high rate of influx of sargassum to the region. While studies are still being carried out to understand much more effectively the origins of this influx, climate change is considered an important contributing factor. Similarly, the increase in vector-borne diseases in the region, such as the rise of Chikungunya and Zika virus, creates a significant negative image and impact on the Caribbean and Latin America travel and trade dynamics.

The country is also affected by tropical storms, tropical waves and hurricanes that move westward through the Caribbean from the months of June to November. Belize considers adaptation as a high priority given its vulnerability to natural hazards and climate-related shocks.

The impacts of climate change will increase over time and Belizean children of today will face the greatest risks, but have the least influence to affect change.

3.2.2 Greenhouse gas emissions

The following table shows the historical GHG emissions used for the updated NDC, which has been estimated based on the national GHG emissions inventory reported in Belize's 2020 Biennial Update Report.

⁵ As discussed in IMF (2016) "Small States' Resilience to Natural Disasters and Climate Change – Role for the IMF" <https://www.imf.org/external/np/pp/eng/2016/110416.pdf>, which defines small states as countries with a population below 1.5 million that are not advanced market economies (as assessed in the World Economic Outlook) or high-income oil exporting countries (as defined by the World Bank)

⁶ <https://gain-new.crc.nd.edu/country/belize>

Table 1. GHG emissions in the historical period (Gg CO₂-eq)

Inventory sector	2012	2015	2017
Energy	538.07	781.81	786.36
Industrial Processes and Product Use (IPPU)	31.43	42.50	43.69
Agriculture, Forestry and Other Land Use (AFOLU)	-7,771.37	-6,104.27	-6,683.66
Waste	22.73	19.89	26.81
International bunkers	40.37	40.23	71.89
Total without FOLU	832.19	1,107.46	1,194.71
Total With FOLU	-7,179.14	-5,260.07	-5,286.79

Source: National Climate Change Office (2020) Belize's First Biennial Update Report

Due to significant carbon storage in the Forestry and Other Land Use (FOLU) sector, the entire country of Belize is a sink of GHG emissions. The main driver of emissions in the FOLU sector is the conversion of forest land to grasslands and croplands, though carbon dioxide removals from forest growth are substantially higher than emissions from land-use change. Reduced emissions from stemming deforestation and forest degradation have been preliminarily identified as significant mitigation opportunities in the sector.

The primary GHG emitters are the energy, agriculture, waste, and industrial processes and product use (IPPU) sector.

Energy production in Belize comes from sources such as wood (11.7%), petroleum gas (0.7%), hydro (11.4%), biomass (50.1%) and crude oil (26.1%).⁷ In the electricity sector, 37% of electricity is imported from Mexico's Comisión Federal de Energía. The very significant electricity imports limit the GHG emissions of the sector. Nevertheless, if these imports are replaced by fossil fuel generation, GHG emissions assigned to Belize would increase significantly. An important feedback loop is expected as a result of climate impacts – increased temperatures are expected to increase demand for cooling systems in both commercial and residential settings.

The transport sub-sector is the largest GHG emitter in the energy sector, representing a significant opportunity to reduce emissions through interventions targeting this sector.

In the agriculture sector, the primary GHG emissions sources are livestock and forest fires. The mitigation opportunities for livestock are limited, but the control of forest fires was identified as a key opportunity to reduce national GHG emissions.

In the waste sector, emissions are generated from both the solid waste and wastewater management sector. The improvement of this area will bring significant co-benefits for national health, tourism, and standards of living.

In the IPPU sector, the size of the industry of the country is limited, and a significant change is not expected in this regard. Nevertheless, consumption emissions such as the emissions coming from the refrigerant and air conditioning will be rising, as Belize expects tourism to increase in the short and medium term.

3.3 National activity on climate change

The NDC for Belize is consistent with the overall goal of the Growth and Sustainable Development Strategy (GSDS) which encompasses medium-term economic development, poverty reduction, and longer-term

⁷ National Climate Change Office (2020) Belize's First Biennial Update Report

sustainable development. The GSDS is the nation's primary planning document and outlines four critical success factors for the development of our country and to ensure a better quality of life for all Belizeans, living now and in the future.

In April 2016, Belize ratified the Paris Agreement and submitted its first Nationally Determined Contributions (NDCs) to implement the Paris Agreement. Belize's mitigation potential proposed under its NDC covered multiple sectors such as forestry, electricity, waste and transport conditional on the availability of cost-effective technology, capacity building and adequate financial support. The initial NDC outlined actions to mitigate greenhouse gas emissions from land use and forestry, fuel wood consumption, electricity, transportation and solid waste. Encapsulated in Belize's original NDC are conditional commitments to reduce greenhouse gas emissions and unconditional commitments to facilitate adaptation nationally.

As a member of the High Ambition Coalition, Belize has committed to increasing emissions reduction ambition in an updated NDC and developing a long-term strategy aligned with achieving net zero global emissions by 2050.⁸

3.3.1 Policy landscape for climate change in Belize

The Government of Belize is committed to strategically transition to low carbon development while strengthening its resilience to the effects of climate change. Belize has mainstreamed climate change into its national development planning framework, including the long-term development plan (Horizon 2030) and medium-term development plan (Growth and Sustainable Development Strategy). In addition to the existing NDC, the government has developed a National Climate Change Policy, Strategy and Action Plan as well as a climate-resilient investment plan. Many sector-level plans include climate targets.

The 2016 NDC builds on these plans and focuses on reducing emissions from the forestry, transport, energy, and waste sectors and strengthening the resilience of coastal and marine resources, agriculture, water resources, tourism, fisheries and aquaculture, human health, infrastructure, and forestry.

The National Climate Change Policy, Strategy and Action Plan sets out the policy direction to strategically transition Belize's economy to one that is characteristic of low-carbon development while strengthening resilience to the effects of climate change.

More specifically, relevant policies include:

- HORIZON 2030 - the national development framework which was developed after extensive stakeholder consultation inclusive of all political parties. One of its four main pillars is responsible environmental stewardship. The strategies to achieve this pillar, namely integrating environmental sustainability into development planning and promoting sustainable energy for all, address the areas of concern relating to Belize's emission profile.
- THE NATIONAL ENERGY POLICY FRAMEWORK - aims to provide options that Belize can pursue for energy efficiency, sustainability and resilience over the next 30 years. Additionally, the Sustainable Energy Action Plan is a tool to achieve Belize's renewable energy and energy efficiency potential while meeting the Government's economic, social and environmental goals. It provides a framework of actions and tasks to overcome barriers to sustainable energy for the period 2014-2030.
- THE NATIONAL CLIMATE RESILIENCE INVESTMENT PLAN 2013 - provides the framework for an efficient, productive and strategic approach to building economic and social resilience and development. Special importance is given to building climate resilience and reducing disaster risk
- THE GROWTH AND SUSTAINABLE DEVELOPMENT STRATEGY - the guiding development plan for the period 2016–2019. It adopts an integrated, systemic approach and encompasses medium-term economic development, poverty reduction and longer-term sustainable development issues. This

⁸ <https://www.docdroid.net/gavlB6o/190922-rmi-unsg-summit-release-leaders-statement-final-combined-pdf>

planning document also provides detailed guidance on priorities and on specific actions to be taken during the planning period, including actions that contribute to longer term development objectives beyond 2019.

- THE NATIONAL CLIMATE CHANGE POLICY, STRATEGY AND ACTION PLAN (NCCPSAP), 2015-2020 - provides policy guidance for the development of an appropriate administrative and legislative framework, in harmony with other sectoral policies, for the pursuance of a low-carbon development path for Belize. In addition, the NCCPSAP also seeks to encourage the development of the country's Nationally Determined Contribution and to communicate it to the UNFCCC.
- ROADMAP FOR THE DEVELOPMENT OF A LOW CARBON DEVELOPMENT STRATEGY - creates a platform for low carbon growth in new areas while still attaining the national development targets. The roadmap compliments the NCCPSAP and GSDS by focusing on building technical capacity, strengthening institutions and policies, facilitating public-private partnerships and engaging stakeholders to adopt sustainable practices which should lead to national resilience to the impacts of climate change.
- THE NATIONAL SOLID WASTE MANAGEMENT POLICY (NSWMP) - the main public policy instrument regarding the management of solid waste (e.g., municipal, industrial and hazardous types of waste, among others) for Belize. Its overall goal is to ensure that "The system for managing solid wastes in Belize is financially and environmentally sustainable, and contributes to improved quality of life," while also contributing to the promotion of sustainable development by preventing, re-using, recycling or recovering waste wherever feasible and beneficial. The measures outlined in the NSWMP will be implemented in accordance with the National Solid Waste Management Strategy and Implementation Plan which have also been prepared.
- In addition to these policies and strategy documents, national climate adaptation plans have been developed for the agriculture and water sectors.

3.3.2 Activities related to climate change since the 2016 NDC submission

Blue carbon

As a Small Island Developing State, Belize recognizes that the health and integrity of coastal ecosystems are vital for the health of people and the planet. "Blue carbon", e.g. mangrove and seagrass ecosystems, play many important roles as a nature-based solution to climate change with mitigation, adaptation, and resilience co-benefits. These ecosystems sequester and store significant amounts of carbon, safeguard frontline communities and infrastructure from climate impacts and build greater resilience, making their healthy function a triple-win for Belize by providing a carbon sink, offsetting sea level rise and coastal erosion while expanding habitat for biodiverse resources, and supporting a more resilient tourism and aquaculture industry. They are also among the most biodiverse environments on the planet and provide essential habitats for fisheries, in addition to other ecosystem services such as wave attenuation, sediment stabilization, and water filtration. Together with coral reefs, they sustain the foundation of the marine tourism economy in Belize. Protection of these vital ecosystems protects the climate, people and nature.

Since the 2016 NDC, Belize has established stronger frameworks to conserve these valuable coastal habitats. The Government of Belize endorsed the first Integrated Coastal Zone Management (ICZM) Plan in 2016, which incorporates ecosystem services and integrated risk analysis into decision-making. Further, *The Forests (Protection of Mangroves) Regulations of 2018* established a permitting system that aims to safeguard mangroves and their many ecosystem services from deforestation and degradation. Other instruments such as the draft National Land Use policy (2019) speak to the need for securing the protection, rehabilitation and restoration of critical water catchment areas and forests as part of national efforts to reverse and minimize the impact of land degradation. The National Biodiversity Strategy and Action Plan (2016) aims to ensure that Belize's natural environment is valued, enhanced in resilience and contributes to an improved quality of life through securing protection and restoration of natural ecosystems, including within the coastal zone.

In 2020, the NCCO, in collaboration with the World Wildlife Fund and partners, convened the first Blue Carbon Working Group for Belize. The Working Group includes representatives from across government agencies, academia, civil society, communities, and other key stakeholders, and was formed to value the blue carbon potential and adaptation co-benefits of Belize's coastal ecosystems, in order to inform targets and recommendations to strengthen their protection and effective management over the long-term. Targets and recommendations derived from the Working Group will be integrated within the policies and plans referenced above, including planned updates to the ICZM Plan, the NBSAP, the National Climate Change Policy Strategy and Action Plan, and the Forests (Protection of Mangroves) Regulations.

Mobilizing climate finance

Government of Belize has also taken a number of steps towards mobilizing finance for climate change activities from domestic and international sources. Recognizing the importance of climate finance aspects, the Climate Finance Working Group has been established under the National Committee on Climate Change (NCCC) to provide guidance to the national efforts to access, manage and effectively use climate finance. The Government of Belize has increased public capital investment in climate change, especially on resilience building aspects. In 2018-19 the government invested USD \$8.9 million in domestic public finance for resilience building projects.

Belize has accessed climate finance from all climate funds under the UNFCCC finance mechanism including the Global Environment Facility (GEF), the Adaptation Fund (AF), the Special Climate Change Fund (SCCF) and the Green Climate Fund (GCF). Belize Protected Areas Conservation Trust (PACT) is the National Implementing Entity (NIE) for the Adaptation Fund and the first national accredited entity for GCF which has increased the national capacity to access climate finance.

Apart from the UNFCCC, climate finance sources have been accessed by Belize from other bilateral and multilateral agencies. Since 2010 about 30 climate change projects have been implemented in Belize with value of over USD\$ 135 million (both grants and loans), in addition to another 10 regional climate change projects of over USD\$ 100 million (grants and loans). The Economic Development Council (EDC) of Belize has been established to promote Public-Private-Partnerships (PPPs) which has mobilized over USD\$ 200 million investments for energy sector.

Reducing Emissions from Deforestation and Forest Degradation (+)

The Government of Belize has pursued the development of its REDD+ strategy, National Forest Monitoring System, Forest Reference Level (2015-2020), and Safeguards Information System in order to pursue results-based payments under the UN REDD+ platform. The current situation is that the REDD+ Strategy is being finalized in 2021, the National Forest Monitoring System is constantly being improved, the Forest Reference Level (2015-2020) has already been technically assessed in 2020 by UNFCCC and the Safeguards Information System is currently being finalized in 2021. Beyond, and in addition to, the FOLU targets listed in this NDC, Belize intends to pursue results-based payments for the present FRL, as well as for a new FRL to be developed for 2021 to 2025.

4 NDC development process

The updated NDC has been developed through a process coordinated by the National Climate Change Office and with support from a broad group of partners including sector leads from across Belize's government and civil society and range of international organisations.

4.1 Climate Action Enhancement Package

In December 2018, the Belize National Climate Change Office formally requested support from the NDC Partnership to provide technical assistance for the updating of the country's NDC, including the development of an NDC implementation plan, a financial strategy and a Measuring, Reporting and Verification tool for actions set out in the NDC.

The NDC Partnership accepted this request and in 2020 initiated a Climate Action Enhancement Package (CAEP). The international partners providing technical assistance under the Belize CAEP include:

- Commonwealth Secretariat
- International Renewable Energy Agency
- NDC Partnership Support Unit
- Rocky Mountain Institute
- Climate Technology Collaboration Network (CTCN) and Fundación Bariloche
- UNFCCC Regional Collaboration Center in Grenada (with the Caribbean Climate Change MRV Hub)

In addition to these partners, organisations involved in the development and implementation of the NDC working alongside the CAEP activities include:

- UN Development Programme
- World Wildlife Fund (WWF)
- The Pew Charitable Trusts
- Initiative for Climate Action Transparency
- Coalition for Rainforest Nations in conjunction with the Belize FOLU roundtable

Technical assistance under the CAEP has included an assessment of policy targets, mapping of activities related to climate change, stakeholder engagement, modelling of GHG impacts in different sectors, an analysis of technology options to achieve NDC targets and the development of financing and implementation strategies.

Technical assistance provided by CfRN to the FOLU roundtable included the projections of without and with project emission scenarios for the committed activities in the land-use, land-use change and forestry sub-sector using data and emission factors from the country's GHG inventory database for the FOLU sector. CfRN also assisted by providing expert advice on ensuring harmonization among the NDC, GHG Inventory, and REDD+ Strategy.

4.2 Inclusive development of updated NDC

The development of the updated NDC has included broad stakeholder engagement including participation of vulnerable populations in an inception workshop for the NDC update process.

Throughout the development of the updated NDC, progress has been validated through engagement with a technical committee of sector leads, including representation of indigenous peoples. Broader engagement of civil society and project owners was facilitated during an engagement phase. The actions and targets included in this updated NDC have undergone a gender and vulnerable group scoring analysis, which produced recommendations for increasing the gender sensitivity of both the medium-term implementation of the NDC and the long term low emissions development strategy under development.

5 Summary of Belize's updated Nationally Determined Contribution

Belize is pleased to submit this updated Nationally Determined Contribution which includes both a mitigation and an adaptation component.

Targets included in this updated NDC are estimated to avoid a cumulative emissions total of 5,647 KtCO₂e between 2021 and 2030⁹ (peaking at 1,080 KtCO₂e in avoided emissions in 2030).¹⁰ Key sector targets include: a 63% increase in GHG removals related to the AFOLU sector and an increase of renewable energy projects in the grid connected. Targets also include a number of sectoral actions to build resilience and develop capacity to adapt to the impacts of climate change in key economic sectors and supporting systems.

This updated NDC reflects Belize's commitment to enhancing its climate ambition. Notably, ambition has been integrated into the updated NDC through the following enhancements:

- Improvements in the data availability and analysis of projections underpinning commitments, especially in the FOLU sector
- Realistic and achievable commitments
- Increased ambition through expanded sectoral targets.
- Expanded coverage of gases covered in targets to include N₂O and Methane in AFOLU interventions.
- Further specification of targets including addition of time frames, quantified emissions reductions and other outcomes.
- Increased transparency in the development of targets.
- Detail on the financing, monitoring and implementation of actions included in the NDC.

As part of the High Ambition Coalition, Belize announced its intention to develop a long-term low emissions development strategy, which will include targets for mitigation in key sectors to 2050.

The targets and actions set out in this document demonstrate Belize's commitment to supporting the implementation of the Paris Agreement including:

- A set of mitigation targets in line with a global goal to keep global warming to below 2 degrees Celsius by 2100.
- A set of adaptation actions designed to develop resilience of critical systems and populations in Belize.
- Consideration of the costs of delivering actions identified and level of climate finance resources to support delivery of these actions.

⁹ Maintaining deforestation outside of protected areas below 0.6% annually, in line with the REDD+ strategy, could deliver an additional 24 MTCO₂e in avoided emissions.

¹⁰ These estimates are based on preliminary calculations developed by IRENA, FAO, UNFCCC, Vivid Economics, CfrN and the FOLU roundtable. Avoided emissions estimates are based on a BAU scenario reflecting existing policies and is projected from 2021.

6 Mitigation targets and actions

6.1 Context





Belize is committed towards achieving the central aim of the Paris Agreement by pursuing efforts to limit the global temperature increase even to 1.5 degrees Celsius above pre-industrial levels. This commitment led to the development and submission of Belize's first NDC on April 20th, 2016 and the updated NDC set out below.

In parallel to the NDC update, which updates previous medium-term mitigation and adaptation targets to 2030, Belize is developing a Low Emission Development Strategy (LEDS) to set out the country's long term mitigation ambitions to 2050. This process, supported by the UNDP, will aim to define a long-term target for low carbon and carbon neutral development.

6.2 Sectoral targets and actions











The NDC includes specific targets set out at the sector level. Where targets relate to mitigation of greenhouse gases, the target sets out a quantified emissions reduction and a series of actions are provided for delivery of the target.

6.2.1 Land use change and forestry

Type		SDG linkages
Target	Reduce GHG emissions and increase GHG removals related to land use change totalling 2,053 KtCO₂e¹¹ cumulative over the period from 2021 to 2030	
Action	Complete the REDD-plus Strategy, including options, implementation framework and assessment of social and environmental impacts, publish and maintain a National Forest Reference Level covering 2006-2020, and design systems for monitoring, information and safeguards; including stock taking for tropical forest and mangrove cover and promotion of community land stewardship practices. Participate in REDD+ for performance-based payments for emissions reductions and removals increase achieved above and beyond the commitment in this NDC.	
Action	Implement reforestation practices for 1,400 hectares in forest areas inside protected areas, as well as the restoration of 6,000 hectares of degraded and deforested riparian forests ¹² by 2030, with 750 hectares of this being restored in key watersheds by 2025	
Action	Reduce degradation in 42,600 hectares of forest within protected areas by reducing fire incidence, improving logging practices, and controlling other human disturbance by 2030.	

¹¹ Including up to 5 KtCO₂e of N₂O reduction and 0.47 KtCO₂e of Methane reduction from land use change

¹² Defined as tropical moist deciduous secondary forests in the National Forest Reference Emissions Level

Type		SDG linkages
Action	Assess potential to reduce emissions related to fuelwood collection and use including an assessment of social and cultural impacts and collection of data on current fuelwood use in local communities throughout Belize and incorporate findings into forestry sector strategies.	  
Action	Incorporate and monitor agroforestry practices into at least 8,000 hectares of agricultural landscapes by 2030 by planting shade trees, ¹³ in line with the draft National Agroforestry Policy, with 4,500 hectares of this being implemented by 2025 conditional on adoption, implementation and financing of the agroforestry policy	  
Action	Promote and monitor the stewardship of 10,000 hectares of local community and indigenous people’s lands as sustainably managed landscape to serve as net carbon sinks	 
Action	Explore alongside Article 6 of the Paris Agreement, new financing options to support forest protection and restoration, including REDD+ performance-based payments, multilateral and bilateral funds, insurance products, debt-for-nature swaps, private investment, carbon credits and bonds, and other innovative conservation financing mechanisms	 








The actions identified above are considered conditional on financial support and technical assistance.

Belize is considering management of its near-shore coastal ecosystems (fringe and island mangroves and seagrass) in an integrated and holistic way. Fringe and island mangroves account for around 30% of total mangrove cover, while the other 70% of mangroves are located on the mainland in basin and littoral formations. All mangrove formations are integrated into the Forest Reference Level within the national definition of forests. The understanding of the climate influence of Belize’s mangrove ecosystems, including both above- and below-ground carbon, is more advanced; they are estimated to currently hold total ecosystem carbon stocks of approximately 92,962,893 (92,963 Kt) tCO₂e, and annually sequester around 431,644 (432 Kt) tCO₂e/year.¹⁴ These figures will be further validated based on field research to be completed in 2021.


Belize intends to maintain and enhance these carbon storage functions of these natural carbon sinks, as well as the adaptation and resilience values they provide, by protecting and restoring mangrove and seagrass habitats through the target and actions outlined below.

¹³ Defined as multistrata agroforestry systems with 10% canopy cover relative to a secondary forest.

¹⁴Based on analysis from Crooks, S., Beers, L. and von Unger, M. (2020) Belize Coastal Wetland Carbon Stock Estimates. Memo by Silvestrum Climate Associates to the Belize National Climate Change Office, The Pew Charitable Trusts and the World Wildlife Fund. July 23, 2020.





Type		SDG linkages
Target	<p>Enhance the capacity of the country’s mangrove and seagrass ecosystems to act as a carbon sink by 2030, through increased protection of mangroves and by removing a cumulative total of 381 KtCO2e between 2021 and 2030 through mangrove restoration.</p>	
Action	<p>Building on the 12,827 hectares of mangroves currently under protection, protect at least a further 6,000 hectares of mangroves by 2025, with an additional 6,000 hectares by 2030. This includes the establishment of new and/or improvement of existing public conservation measures to cover 100% of publicly owned areas identified in the Government’s mangrove priority areas from the Forests (Protection of Mangroves) Regulations 2018; partnerships with landlords of privately owned mangroves, local communities, bilateral and multilateral agencies and the continued enforcement of the 2018 mangrove regulations. This is a non-CO2e commitment, since baseline mangrove loss has been negligible over the 20-year period from 2001 to 2020.</p>	
Action	<p>Restore at least 2,000 hectares of mangroves, including within local communities, by 2025, with an additional 2,000 hectares by 2030</p>	
Action	<p>Halt and reverse net mangrove loss by 2025 through public measures and partnerships with private landowners local communities, and other relevant stakeholders</p>	
Action	<p>Assess the value of seagrass habitat contributions to climate regulation to inform development and implementation of a national seagrass management policy, updated national seagrass mapping as part of an updated marine habitat map,¹⁵ and identification of a portfolio of priority seagrass areas for protection to enhance conservation</p>	
Action	<p>Complete an in-situ assessment of the below ground carbon stock of mangroves by 2022, leading to the application of relevant IPCC methodologies to assess the feasibility of including seagrass in a wetlands component, alongside a comprehensive assessment of mangrove-based carbon stock, in the National Greenhouse Gas Inventory, and other relevant reports by 2025</p>	
Action	<p>Explore alongside Article 6 of the Paris Agreement, new financing options to support mangrove protection and restoration, including multilateral and bilateral funds, insurance products, debt-for-nature swaps, private investment, blue</p>	

¹⁵ <https://www.coastalzonebelize.org/essential-biodiversity-variables-in-the-cloud-program/>

Type		SDG linkages
	carbon credits and bonds, and other innovative conservation financing mechanisms	
Action	Throughout delivery of land use interventions related to this target, promote the stewardship of local community and indigenous people’s coastal lands as sustainably managed landscapes to serve as net carbon sinks	


The actions identified here are considered conditional on 1) provision of technical expertise and development of capacity for the emissions accounting and carbon market design and 2) financial support for purchase, protection and restoration of mangroves and wetlands.

6.2.2 Agriculture

Type		SDG linkages
Target	Reduce methane emissions from livestock by 10% by 2030 and avoid emissions of at least 4.5 KtCO ₂ e ¹⁶ related to agriculturally driven land use change by 2025	
Action	Improve the management of 80,000 hectares of the agro-landscape through good agricultural and silvopastoral practices, including by bringing 30,500 hectares under sustainable agriculture systems with biodiversity benefits and 15,000 hectares in production systems under sustainable land management ¹⁷	
Action	Restore 200 hectares of arable sugar land in Northern Belize that has been denuded over time by use	
Action	Promote the reduction of agricultural GHG emissions through altering crop cultivation methods, including green mechanical harvesting in sugar cane production systems, through a public awareness campaign targeting women, youth and local communities	

¹⁶ Including up to 0.07 KtCO₂e of N₂O emissions

¹⁷ Including 17,664 ha of corn, 450.15 ha of RK beans, and 1420 ha of soybeans subject to improved agronomic practices and nutrient management, 230 ha of conventional vegetables (tomatoes, sweet pepper, onions and cabbage) + 140 ha of potatoes subject to improved agronomic practices, nutrient management and improved water management, and [698.5 ha of rice with that is intermittingly flooded (rather than continuously)]

Type		SDG linkages
Action	Promote the reduction of agricultural GHG emissions through implementing effective livestock management that involves changing the feeding practices of livestock to include more optimal nutrient levels	

The actions identified above are presented as conditional to receiving financial support to implement large scale land use interventions and technical support to improve agricultural processes.

6.2.3 Energy

The energy sector, among other sectors, presents numerous opportunities to reduce GHG emissions on the global scale and here in Belize. The Belize INDC presented in 2015 established very ambitious goals for the electricity generation subsector with a target of reducing GHG emissions by 2.4 million metric tons of CO₂e during the 2014-2033 period via renewable energy and energy efficiency measures (potential established by the Belize Sustainable Energy Strategy and Action Plan).







The analysis of Belize’s Sustainable Energy Strategy and Action Plan was conducted on the basis of unrealized sustainable energy potential (proposed national sustainable energy strategy scenario) rather than projecting the introduction of renewable energy generation within the interconnected energy matrix, taking into consideration contributions from the Mexican generation network and private sector investment in renewable energy source projects.

In this updated NDC, Belize maintains its strong ambition to increase the implementation of renewable energy projects within the interconnected energy matrix and to gradually reduce the amount of electricity generation being imported from Mexico. Similarly, the national utility, Belize Electricity Limited (BEL), is developing an electricity expansion plan (up to 2030) with the intention to project a pathway of how Belize wants to develop this sector within the next 10 years. Notably, the electricity expansion plan will assist decision-makers with information and allow for greater precision in the analysis of renewable energy generation being added to Belize’s interconnected energy matrix. The analytical exercise should be done from the perspective of carbon intensity of electricity generation which takes into account the operating margin emission factor for Belize’s national electricity grid. This approach will allow for a better estimate of CO₂e emissions and will, therefore, assist in establishing with greater precision the impact of renewable energy projects towards the displacement of fossil fuel-based generating sources and/or at the same time the displacement of electricity imports from Mexico.













Subsequent to the implementation of climatic actions in the energy sector, Belize estimates realization of avoided emissions from the power sector equivalent to 19 KtCO₂e per year through system and consumption efficiency measures amounting to at least 100 GWh/year by 2030. In addition, projection is made to avoid 44 KtCO₂e in the national electricity supply by 2030 through the introduction of expanded capacity from renewable energy sources.

The potential for estimate refinements will depend on carbon intensity analysis of the grid connected generation to determine its Operating Margin Emission Factor. Applying this analytical tool will enable a more accurate estimation of the GHG emissions generated by the energy sub-sector against an established baseline year. Notably, Belize's contribution is conditionally supported by sources of investment and the country reserves the right to make changes to the projections and estimates based on the availability and integration of new information.

Belize is committed to contributing to global climate action and low-carbon development. Thus, Belize presents its energy sector climatic targets and actions below.



Type		SDG linkages
Target	Avoid emissions from the power sector equivalent to 19 KtCO ₂ e per year through system and consumption efficiency measures amounting to at least 100 GWh/year by 2030 ¹⁸	 
Action	Reduction in transmission and distribution losses from 12% to 10% by 2030 resulting in reduced electricity demand and better quality of supply	 
Action	Improve energy efficiency and conservation by at least 10% by 2030 compared to a BAU baseline projection, ¹⁹ including through an increase of appliance efficiency in buildings and implementation of building codes, appliance standards and labels and promotion of energy efficient technology in the tourism sector	 

The targets above are presented with partial conditionality considerations, including technical support to develop a transmission and development improvement programme and financing to pilot and scale up solar water heating technology in residential and tourism sectors.












Type		SDG linkages
Target	Avoid 44 KtCO ₂ e in the national electricity supply by 2030 through the introduction of expanded capacity from renewable energy sources	 
Action	Achieve 75% gross generation of electricity from renewable energy sources by 2030 through the implementation of hydropower, solar, wind and biomass, including in the tourism sector	 
Action	Reduce emissions from high carbon electricity sources including through taking 2MW diesel generation offline by 2022 and converting new LPG generation to CNG by 2026	 
Action	Install 40 MW utility-scale solar power by 2025	 
Action	Implement an interconnection policy and regulatory framework to facilitate distributed renewable power generation by 2022	
Action	Expand the use of biomass, including bagasse, for electricity generation	  

¹⁸ With reference to the BES scenario estimated by IRENA ReMAP analysis

¹⁹ BES scenario in IRENA ReMAP analysis for Belize

Type		SDG linkages
Action	Explore the feasibility of onshore wind power generation and flexible storage technologies to complement high levels of variable renewable power sources	 

The targets above are presented with partial conditionality considerations. BEL plans to invest BZD\$ 250 million (USD\$ 125M) in the energy sector, to support the renewable energy share target of 75% by 2030. Technical assistance and financing will be required to 1) scale up and replicate existing bagasse-based biomass power projects, 2) explore feasibility of onshore wind and storage technologies²⁰ and 3) increased renewable energy generation capacity beyond projects currently planned.








Type		SDG linkages
Target	Avoid 117 KtCO ₂ e/year ²¹ from the transport sector by 2030 through a 15% reduction in conventional transportation fuel use by 2030 and achieve 15% efficiency per passenger- and tonne-kilometre through appropriate policies and investments	 
Action	Improve efficiency in the public transit system through the deployment of 77 hybrid and electric buses by 2030 (17 by 2025)	  
Action	Implement a policy framework to promote more efficient vehicles and alternative fuels/blends through incorporation of fuel economy labels; emissions testing; fuel economy standards, limitations and emissions-based taxes/feebates for imported vehicles by 2025	  
Action	Facilitate adoption of electric vehicles in the passenger fleet by conducting a feasibility study for EV penetration, including assessment of potential incentives, and investing in EV charging infrastructure	  

These targets above are presented with partial conditionality considerations including: 1) financing through the NAMA facility for the purchase and deployment of efficient buses and 2) provision of technical assistance to develop an efficient light duty vehicle policy regime.

²⁰ As part of the Central American regional study project, IRENA is developing a Renewable Energy Roadmap (REmap) study for Belize, complemented with a power system flexibility study with IRENA’s FlexTool. The study will investigate the technology options that enable an energy transition at country level through the accelerated development of renewable energy in the energy mix. In the framework of this study, IRENA together with the government of Belize is developing a reference case and decarbonization perspectives for the power generation and consumption sectors i.e. buildings, transport and industry of Belize. IRENA, upon validation from country representatives, will provide a slide deck with the analysis results for the above-mentioned scenarios, from which the scenarios might be particularly interesting for the NDC review process as renewable energy options, sustainable fuels and energy efficiency measures are further explored. The results of the REmap-FlexTool analysis can serve Belize as a reference for establishing energy sector mitigation targets in the NDC review process of the country.

²¹ As modelled in the TES scenario of IRENA’s ReMAP analysis for Belize.

6.2.4 Waste management

Type		SDG linkages
Target	Improve waste management processes to avoid emissions of up to 18 KtCO ₂ e per year by 2030, in line with the national waste management strategy	 
Action	Close all municipal dumps by 2025 and implement rural waste management system including rural collection and drop off services by 2030	 
Action	End the open burning of waste by 2025 by extending regular municipal services to all households and commercial premises	 
Action	Develop a legal and policy framework for the sustainable management of solid waste in Belize	

These actions are presented as unconditional, as they are aligned with the activities in the ongoing and funded Solid Waste Management Project II.

6.2.5 Costs of mitigation actions

Table 2 Mitigation: Estimated costs for actions and associated targets across all sectors

Sector	Action	Estimated total cost to meet target	Identified activities: Amount already funded	Identified activities: Unfunded amounts	Estimated gap (incl. unfunded activities)
LUCF	Reforestation, forest protection and sustainable forest management	\$67,749,000	\$30,865,128	\$7,000,000	\$29,883,872
	Fuel wood consumption	\$250,000	\$ 0	\$ 0	\$250,000
	Mangrove protection and reforestation	\$330,798,801	\$10,000,000	\$5,000,000	\$315,798,801
	Blue carbon market	\$2,614,510	\$ 0	\$ 0	\$2,614,510
Energy	Renewable energy	\$460,050,610	\$274,500	\$739,700	\$459,036,410
	Energy efficiency in the power sector	\$93,068,247	\$274,500	\$5,731,000	\$87,062,747
	Energy in the transport sector	\$71,000,000	\$0	\$56,038,000	\$14,962,000
Agriculture	Sustainable crop production & livestock management	\$41,306,164	\$16,306,164	\$15,000,000	\$10,000,000
Waste	Waste Management	\$327,400,000	\$10,200,000	\$ 0	\$317,200,000
	Total	\$1,394,237,332	\$67,920,292	\$89,508,700	\$1,236,808,340

The mitigation targets and actions included above are estimated to cost close to USD\$ 1.39 billion between 2021 and 2030. Recognizing funding that is already committed, the funding gap to deliver these actions is estimated at USD\$ 1.24 billion. Considering recoverable costs in the renewable energy and waste sector, this gap could fall to USD\$ 607 million.

7 Adaptation targets and actions

7.1 Context

“The adverse effects of Climate Variability and Climate Change, particularly on crop production and food security, natural ecosystems, marine and coastal areas, water resources and human health, as well as on housing and infrastructure are particularly obvious around us. These impacts pose major impediments to efforts being implemented by the Government of Belize to promote sustainable economic and social development and poverty reduction, which are the first and overriding priorities of the national government. Ocean acidification due to rising carbon dioxide levels will create serious risks to marine ecosystems and species, including our coral reef systems.”

- (2015-2020) National Climate Change Policy, Strategy and Action Plan

Climate change is already having significant impacts on Belize’s territory, population and key economic sectors. Agricultural yields are sensitive to changes in precipitation, temperature and extreme weather. Tourism, which accounts for the most income of any sector is impacted by sea level rise, coral bleaching and impacts on biodiversity. Critical support systems including water resources, health and energy are likewise impacted by the increasingly variable climate in the region. Belize also hosts globally significant ecological resources including rainforest, mangrove forests, wetlands and coral reefs which are under threat from a warming world.







7.2 Sectoral targets














The NDC includes specific targets set out at the sector level for adaptation and resilience to climate change including additional coverage from the previous NDC for land use, human settlements and infrastructure sector as well as the human health sector. Where targets relate to broad areas of increased resilience, a series of actions are provided for delivery of the target.

7.2.1 Coastal zone and marine resources






In addition to important mitigation benefits, Belize recognizes the many co-benefits coastal wetlands and coral reefs offer for adaptation to climate impacts and building resilience for coastal communities. The coastal zone is fundamental to the lives and livelihoods of many Belizeans.

Significant tracts of Belize’s coastline have an elevation of one meter or less, a source of significant vulnerability with sea-level rise. Protection and restoration of mangrove and seagrass ecosystems not only provides emissions reductions benefits, but also will ensure Belize is better placed to protect vulnerable communities and their livelihoods, safeguard its rich biodiversity, and develop sustainably.







Type		SDG linkages
Target	Increase resilience to climate impacts for coastal communities and habitats by managing further development of the coastline to reverse net coastal habitat and land loss by 2025	   
Action	Conduct vulnerability assessments of the national coastal area to identify threats and trends, including an initial assessment by 2022 and biennial updates to 2030	 

Type		SDG linkages
Action	Establish a public informational clearing house on ecosystem health and human use activities within the coastal zone to share information to support responsible planning in coastal areas by 2023	
Action	Conduct a study of the impacts of ocean acidification on Belize’s coastal habitats and marine resources by 2025 and establish a monitoring program for ocean acidification and water quality in Belize.	
Action	Assess coral reef restoration potential, including opportunities for enhancing habitat functionality to improve the resilience of coastal and marine habitats in addition to the 20% of territorial waters in marine protected areas and 10% of waters in marine replenishment zones. Develop an early warning system to monitor and detect unhealthy areas of the coral reef.	
Action	Develop and implement a national seagrass management policy including an updated seagrass map and identification of priority seagrass areas for further protection to enhance conservation	 
Action	Revise and streamline current legislation and policies that relate to the management of the coastal zone to eliminate overlaps and close existing gaps and develop a national policy for resilient coastal habitation based on vulnerabilities.	
Action	Update and implement the Integrated Coastal Zone Management Plan, including implementation of an informed management zoning scheme and monitoring programmes for the impacts of human use on coastal habitats and marine ecosystems, and link to the emerging national Blue Economy strategy	  
Action	Develop and implement a national marine dredging policy with robust guidelines for minimizing impacts to coastal wetlands and coral reefs	
Action	Build on the mitigation target of expanding the current 12,827 hectares of mangroves under protection by at least a further 6,000 hectares of mangroves by 2025. The adaptation measure includes: the establishment of new and/or improvement of existing public conservation measures to cover 100% of publicly owned areas identified in the Government’s mangrove priority areas from the Forests (Protection of Mangroves) Regulations 2018; partnerships with landlords of privately owned mangroves, local communities, bilateral and multilateral agencies; and the continued enforcement of the 2018 mangrove regulations. ²²	  

²² Note – costs related to mangrove restoration and protection considered in mitigation section only




Type		SDG linkages
Action	Strengthen resilience of local coastal communities and enhance the ecosystem services provided by mangroves through the restoration of at least 2,000 hectares of mangroves including within local communities by 2025, with an additional 2,000 hectares by 2030	  
Action	Promote public measures and partnerships with private landowners, local communities, and other relevant stakeholders to encourage mangrove preservation and reduce mangrove loss by 2025	 











The actions identified here are considered conditional on 1) provision of technical expertise and development of capacity for the implementation of an information clearing house and Informed Management zoning regime and 2) financial support for protection and restoration of mangroves and seagrass habitats.

Type		SDG linkages
Target	Strengthen the resilience of coastal communities by developing an early warning system for storm surges by 2025	 
Action	Monitor coastal erosion and update coastal adaptation strategy every 5 years through the development of a National Beach Erosion Monitoring program	  
Action	By 2023, pilot early warning system for storm surges in 1 coastal district, develop a national monitoring system and coastal response plan for storm surges and flooding	







The actions identified here are considered conditional on 1) provision of technical expertise and development of capacity for the implementation of an early warning system (EWS) for storm surges and 2) financial support for a pilot EWS.

7.2.2 Agriculture

Type		SDG linkages
Target	Reduce post-harvest losses through the implementation of the National Adaptation Strategy to Address Climate Change in the Agricultural Sector to increase the adaptive capacity of the agricultural sector	 
Action	Mobilize infrastructure investments for Climate Smart Agriculture (CSA) as set out in the National Adaptation Strategy to Address Climate Change in the Agricultural Sector and including delivery of short-term actions by 2025	

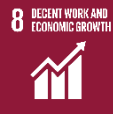








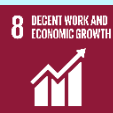

Type		SDG linkages
Action	Establish a financing facility for CSA investments through local financial institutions	 
Action	Improve both crop and livestock husbandry practices, increase access to drought tolerant crops and livestock breeds through partnerships with research institutions	  
Action	Adopt better soil and water management practices, including the use of biochar and improved (solar-powered) irrigation systems	    

These actions are presented conditional on 1) technical assistance and capacity building to develop financing vehicles for CSA investments and 2) financial support for research collaborations.

Type		SDG linkages
Target	Develop and implement an enhanced early warning system for drought and extreme weather events to support farmers in planning for and responding to the impacts of climate change by 2025	  
Action	Expand on the Belize Agriculture Information System to reach a broad awareness amongst relevant populations of hazards and best practices	
Action	Explore crop and commodity insurance schemes and pilot insurance product including education and awareness raising campaign by 2024	 







These actions are presented conditional on 1) technical assistance and capacity building to develop EWS and insurance schemes and 2) financial support to pilot crop and commodity insurance scheme.












7.2.3 Fisheries and aquaculture

Type		SDG linkages
Target	Build capacity in fisheries and aquaculture sector through research, diversification and retraining to support livelihoods while protecting coastal ecosystems	 
Action	Build national capacity to gather climate data to inform management. Develop and implement mangrove and fisheries conservation and management plans including the 20% of territorial waters included in Marine Protected Areas and strive to include 10% of territorial waters in marine replenishment zones	  
Action	Encourage the development of the sector through value adding and diversification in fish species through research partnerships, private sector engagement, pilot programmes and extension support services	
Action	Implement and enforce 2020 Fisheries Act and 2018 Forests (Protection of Mangroves) Regulations. Develop and adopt fisheries regulations to complement the 2020 Fisheries Act.	  
Action	Explore the development of alternative livelihood plans for fishers and their households and include alongside further regulation in the sector, capacity building and strengthening of fisher organizations, especially in local and indigenous communities, who are affected by the establishment of restricted fishing measures	 

These actions are presented as conditional on 1) technical assistance to develop alternative livelihoods programme and 2) financial support to develop pilot and demonstration programmes and retrain fishers and farmers impacted by conservation measures.

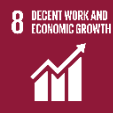




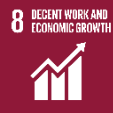


7.2.4 Human health




Type		SDG linkages
Target	Build adaptive capacity in the health sector by assessing vulnerability and investing in capacity to respond to climate-related threats	   
Action	Undertake a Climate Change Vulnerability and Capacity Assessment for the health sector by 2022	 

Type		SDG linkages
Action	Improve disease control and prevention including through the management of disease vectors, through partnerships with research institutions and development of human capital and health technology in health sector	 
Action	Implement early warning system for health sector for specific diseases, vectors, and high temperatures by 2025	 
Action	Facilitate investment in health infrastructure based on findings of sector vulnerability assessment	   
Action	Develop education awareness programme to educate population on adaptation measures as it relates to family health and hygiene	  

These actions are presented as conditional on 1) technical assistance to deliver sector vulnerability assessment and 2) financial support to establish research partnerships and implement recommendations from vulnerability assessment.





7.2.5 Tourism

Type		SDG linkages
Target	Increase the adaptive capacity of tourism sector through the development of climate resilient planning frameworks and infrastructure	 
Action	Identify and assess coastal tourism areas that are vulnerable to climate change. Assess carrying capacity of sites that are identified as vulnerable.	  
Action	Update the National Tourism Master Plan to reflect adaptation strategies in the sector by 2023	 
Action	Develop area-specific adaptation strategies that provide guidance on adapting to impacts of climate change, paying keen attention to local and indigenous communities	

Type		SDG linkages
Action	Provide support to coastal planners and policy makers in selecting appropriate policies and adaptation strategies that meet climate adaptation, developmental and environmental goals, taking into account the most vulnerable stakeholders, and linkages to the Integrated Coastal Zone Management Plan	
Action	Install appropriate infrastructure in local destinations for adaptation to climate change including specific infrastructure related to roads, bathroom facilities, buoys, renovation of docks and wayfinding	
Action	Promote local practices in tourism industry that support climate resilience and adaptation	











These actions are presented as conditional based on support for 1) technical assistance to identify vulnerabilities and adaptation strategies and 2) financial support for infrastructure to assist the sector in responding to the impacts of climate change. Some of this is currently being provided through the Sustainable Tourism Programme II, delivered by the Ministry of Tourism and Diaspora Relations with the support of the Inter-American Development Bank.

7.2.6 Forestry and biodiversity

Type		SDG linkages
Target	Implement protection targets of the National Biodiversity Strategy Action Plan including increased effectiveness of the National Protected Areas System by 2024	
Action	Implement a biosafety policy that safeguards against large-scale loss of biological integrity	
Action	Broaden the analysis of the vulnerability of ecosystems species and local communities in or near Protected Areas to understand the risks and impacts of climate change on resources, and mitigate these impacts through national adaptation strategies	
Action	Implement monitoring and evaluation of NBSAP and its targets, and maintain up-to-date data base on natural resources and environmental services to inform policy decisions across government	









These actions are presented as conditional based on support for technical assistance to develop policies and monitoring systems.




7.2.7 Land use, human settlements and infrastructure

Type		SDG linkages
Target	Protect communities from damage caused by flooding and sea level rise through implementation of the Land Use Policy and supporting green and grey infrastructure	  
Action	Broaden the analysis of the vulnerability of ecosystems to the effects of climate change to protect potential climate refugees, through a comprehensive assessment of human settlements and related infrastructure at risk from the effects of climate change	 
Action	Implement Land Use Policy and Policy Framework to incorporate responsible and climate-sensitive (and water-sensitive) development and land use. In implementation, promote and enhance land stewardship practices underway in local and indigenous communities	  
Action	Develop and implement a climate change adaptation strategy/plan for the most vulnerable local and indigenous coastal communities	 

The actions are presented as conditional based on support for technical assistance to develop a loss and damage data hub.

7.2.8 Water resources

Type		SDG linkages
Target	Enhance the protection of water catchment (including groundwater resources) areas and make improvements to the management and maintenance of existing water supply systems through implementation of the National Water Sector Adaptation Strategy and Action Plan	 
Action	Design and implement groundwater hydrological monitoring network to inform drought monitoring activity	  
Action	Develop flood controls and drought monitoring (including both meteorological and hydrological drought) including an early warning system for flooding	  

Type		SDG linkages
Action	Design and implement an integrated water resources management (IWRM) program in watersheds to reduce the impacts of climate change, including the establishment of an IWRM agency	
Action	Establish a national water quality monitoring program, coordinated by a national water quality task group and including monitoring activities for national coastal and ground water areas	 

These actions are presented as unconditional as they are currently implemented under the National Water Sector Adaptation Strategy and Action Plan.

7.2.9 Costs of adaptation actions

The targets and actions included above are estimated to cost a total of USD\$ 318 million between 2021 and 2030. Recognizing funding that is already committed, the funding gap to deliver these actions is estimated at USD\$ 146 million.

Table 3 Summary of funding committed, requested and required to meet adaptation target actions (USD)

Sector	Total cost	Funding Committed / Requested	Funding Requirements
Coastal and marine resources	\$35,684,740	\$23,934,740	\$11,750,000
Agriculture	\$113,474,000	\$41,474,000	\$72,000,000
Water resources	\$25,117,112	\$14,112,000	\$11,005,112
Tourism	\$35,554,715	\$18,604,715	\$16,950,000
Fisheries and aquaculture	\$12,978,000	\$12,228,000	\$750,000
Human health	\$12,571,575	\$4,300,000	\$8,271,575
Land use, human settlements, and infrastructure	\$82,747,969	\$57,697,969	\$25,050,000
Total	\$318,128,111	\$172,351,424	\$145,776,687

Note: Funding committed is the cost of activities identified which have been funded. Funding requested is the cost of activities identified which have not been funded or where it is unknown if the activity has been funded. Funding requirements is the sum of costing estimates for target actions laid out in this report for targets recommended

8 Implementation measures

8.1 Institutional arrangement

The implementation of the targets and actions covered by this NDC will be coordinated by the Belize National Climate Change Office (NCCO), through advice and guidance provided by the Belize National Climate Change Committee (BNCCC). Relevant ministries and stakeholders are represented on the BNCCC.

In terms of proposals and coordination of financial resources, the NCCO will coordinate financing activities, with advice from the BNCCC Climate Finance Working Group. Recognising the importance of climate finance aspects, the Climate Finance Working Group has been established under the BNCCC to provide guidance to the national efforts to access, manage and effectively use climate finance.

Belize Protected Areas Conservation Trust (PACT) is the National Implementing Entity (NIE) for the Adaptation Fund and the first national accredited entity for GCF which has increased the national capacity to access climate finance.

The Economic Development Council (EDC) of Belize has been established is promoting Public-Private-Partnerships (PPPs) which has mobilized over USD\$ 200 million in energy sector investment.

8.1.1 Implementing the NDC

An NDC Implementation Plan will be developed to set out annual targets, funding requirements and responsible parties for activities required to deliver the actions and targets included in the NDC. The implementation plan will be prepared through the CAEP process and include specific activity-level measures from 2021-2025.

8.2 Tracking progress against NDC targets

In coordination with the NDC Implementation Plan, a series of evaluation systems will be put in place to monitor annual progress against targets and actions for both mitigation and adaptation.

8.2.1 NDC Monitoring System

The Initiative for Climate Action Transparency (ICAT) is currently developing an MRV system to track the impacts and progress of climate change action, which includes the NDC. This system will coordinate measurement, reporting and verification (MRV) metrics for mitigation actions and targets as well as monitoring and evaluation (M & E) of adaptation actions. The National Climate Change Office will be responsible for monitoring and reporting annual progress against NDC targets and actions.

8.2.2 Energy sector MRV tool

IRENA is working with the Belizean government to create an energy database to track progress for the NDC targets in the energy sector and mitigation actions. This tool will provide a simple tracking mechanism for the government to use and maintain as part of the larger national MRV system.

8.3 Financing NDC

As a member of the Small Islands Developing States (SIDS) group,²³ Belize is exceptionally vulnerable to natural disasters and climate change. Its topography as low-lying coastal nation and geographical location makes the

²³ <https://www.un.org/ohrlls/content/list-sids>

country exposed to the risk of rising sea levels and increasing frequency of tropical storms. This makes Belize a priority to receive financing support for realizing its climate actions across different sectors in their NDC.

The costs of the actions included above are estimated at USD\$ 1.71 billion, including between USD\$ 607 million and 1.38 billion in required resources. In addition to these delivery costs, an additional USD\$ 6.6 million is expected in feasibility costs,²⁴ which reflects the broader capacity requirements to facilitate delivery of these actions. Some of this feasibility cost may be delivered through in-kind contributions, including staff time across the Belizean government.

The estimated total cost of conducting feasibility studies for the prioritized actions is USD\$6,664,556. The estimated total cost for Mitigation Priority Actions is USD\$3,650,163, while the estimated total cost of feasibility studies for Adaptation Priority Actions is USD\$3,014,393. The estimated average cost of a feasibility study per project is USD\$154,990.

The feasibility study cost estimates consider the following components:

- Preparation of the Feasibility Study Report
- Environmental and Social Impact Assessment
- Stakeholder Engagement or Consultation
- Feasibility Analysis (Technical, Financial, and Economic Assessments)
- Site Suitability and Selection
- Gender Analysis and/or Gender Action Plan
- Geotechnical and Hydrology Study
- Grid Interconnection/Integration Study
- Information gathering (data collection)
- Technical Officer Support for the Feasibility Study
- Project Identification/ Investment Viability Assessment/ RFQ Preparation and Execution
- Climate Risk and Impact Assessment
- Policy Analysis

Details of the conditionality of targets and actions proposed here are provided in sections 4 and 5.

A climate finance strategy will be developed and implemented for 2021 – 2025 through which the NDCs will be financed. It is obvious that continued support from the international community is vital in the climate finance strategy along with attracting private investments for the sectors such as renewable energy²⁵. The strategy will undergo a mid-term review. The proposed strategy will be developed under the following guiding principles:

1. **Meeting the national climate change priorities specified in NDCs:** Meeting the national priorities in climate change is one of the important aspects in climate finance strategy. The national climate change priorities are represented through the Nationally Determined Contributions (NDCs)

²⁴ Draft based on RMI calculations to date, with finalised actions and resource requirements

²⁵ Belize Climate Change Policy Assessment - 2018 of International Monetary Fund

2. **An ambitious and a futuristic vision for climate investments:** The NDC targets are set in every five years as a rolling process. With the incremental impacts of climate change, the evolution of best available science, technology improvements and time lag in climate investments, the climate finance strategy must also consider a broader horizon. While recognizing the NDCs as the short-term priorities, the climate investment plans must have a longer horizon with an ambitious and futuristic vision. It is, therefore, recommended to consider the potential of transformational change with a futuristic vision and higher level of ambition in the climate finance strategy.
3. **National and International policy coherence:** Belize has several national level developmental policies pertaining to different sectors including the private sector and civil society organizations. On the other hand, as a party to the UNFCCC and the Paris Agreement, Belize has committed to some international policies pertaining to climate change and sustainable development. The Climate Finance Strategy is developed in coherence with those national and international policies and commitments.
4. **Maximizing synergies and co-benefits of sustainable development:** Climate change challenges affect the achievement of sustainable development. Therefore, climate finance must contribute to the sustainable development process. Hence it is vital to ensure that climate investments are maximizing the synergies with the overall sustainable development process and generating sustainable development co-benefits. The climate finance strategy is, therefore, oriented towards maximizing synergies and co-benefits of sustainable development as well as supporting green economic recovery and growth.
5. **Enhancing national capacities:** Enhancing local capacities are imperative to ensure Belize is prepared to address the current and projected climate change challenges. Capacities are inclusive of institutional arrangements, systems, processes, human resources, etc. must be enhanced to sustain the local efforts to meet the requirements to access and utilize climate finance. Therefore, the climate finance strategy must address the local capacity building aspects, including commitments concerning local and indigenous communities.
6. **Promoting regional and multilateral collaborations:** Regional and multilateral collaborations can set a strong foundation for national efforts to face climate change challenges. Belize being a small country in the Caribbean region, such collaborations are always helpful to achieve higher results. The climate finance strategy will also facilitate such collaborations while recognizing the national climate change priorities.
7. **The integrated and inclusive approach in climate finance:** Climate change challenges cannot be tackled through linear processes and by a single organization. It requires to coordinate among multiple organizations and partners from while integrating multiple processes. Engagement of government entities, private sector entities, and civil society organizations, an appropriate representation of all the relevant sectors and tiers e levels must be promoted through the climate finance strategy. Therefore, an integrated approach must be adopted where sectors, actors and tires are linked vertically and horizontally.
8. **Respecting the global sustainable development principle of “no-one left behind”, the climate finance must ensure the inclusion of all groups in the process.** Aspects such as gender, indigenous communities, people with disabilities, youth must be represented in a balanced way in the climate finance strategy.
9. **A systematic process of tracking and monitoring of Climate Finance Flows:** Scale, effectiveness, adequacy, and accessibility are an important factor in climate finance. Therefore, establishing and maintaining an appropriate system to track and monitor climate finance should be an integral part of the climate finance strategy to effectively support and get the overall governance of climate flows in Belize right. A robust national MRV process and system will foster transparency and integrity thereby promoting donor and investor confidence.

The climate finance strategy will adopt an integrated approach with appropriate vertical (tiers) and horizontal (sectoral) levels of integration. It will cover the key elements including the national priorities, finance sources and instruments, country capacity building, integration and tracking of climate finance. The strategy expects to build on the current positive aspects in climate action and enhance the ambition of climate action with both domestic and international finance sources along with private sector participation. It is expected to enhance the inclusion aspects of climate action by integrating those aspects into the finance strategy.

To support the implementation targets and activities set out later, Belize will explore the potential for new and additional financing opportunities to support mangrove protection and restoration, such as multilateral and bilateral financing, and blended financing schemes such as: private sector investments in green infrastructure, tourism, insurance, and other sectors; philanthropy; impact investing; 'blue carbon' credits; green/blue bonds; catastrophe bonds; among others.

8.4 Developing capacity and technology for delivery of NDC

In relation to the targets and actions included in the NDC, several activities have been identified from policy documents and stakeholder engagement for developing capacity amongst responsible parties to implement the NDC. These include:

- Facilitate greater public-private initiatives to implement cost-effective measures to address crop development, livestock production, and improving soil quality in the interest of building resilience to climate change
- Strengthen agricultural research and development and improve on the data collection capacity and analysis capabilities of the sector
- Enhance the epidemiology capacity of the health sector to address efficiently epidemics/ outbreaks. Undertake water policy reform including pricing and irrigation policies
- Support capacity-building, including institutional capacity, for preventive measures, planning, preparedness and management of disasters relating to climate change, including contingency planning, especially for droughts and floods in areas prone to extreme weather events

8.5 Promoting a just transition

The NDC implementation plan will include specific consideration of how to incorporate stakeholder engagement and delivery of actions to promote a just transition in Belize including understanding inter-generational impacts of climate change are understood and the current and future needs of children and young people are adequately considered. In part, the adaptation actions identified reflect an application of the principles of just transition on a global scale. The long-term climate strategy under development by the NCCO with the support of UNDP will include specific gender analysis to incorporate the needs of vulnerable populations in the long term strategy.

9 ICTU Summary

This section summarises the contents and assumptions of Belize’s updated NDC in a consolidated format aligned with the information for clarity, transparency, and understanding framework developed by UNFCCC for the global stocktake.

ICTU GUIDANCE	
1. Quantified information on the reference point, including, as appropriate, a base year	
a. Reference year(s) , base year(s), reference period(s) or other starting point(s)	Targets reference reductions against a baseline (business as usual) projected to 2030.
b. Quantifiable information on the reference indicators , their values in the reference year(s), base year(s), reference period(s) or other starting point(s), and, as applicable, in the target year	<p>Emissions projections (both business as usual and NDC scenarios) are projections based on data collected in the fourth GHG inventory delivered in 2019, which reports emissions up to 2018.</p> <p>Emissions projections for the FOLU sector specifically are projections based on data collected and presented in Belize's FOLU sector GHG inventory delivered in 2019. All analyses for the FOLU sector was carried out within this database.</p> <p>For actions in the energy sector, baseline emissions are estimated in line with the Baseline Energy Scenario (BES) in IRENA’s ReMAP modelling framework, which is representative of policies announced up to 2015.</p>
c. For strategies, plans and actions referred to in Article 4, paragraph 6, of the Paris Agreement, or polices and measures as components of nationally determined contributions where paragraph 1(b) above is not applicable, Parties to provide other relevant information	Policies, strategies and plans in place as of December 2020 were considered in the targets and actions included in the updated NDC
d. Target relative to the reference indicator, expressed numerically, for example in percentage or amount of reduction	The mitigation actions included in the updated NDC are estimated to result in over 5.6 MTCO ₂ e in cumulative avoided emissions by 2030, and a reduction of 1.0 MTCO ₂ e in annual emissions by 2030 (not including additional deforestation targets)
e. Information on sources of data used in quantifying the reference point(s)	The emission impacts are calculated based on 1) the 2019 multi-sector GHG inventory prepared by the National Climate Change Office, 2) the 2015 Forest Reference Level, 3) 2020 calculations from the FAO’s EX-ACT estimation tool and IRENA’s ReMAP model for agricultural, transport and energy sectors, and 4) 2021 calculations from the FOLU GHG inventory database developed by Cfrn in conjunction with the FOLU roundtable for land-use and land-use change and forestry sector.
f. Information on the circumstances under which the Party may update the values of the reference indicators	Updates may reflect feedback from stakeholders provided during the validation of this document, as well as additional targets included in the long-term Low Emissions Development Strategy, which is currently being developed
2. Time frames and/or periods for implementation	
a. Time frame and/or period for implementation, including start and end date, consistent with any further relevant decision adopted by the CMA;	Targets are set for 2030, with annual interim targets set out in a complementary NDC Implementation Plan

ICTU GUIDANCE	
b. Whether it is a single-year or multi-year target, as applicable.	
3. Scope and coverage	
a. General description of the target ;	The targets set out in this NDC include a set of mitigation actions estimated to avoid a cumulative 5.6 MTCO ₂ e by 2030 through interventions in the AFOLU, Energy, Transport and Waste sectors, and a suite of interventions to increase resilience and adaptation in sectors central to Belize's economy and society
b. Sectors, gases, categories and pools covered by the nationally determined contribution, including, as applicable, consistent with IPCC guidelines;	The targets are expressed in CO ₂ -equivalent values. Where other gasses are relevant for targets these have been included in CO ₂ e targets (e.g. methane emissions avoided in agriculture and waste sectors).
c. How the Party has taken into consideration paragraphs 31(c) and (d) of decision 1/CP.21;	No categories of gases or emissions have been excluded from the previous NDC. While some interventions have been updated and amended to reflect current conditions and policies, the aggregate impacts of the updated NDC exceed the previous target by more than 50%.
d. Mitigation co-benefits resulting from Parties' adaptation actions and/or economic diversification plans, including description of specific projects, measures and initiatives of Parties' adaptation actions and/or economic diversification plans.	<p>The actions included in the updated NDC are reflective of Belize's national development plans and will help to deliver the goals of economic development, social support and resource efficiency.</p> <p>The specific co-benefits of each action is represented by the relevant Sustainable Development Goals supported through delivery of the action. These SDGs include: 1, 2, 3, 6, 7, 8, 9, 11, 13, 14, 15.</p>
4. Planning process	
<p>a. Information on the planning processes that the Party undertook to prepare its NDC and, if available, on the Party's implementation plans, including, as appropriate:</p> <p>i. Domestic institutional arrangements, public participation and engagement with local communities and indigenous peoples, in a gender-responsive manner;</p> <p>ii. Contextual matters, including, inter alia, as appropriate:</p> <p>a. National circumstances, such as geography, climate, economy, sustainable development and poverty eradication;</p> <p>b. Best practices and experience related to the preparation of the NDC;</p> <p>c. Other contextual aspirations and priorities acknowledged when joining the Paris Agreement;</p>	<p>The updated NDC was developed by the National Climate Change Office in consultation with the relevant ministry representatives from government departments sitting on Belize National Climate Change Committee.</p> <p>Technical support was provided to the government by the NDC Partnership, through its Climate Action Enhancement Package (CAEP). The international partners providing technical assistance under the Belize CAEP include:</p> <ul style="list-style-type: none"> ● Commonwealth Secretariat ● International Renewable Energy Agency ● NDC Partnership Support Unit ● Rocky Mountain Institute ● The Climate Technology Collaboration Network (CTCN) and Fundación Bariloche ● UNFCCC Regional Collaboration Center in Grenada (with the Caribbean Climate Change MRV Hub) <p>In addition to these partners, organisations involved in the development and implementation of the NDC working alongside the CAEP activities include:</p> <ul style="list-style-type: none"> ● The Coalition for Rainforest Nations ● UN Development Programme ● World Wildlife Fund (WWF) ● The Pew Charitable Trusts ● Initiative for Climate Action Transparency

<p>ICTU GUIDANCE</p>	<p>Technical assistance under the CAEP has included an assessment of policy targets, mapping of activities related to climate change, stakeholder engagement, modelling of GHG impacts in different sectors, an analysis of technology options to achieve NDC targets and the development of financing and implementation strategies.</p> <p>The development of the updated NDC has included broad stakeholder engagement including participation of vulnerable populations in an inception workshop for the NDC update process.</p> <p>Throughout the development of the updated NDC, progress has been validated through engagement with a technical committee of sector leads, including representation of indigenous peoples. Broader engagement of civil society and project owners was facilitated during an engagement phase. The actions and targets included in this updated NDC have undergone a gender and vulnerable group scoring analysis, which produced recommendations for increasing the gender sensitivity of both the medium-term implementation of the NDC and the long term low emissions development strategy under development.</p>
<p>b. Specific information applicable to Parties, including regional economic integration organizations and their member States, that have reached an agreement to act jointly under Article 4, paragraph 2, of the Paris Agreement, including the Parties that agreed to act jointly and the terms of the agreement, in accordance with Article 4, paragraphs 16–18, of the Paris Agreement;</p>	<p>Belize is submitting this updated NDC on its own behalf, though as a member of the Alliance of Small Island States and the High Ambition Coalition it regularly collaborates with other member states on initiatives to increase climate ambition on a global scale</p>
<p>c. How the Party’s preparation of its NDC has been informed by the outcomes of the global stocktake, in accordance with Article 4, paragraph 9, of the Paris Agreement;</p>	<p>The updated NDC has been prepared in time for COP26 and a thorough assessment of opportunities to enhance Belize’s submission and incorporate ambition based on global examples in collaboration with the NDC Partnership</p>
<p>d. Each Party with an NDC under Article 4 of the Paris Agreement that consists of adaptation action and/or economic diversification plans resulting in mitigation co-benefits consistent with Article 4, paragraph 7, of the Paris Agreement to submit information on:</p> <p>i. How the economic and social consequences of response measures have been considered in developing the NDC;</p> <p>ii. Specific projects, measures and activities to be implemented to contribute to mitigation co-benefits, including information on adaptation plans that also yield mitigation co-benefits, which may cover, but are not limited to, key sectors, such as energy, resources, water resources, coastal resources, human settlements and urban planning, agriculture and forestry; and economic diversification actions, which may cover, but are not limited to, sectors such as manufacturing and industry, energy and</p>	<p>The NDC is informed by findings from climate vulnerability assessments and reflects the specific circumstances climate change poses Belize. More detail on adaptation focused actions and targets are included in the NDC adaptation chapter.</p>

<p>ICTU GUIDANCE</p>	
<p>mining, transport and communication, construction, tourism, real estate, agriculture and fisheries.</p>	
<p>5. Assumptions and methodological approaches, including those for estimating and accounting for anthropogenic greenhouse gas emissions and, as appropriate, removals:</p>	
<p>a. Assumptions and methodological approaches used for accounting for anthropogenic greenhouse gas emissions and removals corresponding to the Party's nationally determined contribution, consistent with decision 1/CP.21, paragraph 31, and accounting guidance adopted by the CMA;</p>	<p>The GHG inventory delivered in 2019 is referenced in the appendix of this report.</p>
<p>b. Assumptions and methodological approaches used for accounting for the implementation of policies and measures or strategies in the nationally determined contribution;</p>	<p>The assumptions underlying future projections of impacts from delivering the NDC are set out in the FAO, IRENA and Vivid Economics reports referenced in the appendix of this report.</p>
<p>c. If applicable, information on how the Party will take into account existing methods and guidance under the Convention to account for anthropogenic emissions and removals, in accordance with Article 4, paragraph 14, of the Paris Agreement, as appropriate;</p>	<p>Through support provided through the NDC Partnership's Climate Action Enhancement Package, the National Climate Change Office was supported by UN agencies and climate policy experts. This includes participation in the Caribbean NDC Support Platform's Virtual Exchanges, which highlighted good practice and guidelines for countries preparing updated NDCs for the GST.</p>
<p>d. IPCC methodologies and metrics used for estimating anthropogenic greenhouse gas emissions and removals;</p>	
<p>e. Sector-, category- or activity-specific assumptions, methodologies and approaches consistent with IPCC guidance, as appropriate, including, as applicable:</p> <ul style="list-style-type: none"> i. Approach to addressing emissions and subsequent removals from natural disturbances on managed lands; ii. Approach used to account for emissions and removals from harvested wood products; iii. Approach used to address the effects of age-class structure in forests; 	<p>The GHG inventory delivered in 2019 is referenced in the appendix of this report and was prepared in line with IPCC guidelines.</p>
<p>f. Other assumptions and methodological approaches used for understanding the nationally determined contribution and, if applicable, estimating corresponding emissions and removals, including:</p> <ul style="list-style-type: none"> i. How the reference indicators, baseline(s) and/or reference level(s), including, where applicable, sector-, category- or activity-specific reference levels, are constructed, including, for example, key parameters, assumptions, definitions, methodologies, data sources and models used; ii. For Parties with nationally determined contributions that contain non-greenhouse-gas components, information on assumptions and 	<p>The assumptions underlying future projections of impacts from delivering the NDC are set out in the FAO, IRENA and Vivid Economics reports referenced in the appendix of this report.</p>

ICTU GUIDANCE	
<p>methodological approaches used in relation to those components, as applicable;</p> <p>iii. For climate forcers included in nationally determined contributions not covered by IPCC guidelines, information on how the climate forcers are estimated;</p> <p>iv. Further technical information, as necessary;</p>	
<p>g. The intention to use voluntary cooperation under Article 6 of the Paris Agreement, if applicable.</p>	<p>An action related to exploring carbon markets for blue carbon is included in the NDC.</p>
6. How the Party considers that its NDC is fair and ambitious in light of its national circumstances	
<p>a. How the Party considers that its NDC is fair and ambitious in the light of its national circumstances;</p>	<p>Despite contributing a very small share of global emissions, Belize recognizes its potential contribute to global climate regulation by protecting and restoring natural resources that serve as major carbon sinks, including mangrove forest, sea grass and terrestrial forests. These habitats are prioritized for protection and restoration in the actions included in this NDC.</p>
<p>b. Fairness considerations, including reflecting on equity;</p>	<p>The NDC was developed in consultation with local communities and has been complemented by an assessment of opportunities to increase the gender sensitivity of delivering actions included in the NDC.</p>
<p>c. How the Party has addressed Article 4, paragraph 3, of the Paris Agreement;</p>	<p>This updated NDC reflects Belize’s commitment to enhancing its climate ambition. Notably, ambition has been integrated into the updated NDC through the following enhancements:</p> <ul style="list-style-type: none"> ● Improvements in the data availability and analysis of projections underpinning commitments, especially in the FOLU sector ● Realistic and achievable commitments ● Increased ambition through expanded sectoral targets ● Further specification of targets including addition of time frames, quantified emissions reductions and other outcomes ● Increased transparency in the development of targets ● Detail on the financing, monitoring and implementation of actions included in the NDC <p>In quantified terms, and taking into consideration that improvements in data availability and projections have been factored into this updated NDC, the actions included in this updated NDC exceed previous commitments by 5%.</p>
<p>d. How the Party has addressed Article 4, paragraph 4, of the Paris Agreement;</p>	<p>Belize is compliant with requirements for developing country parties and the mitigation efforts set out in this NDC represent a movement over time to more ambitious reduction targets.</p>
<p>e. How the Party has addressed Article 4, paragraph 6, of the Paris Agreement.</p>	<p>Belize’s NDC reflects an ambitious set of targets for a small island developing State.</p>
7. How the NDC contributes towards achieving the objectives of the Convention as set out in its Article 2	
<p>a. How the NDC contributes towards achieving the objective of the Convention as set out in its Article 2;</p>	<p>The targets and actions set out in this document demonstrate Belize’s commitment to supporting the implementation of the Paris Agreement including:</p>
<p>b. How the NDC contributes towards Article 2, paragraph 1(a), and Article 4, paragraph 1, of the Paris Agreement.</p>	<ul style="list-style-type: none"> ● A set of mitigation targets in line with a global goal to keep global warming to below 2 degrees Celsius by 2100 ● A set of adaptation actions designed to develop resilience of critical systems and populations in Belize

ICTU GUIDANCE	
	<ul style="list-style-type: none">• Consideration of the costs of delivering actions identified and level of climate finance resources to support delivery of these actions

Appendix

Avoided emissions calculations

The emission impacts of mitigation targets and actions included in the updated NDC have been estimated using a combination of sector-specific system models. The key assumptions and outputs from these models are set out below.

Table 3 Deployment schedule assumed for most NDC actions

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Deployment	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

Source: Vivid Economics

Table 4 Estimated avoided emissions, KtCO₂e (compared to a baseline Business As Usual projection)

Sector/intervention	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total	Average annual	Source
AFOLU total ktCO₂e	33	210	243	292	373	508	553	585	618	831	4,264	426	FAO, CfrN and FOLU roundtable
FOLU sub-sector total	0	144	144	160	208	310	322	322	322	502	2,434	243	CfrN and FOLU roundtable
Reforestation	0	0	0	0	48	48	48	48	48	48	289	29	CfrN and FOLU roundtable
Reduction of forest degradation	0	144	144	144	144	144	144	144	144	144	1,299	130	CfrN and FOLU roundtable
Restoration of riparian forest	0	0	0	0	0	26	26	26	26	206	309	31	CfrN and FOLU roundtable
Agroforestry	0	0	0	15	15	15	27	27	27	27	156	16	CfrN and FOLU roundtable
Mangrove restoration	0	0	0	0	0	76	76	76	76	76	381	38	CfrN and FOLU roundtable
Agriculture	33	66	99	132	165	198	231	263	296	329	1,830	183	FAO
Sustainable livestock management	8	16	24	32	40	48	56	64	71	79	441	44	FAO

Belize's Updated Nationally Determined Contribution

Sector/intervention	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total	Average annual	Source
Sustainable agricultural management	25	50	75	100	125	149	174	199	224	249	1,384	138	FAO
Improved soilcare	0	0	0	0	0	1	1	1	1	1	5	0	FAO
Energy total	11	23	34	46	57	68	80	91	103	114	633	63	IRENA and Vivid
Residential building efficiency	1	3	4	6	7	8	10	11	13	14	78	8	IRENA
Commercial building efficiency	0	0	1	1	1	1	1	2	2	2	11	1	IRENA
Industrial sector efficiency	2	4	5	7	9	11	13	14	16	18	100	10	IRENA
Renewable energy generation	8	16	24	32	40	48	56	64	72	80	444	44	Vivid
Transport total	12	23	35	47	59	70	82	94	105	117	650	65	IRENA
Passenger transport efficiency	10	20	30	40	50	60	70	80	90	100	556	56	IRENA
Cargo transport efficiency	2	3	5	7	9	10	12	14	15	17	94	9	IRENA
Waste total	2	4	5	7	9	11	13	14	16	18	100	10	Vivid
Grand Total	58	260	317	392	498	657	728	784	842	1,080	5,647	565	

Source: Vivid Economics, based on calculations by FAO, IRENA, UNFCCC, Vivid Economics, CfrN and the FOLU Roundtable

Note: FAO (2020), based on EX-ACT calculations and stakeholder engagement; IRENA ReMAP analysis Based on TES scenario as compared to BES in IRENA modelling; Vivid modelling very high ambition scenario modelling of additional solar and hydro capacity; CfrN and FOLU roundtable modelling of FOLU targets

Additional analysis

Reports supporting the update of Belize's NDC include modelling summaries, technology and policy reports and estimations of costs related to delivering the NDC.

Table 5 Additional reports containing relevant analysis for the updated NDC

Report	Year	Author
Greenhouse Gas inventory for the Fourth Communication to the UNFCCC	2019	Gauss International Consulting
Estimation of the mitigation potential of targeted AFOLU actions under the updated Nationally Determined Contributions of Belize	2020	FAO; CfRN and FOLU Roundtable
FOLU GHG inventory and NDC projections	2021	CfRN and FOLU Roundtable
ReMAP Modelling Report	2020	IRENA
Policy Landscape Report for the updated Belize NDC	2020	Vivid Economics
CTCN climate technology feasibility studies in the areas of energy, energy efficiency, transport, solid waste management, and AFOLU, and the subsequent proposal of 2 concept notes for energy efficiency and AFOLU	2020	Fundacion Bariloche
Resource Requirements Report for the updated Belize NDC	2021	Vivid Economics
Feasibility Study Cost Assessment for the updated Belize NDC	2021	Rocky Mountain Institute

