Initiative for Climate Action Transparency - ICAT -

Report on Non-GHG Impacts and Progress Indicators to be Tracked and Integrated into the National MRV System

Initiative for Climate Action Transparency - ICAT -

Report on Non-GHG Impacts and Progress Indicators to be Tracked and Integrated into the National MRV System

Deliverable #3

AUTHORS

John Paul Alvarez - NCCO

Kamil Salazar - NCCO

Ide Sosa - NCCO

Date of the deliverable: March 12th 2021

PUBLISHED BY

National Climate Change Office, Ministry of Sustainable Development, Climate Change and Disaster Risk Management, Belize.

PREPARED UNDER

Initiative for Climate Action Transparency (ICAT) project supported by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, the Children's Investment Fund Foundation (CIFF), the Italian Ministry of Ecological Transition (IMET) and ClimateWorks.

The ICAT project is managed by the United Nations Office for Project Services (UNOPS)

ACKNOWLEDGMENT

I would like to acknowledge and express gratitude to the staff of the National Climate Change Office (NCCO) for support in providing the essential documents and guidance in the development of this report. Additional gratitude to Federico Antonio Canu (ICAT) and Daniela Romano (ISPRA) in reviewing and providing constructive feedback throughout the process.

Table of Contents

List of Table

List of Figures

List of Abbreviations

BEL	Belize Electricity Limited
BTB	Belize Tourism Board
BSWAMA	Belize Solid Waste Management Authority
ETF	Enhanced Transparency Framework
GDP	Growth Domestic Product
GHG	Greenhouse Gas
FAO	Food and Agriculture Organization
FPA	Fisheries Priority Areas
MPG	Modalities, Procedures and Guidelines
MRV	Monitoring, Reporting and Verification
MWh	Megawatt hour
NAMA	Nationally Appropriate Mitigation Actions
NCRIP	National Climate Resilience Investment Plan
NTFP	Non-Timber Forest Products
PET	Polyethylene terephthalate
RE	Renewable Energy
SDG	Sustainable Development Goals

Introduction

Countries are provided with the option to identify and report non-GHG impacts of mitigation policies and measures, actions and plans, including those with mitigation co-benefits resulting from adaptation actions and economic diversification plans, related to implementing and achieving a nationally determined contribution (NDC) as part of the Modalities, Procedures and Guidelines (MPGs) for Article 13 of the Paris Agreement. The MPGs were adopted as part of the Katowice Climate Package for the Enhanced Transparency Framework (ETF) (UNFCCC 2018). The identification and reporting of non-GHG impacts provide decision makers with additional inputs that are highly relevant for national development, and are therefore an important aspect needed in the process of decision making for prioritization and assessment of sustainable development contributions of climate policies.

In the context of mitigation, non-GHG impacts can be defined as the changes in economic, social and environmental impacts due to mitigation actions and policies (Initiative for Climate Action Transparency 2020). Additionally, it could also be referred to as co-benefits of adaptation actions. Ideally, these are the relevant impacts from an action or policy other than the reduction in greenhouse gas (GHG) emissions, referring to both positive and negative impacts (Singh, et al. 2016). The scope of monitoring non-GHG impacts through an appropriate system for measuring, reporting and verification (MRV) is to assist tracking of progress made towards national goals, and assess whether desired results are being achieved (Singh, et al. 2016). Tracking non-GHG impact metrics can highlight the effects of mitigation actions on Sustainable Development Goals (SDGs), for example on improving biodiversity of terrestrial ecosystems, climate change education or the quality of life and well-being of a particular community. These efforts support the targets set out in the SDGs for 2030, contributing to a balanced social, economic and environmentally sustainable planet.

Under the 2030 Agenda of Sustainable Development, ambitious goals were set to end poverty, safeguard the earth and ensure prosperity for all global citizens (Barnett and Catzim-Sanchez 2011). Through that initiative, Belize has integrated sustainable development principles into the national planning process, a result of this is a new vision for the country through the Horizon 2030. The principles adapted ensure that the strategic planning, management and monitoring of Belize's endeavours are aligned with SDGs. It is within this similar framework non-GHG impacts were identified to be monitored as part of the national MRV system for climate change. Consultation sessions were conducted in this regard to identify and prioritize relevant non-

GHG impacts by various stakeholders from civil society, government institutions and private sector.

Method and Summary of Consultations

The assessment of non-GHG impacts went through two phases. Phase one, stakeholders representing relevant sectors were presented with a list of SDG impact categories. Stakeholders identified relevant impacts correlated to national and sectoral policies, institutional polices and/or mitigation actions. Consultations were conducted via two channels, online consultations and google form surveys.

The representation of the stakeholder consultation sessions that took place during the period of October 13th, 2020 to October 16th, 2020 for prioritizing non-GHG impacts can be seen in *(Annex 2-10)*. Presented also, is the list of stakeholders that participated via the online platforms Microsoft Teams (consultation sessions) and Google Forms Survey. The consultation sessions were changed from in-person sessions to online sessions in order to accommodate and reduce the spread of COVID 19. Subsequent to the impacts being identified, the non-GHG impacts were prioritized using a rank matrix.

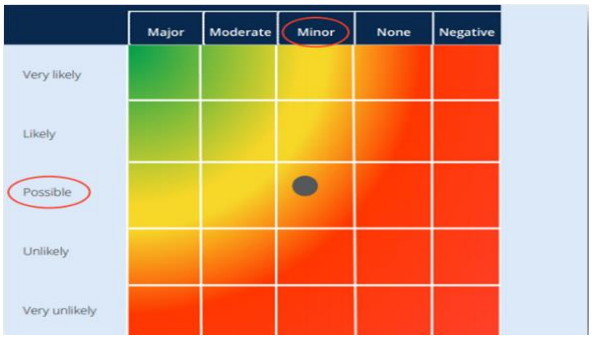

Figure 1. Rank matrix used during the consultation session. (Matrix was obtained from the ICAT Transformational Change Assessment Guide)

Major	3	Very likely	4
Moderate	2	Likely	3
Minor	1	Possible	2
None	0	Unlikely	1
Negative	-1	Very unlikely	0

Figure 2. Scoring criteria used for the rank matrix. (Obtained from the ICAT Transformational Change Assessment Guide)

After the consultation sessions were concluded, the prioritization process was further facilitated independently in excluding insignificant impacts which would be considered "Minor". Impacts that remained were the ones classified as both "Moderate" and "Major" with a range starting from "Very likely" to "Possible". This information was placed in a table for all sectors (Waste, Tourism, Agriculture, Energy, Transport, Coastal Zone/Fisheries, Forestry, Water and Health). Additional information on the impacts identified included in the table is their likelihood of materializing, the magnitude of impacts, a summary of the assessment of the result, and the method on how the information was gathered. Indicators for the final selection of the non-GHG impacts were identified and represented in a tabular format, including the impact category, the indicators, a description of the indicator and projects and actions that can be attributed to the impacts identified.

Analysis of non-GHG Impacts

The analysis for prioritizing the non-GHG impacts was more intricate for sectors that had a larger number of stakeholders. This is due to the fact that each stakeholder's contribution was compared for similarity and then an average was calculated to determine the likelihood and magnitude of common impacts. Impacts that were not prevalent throughout a sector were also summed and averaged. Less calculation was needed to prioritize the impacts for sectors that had only one or two representatives, such as Waste, Health and Tourism. All "minor" impacts were excluded from all sectors.

In determining significance and relevance of the impacts, the likelihood and magnitude was evaluated. Impacts that were both "Possible" and "Moderate" and "Very Likely" and "Major" were considered relevant and significant, and thus prioritized. A snapshot of the calculation done to compile stakeholder's contribution of the similar non-GHG impacts that were identified for sectors can be seen in (*Annex 1*). The prioritization was further facilitated by additional factors such as the availability of data/information/climate initiatives, that can be used to monitor the identified impacts. Finally, impacts that were found to not be related to climate change activities were also excluded from the final prioritization.

In this similar process, progress indicators were also established to monitor non-GHG impacts for validation. Indicators were referenced from the ICAT Sustainable Assessment Guide and the use of existing indicators derived from institutional policy/management plan.

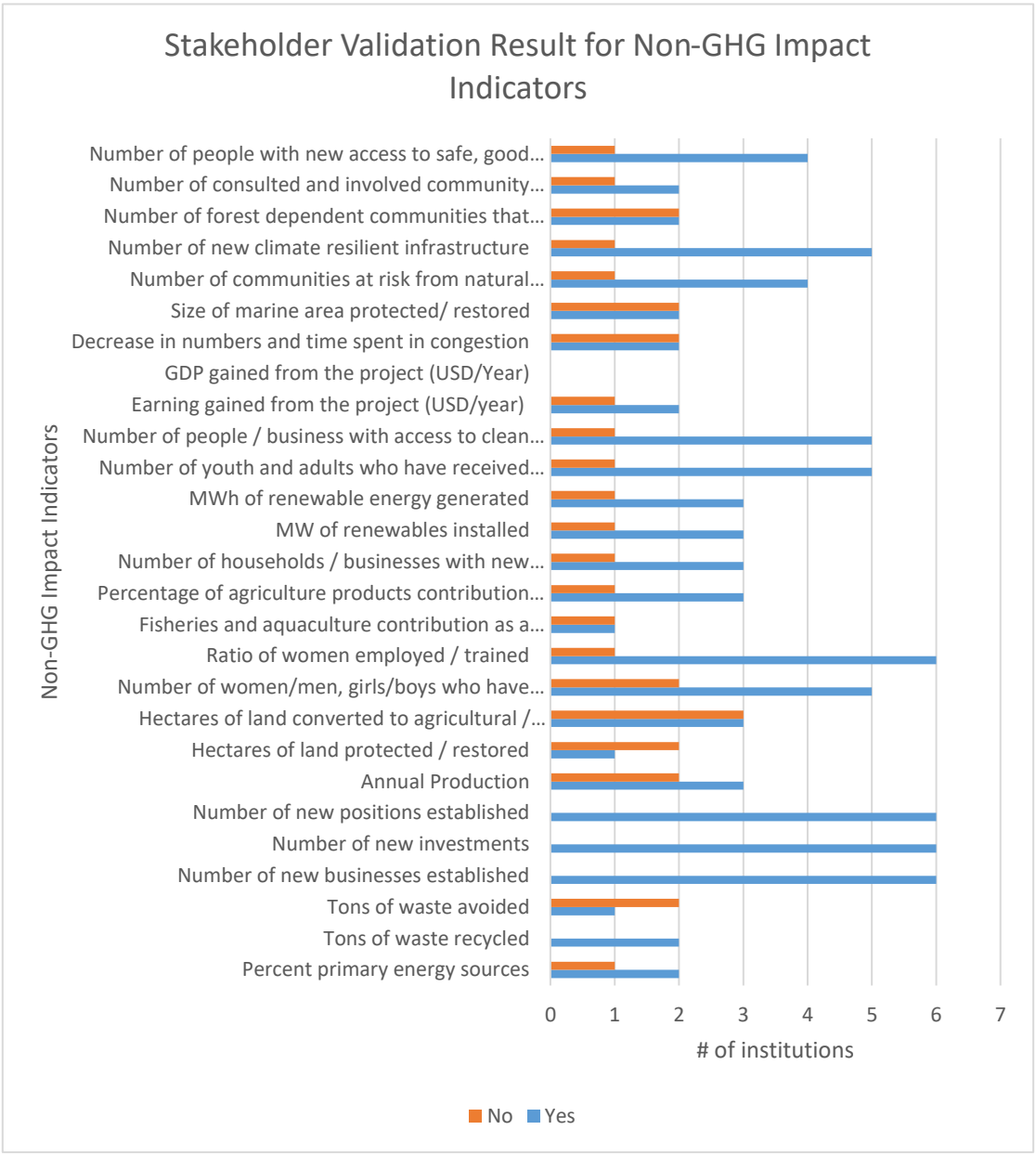

Figure 3. Non-GHG Impact Indicator Result from the Validation Process

The "Yes" and "No" criteria were used to source and minimize suitable impact indicators. Stakeholders determined whether the indicators would be suitable and/or feasible to track non-GHG impacts. As evident in *Figure 3*, majority of the stakeholders' responses did not include "No" during the validation of the impact indicators. As a result, a blank slate was substituted for a zero value. The initial long list of identified impacts and indicators before refinement through further prioritization can be found in (*Annex 2 to 20)*.

The process of final validation of the non-GHG impacts and indicators presented by stakeholders includes a verification process, where the initial information captured from the consultation session was further agreed upon via email. Stakeholder's responses indicated that the information included in the report was consistent with the information shared during the consultations. The final selection of non-GHG progress indicators from the stakeholder validation was further adjusted to keep in alignment with Belize's NDC. Presented in (*Table1)* are impact indicators corelated to the draft updated NDC and indicators from the validation session, encompassing contribution from the National MRV Consultant research.

The impacts and indicators in this table were developed and guided by the stakeholder's consultations and validation sessions, and further adjusted to the targets and actions within the draft updated NDC.

Table 1 Final non-GHG Impact and Progress Indicators

#	Non-GHG Impacts	Related NDC target	Non-GHG Impact Indicators	Comments
1	Energy Independence Security or Sovereignty	Avoid emissions in the national electricity supply by 2030 through the introduction of expanded capacity from renewable energy sources	MWh of reduced imports of electricity	
			Electricity imported as percentage of primary energy supply	
			Tons of emission avoided	
		Avoid emissions 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	Number of imported vehicles that receives emission-based taxes/feebates	
			Amount of foreign currency saved on power purchase and imported fuels	
2	Waste generation and disposal	Improve waste management processes to avoid emissions of 18 KtCO2e per year by 2030, in line with the national waste management strategy	Tons of waste recycled	
			Tons of PET (Polyethylene Terephthalate) recovered at transfer stations	
			Tons of glass recovered at transfer stations	
			Tons of waste avoided	

3	New business opportunities	General for all NDC actions	Proportion of men and women with new business opportunities and new established business	
4	New jobs	General for all NDC actions	Proportion of men and women with new positions established Proportion of men and women hired	
5	Fish stock sustainability	Enhance the capacity of the country's mangrove and seagrass ecosystem to act as a carbon sink and strengthen adaptation and resilience benefits by expanding mangrove protection by at least 6,000 hectares by 2025	Number and hectares of new replenishment zones established	
		Increase resilience for coastal communities and habitats to climate impacts by managing further development of the coastline to reverse net coastal habitat and land loss by 2025	Number of monthly patrol efforts (implementation and enforcement) capacity of 2020 fisheries act and 2018 mangrove regulation implemented and enforced Number of interventions conducted on those systems Number of identified priority species that could serve as indicators for ecosystem health	
		Build capacity in fisheries and aquaculture sector through diversification and retraining to support livelihoods while protecting coastal ecosystems	Species count at spawning aggregation sites	

6	Biodiversity of terrestrial ecosystems (15)	Reduce GHG emissions related to land use change over the period from 2020 to 2030	Hectares of land protected / restored	
			Change overtime of fuelwood collection and usage	
			Number of threatened species maintained in protected areas	
		Implement protection targets of the National Biodiversity Strategy Action Plan including increased effectiveness of the National Protected Areas System by 2024	Annual maximum sustained yield maintained for timber and NTFP (Non-Timber Forest Products) stocks	
7	Climate change awareness	General for all NDC actions	Number of women/men, girls/boys who have received training	
			Number of women/men, girls/boys who are familiar with the definition and key climate change concepts	
8	Gender equality	General for all NDC actions	Ratio of women employed / trained	
9	Food security	Reverse 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	Proportion of agriculture area under productive and sustainable agriculture	

		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	Number of farmers with access to early warning system for drought and extreme weather events	
10	Access to clean, reliable and affordable energy (SDG 7)		Number of households / businesses with new access to clean, reliable and affordable energy	This indicator can also be found on the Belize National Statistical System (BNSS) from the Statistical Institute of Belize (SIB)- Stakeholder response
			Proportion of population with access to electricity	
			Number of MW of renewables installed	
			Installed Power Generation Capacity (Non-renewable thermal energy vs renewable energy)	
			MWh of renewable energy generated	
			Percentage of renewables in Electricity Mix (%).	This indicator is a part of SIB'S BNSS. Stakeholder response

11	Capacity, skills and knowledge development (SDGs 4,12)	General for all NDC actions	Number of youth/adults, men/women who have received scientific, technological or other skills training	
12	Access to new technology/technology transfer	General for all NDC actions	Number of people with new access to improved and environmentally sound technologies	
13	Economic development	Build capacity in fisheries and aquaculture sector through diversification and retraining to support livelihoods while protecting coastal ecosystems	Revenue gained from the project (BZD/year)	
			Proportion of men and women with improved income opportunities	
		Avoid emissions from the power sector through system and consumption efficiency measures amounting to 100 GWh/year by 2030	Amount of savings in energy expenditures	

14	Traffic congestion (SDG 11)	Avoid emissions 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	Decrease in frequency and time spent in congestion	
			Number of hybrid and electric buses deployed	
15	Biodiversity of freshwater and coastal ecosystems	Enhance the capacity of the country's mangrove and seagrass ecosystem to act as a carbon sink and strengthen adaptation and resilience benefits by expanding mangrove protection by at least 6,000 hectares by 2025	Number of interventions conducted on these ecosystems	
		Increase resilience for coastal communities and habitats to climate impacts by managing further development of the coastline to reverse coastal habitat and land loss by 2025	Number of identified priority species that could serves as indicators for ecosystem health	
16	City and community resilience	Increase the adaptive capacity of tourism sector through the development of climate resilient planning frameworks and infrastructure	Number of communities and population with access to new climate resilient infrastructure or services	
			Number of local destinations with appropriate infrastructure	

			installed for adaptation to climate change	
		Protect communities from damage caused by flooding and sea level rise through implementation of the Land Use Policy and supporting infrastructure	Number of new projects to support climate resilient infrastructure	
17	Protection of poor and negatively affected communities	Strengthen the resilience of coastal communities by developing an early warning system for storm surges by 2025	Number of forest dependent communities and population that received support from direct and indirect threats to climate change caused by flooding and sea level rise	
		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	Number of Climate Change projects to support resource dependent communities	
18	Public participation in policy making processes	No information on current NDC update available	Number of consulted and involved community and indigenous people (men and women) representatives in policymaking process	
19	Good health and wellbeing	Build adaptive capacity in the health sector by assessing vulnerability and investing in capacity to respond to climate-related threats	Facilitation of investments in health infrastructure	
20	Agricultural productivity and sustainability	Reduce methane emissions from livestock by 10% by 2030 and reverse emissions	Number of farmers that adopted improved crop and livestock husbandry practices	

		related to the agriculturally driven land use change by 2025	Hectares of agricultural land applying agroforestry practices	
		Reverse 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	Number of farmers that adopted improved soil and water management practices	
		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	Number of farmers with access to early warning system for drought and extreme weather events	
21	Access to adequate water supply	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	Number of communities and population with new access to safe, good quality and steady water supply	The economic situation is usually a barrier to having access to adequate water supply. Hydrology. (Stakeholder response)
			Number of persons with economic means to access to water supply	

.

Discussion

In order to measure achievements of SDGs' impacts, both indicators and data availability are required. ICAT's Sustainable Development Guide provided the basis to assess the environmental, social, and economic impacts identified from the non-GHG impact consultation sessions. The guide provided preliminary indicators that were applicable and can be adapted as part of Belize's MRV system. The process of formulating and mapping indicators for the impacts comprised of the availability and quality of data; projects or actions in alignment with the identified non-GHG impacts; which were established by stakeholders. The indicator mapping assessment revealed that a small number of impacts are already monitored and are integrated in the different sectors. Highlighted were cross cutting impacts such as capacity, skills and knowledge development, and gender equality and empowerment of women that was visible as having a particular action or project that are already being monitored under other platforms such as BNSS. However, other impacts not identified as being related to MRV of existing actions, or data was not available as they are not tracked by existing MRV systems. A portion of this could be linked to the institution collecting the data as opposed to the MRV mechanisms. Other contributory factors are the misrepresentation of impacts being monitored, linked to the data sharing process where institutions internalize data, and if data is to be shared it has to be requested through a formal transaction between parties. Notably, this observation will be further assessed in deliverable four addressing the type of information being collected by existing MRV mechanisms in relation to the institution.

However, from the stakeholder validation process, information gathered concluded that most indicators were suitable and can be tracked as seen in *Figure 3*. Indicators that were recurrent and a priority amongst stakeholders stems from non-GHG impacts such as: new jobs, new business opportunities, climate change awareness, gender equality, access to clean, reliable and affordable energy, city and community resilience, food security and access to adequate water supply. The accompaniment of indicators generated from the NDC can provide a strong foundation to the additional indicators identified by stakeholders. The use of both elements can offer more options to the national MRV system, allowing for a wider range of non-GHG impacts to be tracked at a more accurate level.

Potential Approach to Track non-GHG indicators

As part of the framework for developing the MRV system, it is important to define indicators per impact category for the NDC, tracking to measure the performance of climate change related projects or actions, allowing for key information to measure and report NDC impacts and progress. Hence, to evaluate climate change actions, it is pertinent to have a structured system. The Nationally Appropriate Mitigation Actions (NAMA) Sustainable Development (SD) tool has been sourced as a potential means to track non-GHG indicators. It is a tool that allows users to evaluate performance indicators and it is equipped with the SDGs goals that allow for tracking the effects of NAMA on environmental conservation, economic growth, poverty reduction and public welfare (Holm, et al. 2015). Therefore, the NAMA SD tool will be integrated and adjusted to suit the specification for Belize as part of the tracking system. The tool will provide support in quantifying and evaluating SD outputs to NDC actions using the indicators as seen in (*Table 1)*, or any other subsequent revision of indicators, based on the relevant actions proposed in subsequent NDC revisions. This tool will present itself as a detailed spreadsheet template with structured SD impact categories and indicators along with additional sub-assessment categories. One of the key aspects of potentially integrating this tool for Belize is the strong connection to proposed SDGs. This being a main focus of the country, the synergies will allow for easy modifications to suit the needs of Belize.

Conclusion

The assessment results from the prioritization exercise reveal that quality of data is needed to better understand the scope of an impact through existing and new indicators. Once established with supporting actions or projects, it would facilitate the process of properly tracking and capturing the effects of non-GHG impacts. An integral aspect of the system is having the suitable sustainable indicators to measure the status of climate change projects, actions and policy objectives; also taking into consideration both policy implementation and policy effectiveness. The consultation and validation sessions revealed that some identified non-GHG impacts were not climate change related, therefore those impacts were expelled from the final list. The non-GHG impacts that met the requirements were validated with a set of new and existing indicators aligning with the NDC. The outcome proved that most impacts can be tracked by the established indicators provided. It is therefore important to track this information with a robust approach, such as the NAMA SD tool which will provide the flexibility and adaptability to assess non-GHG impacts.

Overall, the sectors provided informative feedback on impacts and indicators. The consensus of both assessments highlighted that non-GHG impacts can be tracked based on the results of the validation process. Additional information on non-GHG impacts and indicators to be monitored will be further explored in deliverable four. To conclude, in order to implement a comprehensive MRV system, stakeholder engagement is fundamental to avoid sectors incapability of tracking a specific target. This process should be continual to ensure proper alignment of NDC tracking with subsequent revisions of the NDC.

Reference

Barnett, Carla, and Adele, Humes, Dorla Catzim-Sanchez. 2011. "Final Report: Preparing Horizon 2030-Long Term National Development Framework for Belize." *Barnett & Company Ltd.* 1-163.

Belize NDC. 2015. "Nationally Determined Contribution under the United Nations Framework Convention on Climate Change." *1CP/21 of the Paris Agreement* 1-58.

Belize Solid Waste Management Authority, Government of Belize. 2015. "National Solid Waste Policy and Strategy and Update The National Solid Waste Management Plan." *Integrated Skills* 1-81.

CIAT, and World Bank. 2018. "Climate-Smart Agriculture in Belize. CSA Country Profiles for Latin America and the Caribbean Series." *International Center for Tropical Agriculture (CIAT)* 1-24.

Department of Public-Private Dialogue. 2018. "Preparation of a Comprehensive National Transportation Master Plan for Belize." *Final Report: Comprehensive National Transport Master Plan* 1-572.

Development, Ministry of Forestry Fisheries and Sustinable. 2016. "Belize's Third National Communication to the United Nations Framework Convention on Climate Change." *National Climate Change Office* 1-2016.

EuroPraxis Consulting Co. 2011. "National Sustainable Tourism Masterplan for Belize 2030." *Toursim & Leisure Advisory Services* 1-535.

Food and Agricuture Organization of the United Nations. 2010. "Criteria and Indicators for Sustainable Woodfuels." *Electronic Publishing Policy and Support Branch Communication Division* 1-103.

Forest Department. 2020. "Belize Forest Reference Level, 2001-2005." *Belmopan City: Government* 1-97.

Holm, Karen O, Bizikova Liva, Melissa Harris, Zyaad Boodoo, Frederic Gagnon-Lebrun, and Fatemeh Bakhtiari. 2015. "Framework for Measuring Sustainable Development in NAMAs." *NAMA Partnership* 1-53.

HYDEA SpA. 2016. "Solid Waste Master Plan for Emerging Toursim Areas." *Government of Belize, Ministry of Natural Resources and Immigration, Belize Solid Waste Managment Agency* 1-436.

ICAT (Intiative for Climate Action Transparency). 2020. "Sustainable Development Methodology : Assessing the Environmental, Social and Economic Impacts of Policies and Actions." *Washington D.C.: World Resources Institute; Copenhagen: UNEP DTU Partnership* 1-128.

International Monteary Fund. 2018. "Belize Climate Policy Assessement." *International Monetary Fund Washington, D.C.* 1-63.

Law Revision Commissioner. 2000. "Belize Forest Act Chapter 213." *Revised edition* 1-28.

Ministry of Agriculture. 2015. "National Agriculture and Food Policy of Belize." *Belmopan, Belize* 1-126.

Ministry of Agriculture, Forestry, Fisheries, the Environment and Sustainable Development. 2016. "National Biodiversity Strategy Action Plan, Belize." *Belmopan, Belize* 1-75.

Sabido, Wilber. 2015. "National Forest Policy." *Belmopan City: Government* 4-57.

Satistiical Institute of Belize. 2013. "Report of the Environmental Statistics Assessment, Using the Environment Statistics Self-Assessment Tool (ESSAT)." *Framework for Development Statistics* 1-109.

Singh, Neelam, Jared Finnegan, Levin, and Kelly. 2016. "MRV 101: Understanding Measurement, Reporting, Verification of Climate Change Mitigation." *World Resources Institute* 1-28.

UNFCCC. 2018. "Modalities, procedures and guideliness for the transparency framework for action and support referred to in Article 13 of the Paris Agreement." *Coference of the Parties Twenty-Fourth Session Katowice* 1-36.

Annex 1. Calculation used to compile similar non-GHG impacts

Below is the calculation use for compiling similar impacts chosen by stakeholder. The example used is for the "Agriculture sector".

Climate Change Mitigation Impact

CARDI -Major/Very Likely (3*4) =12

SIRDI- Major/Possible (3*2) =6

BAHA-Major/Very Likely (3*4) =12

FAO-Major/Possible (1*2) =2

Agriculture- Major/Very Likely (3*4) =12

12+6+12+2+12=44

44/5=8.8 (Likely, Major)

Within the matrix, each cell has a value. The impact calculated is then identified to the nearest value.

Annex 2. Waste sector non-GHG impacts identified using the rank matrix

Impact categories	Likelihood	Magnitude	Positive or negative impact	Significant	Relevant	Summary of assessment results for each impact category	Methods/ Sources used
Air quality and health impacts of air pollution	Likely	Moderate	Positive	Yes	Yes	The policy is expected to have a moderate positive impact on reducing air pollution through the implementation of the Solid Waste Management Plan and actions	Stakeholder consultation
Waste generation and disposal	Likely	Major	Positive	Yes	Yes	Major positive impact on improved waste management processes through the implementation of the Solid Waste Management Plan and actions	Stakeholder consultation
Treatment of solid waste and wastewater	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on treatment of solid waste and wastewater leachate through the implementation of the Solid Waste Management Plan and actions	Stakeholder consultation
Aesthetic impacts	Likely	Major	Positive	Yes	Yes	Major positive impact on the aesthetic impacts through the implementation of the Solid Waste Management Plan and actions	Stakeholder consultation
Access to adequate sanitation	Possible	Major	Positive	Yes	Yes	Major positive impact on the access of adequate sanitation facilities through the implementation of the Solid Waste Management Plan and actions	Stakeholder consultation
Cost of policy implementation and cost effectiveness of policies	Likely	Major	Negative/ Positive	Yes	Yes	Major negative impact on the financial resources needed for policy implementation and positive impact on cost-effectiveness policy in improving sustainable waste management	Stakeholder consultation

Annex 3. Tourism sector non-GHG impact identified using rank matrix

Impact categories	Likelihood	Magnitude	Positive or negative impact	Significant	Relevant	Summary of assessment results for each impact category	Method/ Sources used
New business opportunities (SDGs 8)	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on the increased of new business opportunities from the implementation of the Tourism Master plan and actions	Stakeholder consultation
Competitiveness of domestic industry in global markets	Likely	Major	Positive	Yes	Yes	Major positive impact on the increase competitiveness of domestic industry in global market from the Tourism Master plan and actions	Stakeholder consultation
Economic development from tourism and ecotourism	Very Likely	Major	Positive	Yes	Yes	Major positive impact on the increased economic development from tourism and ecotourism	Stakeholder consultation
Cost of policy implementation and cost-effectiveness of polices	Likely	Major	Negative/ Positive	Yes	Yes	Major negative impact on the financial resource needed for policy implementation and positive impact on cost-effectiveness policy to improve climate resilient planning frameworks and infrastructure	Stakeholder consultation

Annex 4. Agriculture sector non-GHG impacts identified using the rank matrix

Impact categories	Likelihood	Magnitude	Positive or negative impact	Significant	Relevant	Summary of assessment results for each impact category	Method/ Sources used
Climate change mitigation	Very likely	Moderate	Positive	Yes	Yes	Major positive impact on climate change mitigation through policy implementation and actions	Stakeholder consultation/Survey
Biodiversity of terrestrial ecosystems	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on biodiversity of terrestrial ecosystem through policy implementation and actions	Stakeholder consultation/Survey
Hunger, nutrition and food security	Very likely	Major	Positive	Yes	Yes	Major positive impact on hunger, nutrition and food security through policy implementation and actions	Stakeholder consultation/Survey
Land-use change, including deforestation, forest degradation and desertification	Possible	Moderate	Positive	Yes	Yes	Moderate positive impact on land-use change, including deforestation, forest degradation and desertification through policy implementation and actions	Stakeholder consultation/Survey
Soil quality	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on soil management through policy implementation and actions	Stakeholder consultation/Survey
Income of small-scale food producers	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on improved income of small-scale food producers through policy implementation and actions	Stakeholder consultation/Survey

Climate change education, public awareness, capacity-building and research	Very likely	Moderate	Positive	Yes	Yes	Moderate positive impact on climate change education, public awareness, capacity-building and research through policy implementation and actions	Stakeholder consultation/Survey

Economic productivity	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on economic productivity through policy implementation and actions	Stakeholder consultation/Survey
Growth of new sustainable development	Possible	Moderate	Positive	Yes	Yes	Moderate positive impact on growth of new sustainable development through policy implementation and actions	Stakeholder consultation/Survey
Competitiveness of domestic industry in global markets	Likely	Moderate	positive	Yes	Yes	Moderate positive impact on the increase of competitiveness of domestic industry in global markets through policy implementation and actions	Stakeholder consultation/Survey
Agricultural productivity and sustainability	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on the increase of agricultural productivity and sustainability through policy implementation	Stakeholder consultation/Survey
Gender equality and empowerment of women	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on gender equality and empowerment of women through policy implementation and actions	Stakeholder consultation/Survey

Annex 5. Energy sector non-GHG impacts identified using the rank matrix

Impact categories	Likelihood	Magnitude	Positive or negative impact	Significant	Relevant	Summary of assessment results for each impact category	Method/ Sources used
Depletion of non-renewable resource	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on reduced depletion of non-renewable resources through the implementation of the National Energy Action plan, mitigation action and or institutional policy	Stakeholder consultation/ Online survey
Access to clean, reliable and affordable energy	Very likely	Major	Positive	Yes	Yes	Major positive impact on access to clean, reliable and affordable electricity through the implementation of the National Energy Action plan, mitigation action and or institutional policy	Stakeholder consultation/ Online survey
Capacity, skills and knowledge development	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on the increase of training for skilled workers in energy statistics and sustainable energy management through the implementation of the National Energy Action plan, mitigation action and or institutional policy	Stakeholder consultation/ Online survey
Climate change education, public awareness, capacity building and research	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on the increase in climate change education, public awareness, capacity-building and research through the implementation of the National Energy Action plan, mitigation action and or institutional policy	Stakeholder consultation/ Online survey
Public participation in policymaking process	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact to increase public participation in policy making process through the implementation of the National Energy Action plan, mitigation action and or institutional policy	Stakeholder consultation/ Online survey

Access to new technology/technology transfer	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on access to new green technologies through the implementation of the National Energy Action plan, mitigation action and or institutional policy	Stakeholder consultation/ Online survey
New business opportunities	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on increased business opportunities within the energy sector through increased rate of investment and the implementation of the National Energy Action plan, mitigation action and or institutional policy	Stakeholder consultation/ Online survey
Air quality and health impacts of air pollution	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on reduced air pollution through the implementation of the National Energy Action plan, mitigation action and or institutional policy	Stakeholder consultation/ Online survey
Access to information and public awareness	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on increased access to energy information public awareness of sustainable energy source through the implementation of the National Energy Action plan, mitigation action and or institutional policy	Stakeholder consultation/ Online survey
Energy independence security or sovereignty	Very likely	Major	Positive	Yes	Yes	Major positive impact on increased energy independence from reduced imports of fossil fuel and foreign control through the implementation of the National Energy Action plan, mitigation action and or institutional policy	Stakeholder consultation/ Online survey

Annex 6. Transport sector non-GHG impact identified using the rank matrix

Impact categories	Likelihood	Magnitude	Positive or negative impact	Significant	Relevant	Summary of assessment results for each impact category	Method/ Sources used
Transportation supply chains	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on increase transportation supply chains through implementation of the transportation master plan institutional policy and mitigation action	Stakeholder consultation
Infrastructure creation, improvement and depreciation	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on infrastructure development and improvement through the transportation master plan	Stakeholder consultation
City and community climate resilience	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on the improvement on city and community climate resilience through the transportation master plan	Stakeholder consultation
Air quality and health impacts of air pollution	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on reduced air pollution from the promotion of efficient vehicles through the implementation of the transportation master plan, institutional policy and or mitigation action	Stakeholder consultation
Noise pollution	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on reduced noise pollution through the implementation of the transportation master plan, institutional policy and or mitigation action	Stakeholder consultation
Traffic congestion	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on improved traffic congestion through the implementation of the transportation master plan, institutional policy and or mitigation action	Stakeholder consultation

Road safety	Very likely	Major	Positive	Yes	Yes	Major positive impact on increase road safety through the implementation of the transportation master plan, institutional policy and or mitigation action	Stakeholder consultation

Annex 7. Coastal zone and Fisheries non-GHG impact identified using the rank matrix

Impact categories	Likelihood	Magnitude	Positive or negative impact	Significant	Relevant	Summary of assessment results for each impact category	Method/ Sources used
Fish stock sustainability	Very Likely	Major	Positive	Yes	Yes	Major positive impact on increasing fish stock sustainability through the implementation of both the Coastal zone management plan, fisheries management plan, institutional policy and or mitigation action	Stakeholder consultation/Online survey
Biodiversity of freshwater and coastal ecosystems	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on the increased conservation and protection of freshwater biodiversity and coastal ecosystem through the implementation of both the coastal zone management plan, fisheries management plan, institutional policy and or mitigation action	Stakeholder consultation/ Online survey
City and community climate resilience	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on improved city and community climate resilience through the implementation of both the coastal zone management plan, fisheries management plan, institutional policy and or mitigation action	Stakeholder consultation/ Online survey

Economic Productivity	Very likely	Moderate	Positive	Yes	Yes	Moderate positive impact on increased economic productivity resilience through the implementation of both the coastal zone management plan, fisheries management plan, institutional policy and or mitigation action	Stakeholder consultation/ Online survey
Economic development from tourism and ecotourism	Very likely	Major	Positive	Yes	Yes	Major positive impact on employment generation and foreign exchange earnings through the implementation of both the coastal zone management plan, fisheries management plan, institutional policy and or mitigation action	Stakeholder consultation/ Online survey
Quality of life and well-being	likely	Moderate	Positive	Yes	Yes	Moderate positive impact on improved quality of life and well-being through the implementation of both the coastal zone management plan, fisheries management plan, institutional policy and or mitigation action	Stakeholder consultation/ Online survey
Loss of damage associated with environmental impacts	Likely	Moderate	Positive	Yes	Yes	Moderate positive impacts on improved approaches to loss of damages associated with environmental impacts through the implementation of both the coastal zone management plan, fisheries management plan, institutional policy and or mitigation action	Stakeholder consultation/ Online survey
Food security	Likely	Major	Positive	Yes	Yes	Major positive impact on improved food security by sustainable management of marine resources through the implementation of both the coastal zone management plan, fisheries management plan, institutional policy and or mitigation action	Stakeholder consultation/ Online survey

Alternative livelihood opportunities	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on increased alternative livelihood opportunities through the implementation of both the coastal zone management plan, fisheries management plan, institutional policy and or mitigation action	Stakeholder consultation/ Online survey

Recreational and tourism benefits	Likely	Major	Positive	Yes	Yes	Major positive impact on increase recreational and tourism benefits through the implementation of both the coastal zone management plan, fisheries management plan, institutional policy and or mitigation action	Stakeholder consultation/ Online survey
Marine spatial planning	Likely	Major	Positive	Yes	Yes	Major positive impact on improvement of assessing temporal changes and distribution within marine areas through the implementation of both the coastal zone management plan, fisheries management plan, institutional policy and or mitigation action	Stakeholder consultation/ Online survey
Climate change education, public awareness, capacity building and research	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on climate change education, public awareness, capacity building and research through the implementation of both the coastal zone management plan, fisheries management plan, institutional policy and or mitigation action	Stakeholder consultation/ Online Survey
Public participation in policymaking process	Possible	Major	Positive	Yes	Yes	Major positive impact on increasing public participation in policymaking process through the implementation of both the coastal zone management plan, fisheries management plan, institutional policy and or mitigation action	Stakeholder consultation/ Online Survey

Annex 8. Forestry sector non-GHG impact identified using rank matrix

Impact categories	Likelihood	Magnitude	Positive or negative impact	Significant	Relevant	Summary of assessment results for each impact category	Methods/ Sources used
Biodiversity of terrestrial ecosystem	Very likely	Major	Positive	Yes	Yes	Major positive impact on increase conservation and protection biodiversity of terrestrial ecosystem through the implementation of the National Forest policy, institutional policy and or mitigation action	Stakeholder consultation/ Online Survey
Land-use change, including deforestation, forest degradation and desertification	Very likely	Major	Positive	Yes	Yes	Major positive impact on efforts to reduce land change, including deforestation, forest degradation and desertification, through the implementation of National Forest policy, institutional policy and or mitigation action	Stakeholder consultation/ Online Survey
Resilience of ecosystem to climate change	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on improved initiatives for resilience of ecosystem to climate change, through the implementation of National Forest policy, institutional policy and or mitigation action	Stakeholder consultation/ Online Survey
Resilience to dangerous climate	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on increased vulnerability approaches to improve resilience to dangerous	Stakeholder consultation/ Online Survey

change and extreme weather						climate change and extreme weather on forest and forest-dependent communities.	
Gender equality and the empowerment of women	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on increased representation and inclusivity of women from the implementation of National Forest policy, institutional policy and or mitigation action	Stakeholder consultation/ Online Survey
Protection of poor and negatively affected communities	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on the increased protection of poor and negatively affected communities through the implementation of the National Forest policy, institutional policy and or mitigation action	Stakeholder consultation/ Online Survey
Capacity, skills and knowledge development	Possible	Moderate	Positive	Yes	Yes	Moderate positive impact on increased training and knowledge development through the implementation of National Forest policy, institutional policy and or mitigation action	Stakeholder consultation/ Online Survey
Climate change education public awareness, capacity-building and research	Possible	Moderate	Positive	Yes	Yes	Moderate positive impact on increased climate change education public awareness, capacity-building and research through the implementation of National Forest policy, institutional policy and or mitigation action	Stakeholder consultation/ Online Survey

Public participation in policy making processes	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on increased public participation in policy making processes through the implementation of National Forest policy, institutional policy and or mitigation action	Stakeholder consultation/ Online Survey
Access to information and public awareness	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on improve access to information and increase public awareness on sustainable forest initiatives through the implementation of National Forest policy, institutional policy and or mitigation action	Stakeholder consultation/ Online Survey
Access to land	Possible	Moderate	Positive	Yes	Yes	Moderate positive impact to increase access to land for indigenous people through the implementation of National Forest policy, institutional policy and or mitigation action	Stakeholder consultation/ Online Survey
Indigenous rights	Possible	Moderate	Positive	Yes	Yes	Moderate positive impact increasing progress towards recognition of the rights of indigenous people through the implementation of the National Forest policy, institutional policy and or mitigation action	Stakeholder consultation/ Online Survey

Annex 9. Water sector non-GHG impact identified using rank matrix

Impact categories	Likelihood	Magnitude	Positive or negative impact	Significant	Relevant	Summary of assessment results for each impact category	Methods/ Sources used
Water quality	Very likely	Major	Positive	Yes	Yes	Major positive impact on increased water quality assessment through the implementation of the National Water Master Plan, National Water Safety plan, institutional policy and or mitigation action	Stakeholder consultation
Availability of freshwater	Very likely	Moderate	Positive	Yes	Yes	Moderate positive impact on increased assessment of the availability of freshwater for the country through the implementation of the National Water Master Plan, National Water Safety plan, institutional policy and or mitigation action	Stakeholder consultation
Access to adequate water supply	Likely	Major	Positive	Yes	Yes	Major positive impact on improved access to adequate water supply through the implementation of the National Water Master Plan, National Water Safety plan, institutional policy and or mitigation action	Stakeholder consultation
Water extraction	Likely	Major	Positive	Yes	Yes	Major positive impact on increased sustainable of water extraction and management through the implementation of the National Water Master Plan, National Water Safety plan, institutional policy and or mitigation action	Stakeholder consultation
Access to safe drinking water	Likely	Major	Positive	Yes	Yes	Major positive impact on improved access to safe drinking water through the implementation of the National Water Master Plan, National Water Safety plan, institutional policy and or mitigation action	Stakeholder consultation

Annex 10. Health sector non-GHG impact identified using rank matrix

Impact categories	Likelihood	Magnitude	Positive or negative impact	Significant	Relevant	Summary of assessment results for each impact category	Methods/ Sources used
Accessibility and quality of healthcare (SDG 3)	Very Likely	Major	Positive	Yes	Yes	Major positive impact on improved accessibility and quality of healthcare through the implementation through of Belize Health Sector Strategic Plan	Online survey
Illness and health (SDG 3)	Likely	Major	Positive	Yes	Yes	Major positive impact on strengthening disease surveillance and reinforcement, through the implementation through of Belize Health Sector Strategic Plan	Online survey
Gender equality and empowerment of women (SDG 5)	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on reducing the gaps in gender equality and empowerment of women through the implementation of Belize Health Sector Strategic Plan	Online survey
Cost of policy implementation and cost-effectiveness of policies	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on increased coverage of Belize Health information System to rural and outlying areas through the implementation of Belize Health Sector Strategic Plan	Online survey
Poverty reduction (SDG 1)	Very Likely	Possible	Positive	Yes	Yes	Moderate positive impact on addressing and assessing the issues on poverty through the implementation of Belize Health Sector Strategic Plan	Online survey
Climate change education, public awareness, capacity-building research	Likely	Moderate	Positive	Yes	Yes	Moderate positive impact on increased climate change education, public awareness, capacity building and research to link climate change impacts to the increase for infectious disease through the	Online survey

						implementation of Belize Health Sector Strategic Plan	

Finalizing non-GHG impact and progress indicators to be integrated into the National MRV system

The structured tables below are the process of finalizing the selection of non-GHG Impacts identified and prioritized to be tracked in the implementation of the NDC, including the established progress indicators which is a combination of existing and new indicators. The table is comprised of the 'Description' (what the indicator will measure), and 'Projects or Actions' (what initiatives are in place to monitor the impacts). Additional information to be included is on data availability and whether the indicator is existing or new. The bolden indicators in the table are presented as existing indicators. **Note**: The non-GHG impact presented are drawn from the sectors own wish to be tracked. Indicators were established on the premise existing and new indicators from the Sustainable Development Assessment Guide

Annex 11. Waste sector non-GHG impact and progress indicators

Impact category	Indicators	Description	Projects/Actions
Air quality and health impacts of air pollution (SDGs 3,11,12)	Emission of air pollutants (t/year)	Track the burning of waste, typically done in open low-temperature fires affecting groundwater, soil and air	**N/A**
Waste generation and disposal	-Percentage of waste recycled **-Flow of solid waste (Metric tons)**	-Recycled waste by material Track the amount of waste generated and setting limits to waste generated.	Data is available, existing indicator used as of 2019 flow of solid waste from transfer station to landfill (Cumulative tonnage)

Annex 12. Tourism non-GHG impact and progress indicators

Impact category	Indicators	Description	Projects/Actions
New business opportunities (SDGs 8)	-Number of new sustainable tourism business ventures -Amount of new business investments	-Measure the amount new established sustainable tourism ventures and investment made in small business in the tourism industry	**Project:** Attract foreign direct investment and international tourism companies' brands (Ongoing)
Competitiveness of domestic industry in global markets	-Value of service in relation to the global markets -Price ratio to quality	-Measure tourist destination experiences regional/national with international markets	**Action-** Integrated destination development (Competitiveness & sustainability goal**).** Allows for the better management of resources **Action-** Experimental quality enhancement (Competitiveness Goal). To increase visitor satisfaction in Belize as a tourist destination that will ultimately result in increased customer loyalty and competitive positioning
Economic development from tourism and ecotourism	-Employment rate in the tourism industry -Tourism GDP as a proportion of total GDP	-Measure the employment rate within the tourism industry (direct/indirect) -Measure the country economic growth from tourism industry	**Project:** Ecotourism and adventure Routes (ongoing) **Project:** Integral Development of Ecotourism and adventure Sites (11years, starting 2015)
Cost of policy implementation and cost-effectiveness of polices	-Cost efficiency assessment -**Annual cost-effectiveness calculation**	-Measure the Economic value of policy implementation (Cost Benefit Analysis) -Monitor the effectiveness of marketing actions	**Project-**Office network management. Elaboration of annual goals, operations, budget, marketing and financing plan by source market (continuous)

Annex 13. Agriculture sector non-GHG impact and progress indicators

Impact category	Indicators	Description	Projects/Actions
Climate change mitigation (SD13)	-Net emissions of short-lived climate pollutants	Measure short live pollutants in the environment	**Action**-Promote best practices in disaster risk management (DRM) and climate adaptation (CCA) **Action:** Sustainable agriculture and risk management. Focuses on climate change adaption, environmentally sound production practices, conservation of natural resources, and risk management mechanisms such as crop insurance
Biodiversity of terrestrial ecosystems (15)	-Quality of ecosystem service -Damage to ecosystem from agriculture practices (potential affected fraction of species)	More indicators are needed to track impacts of biodiversity of terrestrial ecosystem to capture the overall impacts. - Quality of ecosystem service- Measure the quality of provisioning, regulating and cultural services. - Measure the affected forested area and species richness from agricultural practices	
Hunger, nutrition and food security	-Food consumption as a proportion of total household expenditure -Average food supply (per capita) -Nutrition monitoring and surveillance -Existence of adequate storage facilities -Agriculture imports/exports	- Measure the affordability of food products to household consumption -Measure the availability countries average food supply -Measure the quality and safety of the country's nutrition - Measure the country's food storage supply -Measure the country's food dependency and stability on the number of products imported and exported	**Action** -Establish an integrated system that harmonizes and coordinates of key food and nutrition **Action-**National food and nutrition security and rural development- Ensures food security for the country and providing opportunities for rural people including women and youth to generate income from productive activities
Land-use change, including deforestation, forest degradation and desertification	-Hectare of degraded and deforested land -Proportion of land -use types	-Measure the area of degraded and deforested land from agriculture practices	Support development of carbon sequestration and other Agro-Ecological services through services through good agricultural practices

	-Percent of the total land area suited for agriculture proportionate to country land cover -Ratio degraded land upgraded -Area of forest under sustainable forest management	-Measure the country's agriculture land-use type proportionate to forest cover -Measure the area of degraded land converted to sustainable farm areas (Agroforestry) -Measure the number of existing and new terrestrial protected areas	**Action-**Promote reduced deforestation through intensification and increased productivity in areas under cultivation Improve land and water governance and management systems **Action-**Develop and implement action plans to enhance watershed management and reduce land degradation
Soil quality	-Soil fertility index -Acidity(pH) -Extent of soil erosion	-Measure the soil property from agriculture practices and examining for pH content -Measure the mean annual rate of soil erosion	**Project-** To enhance the productivity of banana farms through integrated soil fertility management (2018)
Income of small-scale food producers	-Investment made for small food producer business projects	-Measure of new investment made in small local farm businesses	**Project-**FAO, Initiative For Soaring Food Price (ISFP), Extension Service distributed to farmers in all districts seeds and seedlings, tools and equipment's to boost small farmer production (2010 agriculture report) **Action-** Expand employment and income generating opportunities for marginalized communities -Increase support for small farmers and promote entrepreneurship and home food production -Establish links between small farming agriculture and promotion of ecotourism
Climate change education, public awareness, capacity-building and research	-Number of women/men, girls/boys who have received training	-Measure the proportion of males and females that partake in agriculture activity that received training on climate change impacts related issues	**Action-**Improve knowledge Management **Action-** Collaborate with the Ministry of Education to develop specific school-based programs
Economic productivity (SDGs 2,8)	-Agriculture productivity (harvested crop yields per hectare)	- Measure the country agriculture average crop yield	**Action-**Production, pricing, marketing arrangements for three traditional commodities were implemented by the Sugar, Banana, and Citrus Control Boards respectively

Growth of new sustainable development	-Number of new green projects	-Measure the number of new green projects/investment being developed	-The policy incorporates five areas of sustainable development: economic, social, environmental, technical and political/institutional.
Competitiveness of domestic industry in global markets	-Market share -Quantity/value of exports -Balance of trade **-Export-Average annual growth rate in agricultural exports**	-Measure the country agriculture revenue proportionate to sales which would give an estimated standing among competitors -Measure the quantity exported relative to unit price -Track changes in imports and exports And net agriculture trade balance (pre se)	**Action**-Promote industry competitive investments plans for prioritized value chains **Action**-Improve the marketing infrastructure
Agricultural productivity and sustainability	-Agriculture yield in relation to sustainable practices **-Total agriculture output**	-Measure the maximum sustainable yield for agriculture products	**Action**-Improve land and water governance and management system
Gender equality and empowerment of women	-Average income for women/men -Proportion of women in the labor force -Proportion of women in senior government positions	-Measure the average yearly income of women/men -Measure the ratio of women in the labor force proportionate to men	**Action**- Target producers and processors who might not be accommodated in the Agriculture and Food Sector with a special focus on gender and youth

Annex 14. Energy Sector non-GHG impact and progress indicators

Impact category	Indicators	Description	Projects/Actions
Depletion of non-renewable resource (SDG 12)	-Consumption of mineral -Consumption of fossil fuels -Scarcity of resources	-Measure the quantity of mineral consumed in units such as tones -Measure the quantity of fossil fuel consumed in units such as tones -Measure the quantity of resources initially remaining proportionate to what is available	**N/A**
Access to clean, reliable and affordable energy (SDG 7)	-Percentage of population with access to clean, reliable and affordable energy -Number and length of service interruptions -Price of energy	-Measure the percentage of population access to electricity -Measure the average frequency and duration of electricity distribution outages -Measure the energy price fluctuation rates	**N/A**
Capacity, skills and knowledge development (SDGs 4,12)	-Proportion of youth and adults with scientific, technological or other skills, by type of skill -Number of people who have received training	-Measure the percentage of population (aged 16 and over) with scientific, technological or other skills, by type skill -Measure the percentage of farmers who have received training in sustainable agriculture practices	**Action**-Providing public and private operators with skills to assess, design, and implement EE projects
Climate change education, public awareness, capacity building and research	-Number of people who have received training -Extent to which climate change education is mainstreamed in the national education polices, curricula, teacher education and assessment	-Measure the percentage of farmers who have received training in climate change mitigation and adaptation -Measure the number of schools that have embedded climate change in their curriculum	**Action**-Energy efficiency awareness in schools

Public participation in policymaking process	-Proportion of community representation that are involve in policymaking process	-Measure community representation in policymaking process through the number of participations	**N/A**
Access to new technology/technology transfer	-Percentage of population with access to new technology/technology transfer	-Measure the percentage of population that have access to clean and environmentally sound technology	**Project:** Energy for Sustainable Development in the Caribbean (ESD-Caribes) -The main objective is sustainable energy use through energy efficiency and renewable energy intervention technologies within the project activities
New business opportunities (SDG 8)	-Amount of new investment -Number of active long-term partnerships	-Measure the number new business opportunities in sustainable energy production - Measure the number of new long-term partnership that contributes to knowledge sharing, funding, technologies	**N/A**
Air quality and health impacts of air pollution	-Air quality index -Concentration of air pollutants (mg/m3) -Emission of air pollutants such as particulate matter	-Measure air concentration from fossil fuel-based plants, fossil fuel extraction	**N/A**
Access to information and public awareness	-Proportion of population with access to information and public awareness	-Percentage of population with access to sustainable energy information and information on the impacts of climate change	**N/A**
Energy independence security or sovereignty	-net imports of fossil fuel (coal, oil, natural gas} -**Total Primary Energy Supply (TPES**)	-Measure the country's total imports of fossil fuel from foreign countries proportionate to the countries production	-Transition toward renewable energy is sought as the most viable solution to improve energy security. **Projects:** University of Belize Energy Solar Project (2011-2012) Caye Caulker Renewable Energy Water Supply Project 2015

Annex 15. Transport sector non-GHG impact and progress indicators

Impact category	Indicators	Description	Projects/Actions
Transportation supply chains	-Percentage of the population that is satisfied with the transportation network	-Measure the proportion of the population satisfaction rate with transportation network (survey)	**N/A** -Consider how impacts on the supply chain may affect airport operations
Infrastructure creation, improvement and depreciation	-Improvements in community-wide road development -Road life span -**Number of alternative infrastructures**	-Measure the improvements made in community road development from the number of projects being initiated and completed -	**Action-**Integrating climate change adaptation and resilience to transport infrastructure planning
City and community climate resilience	-Number of resilience investments	-Measure the new investments made to increase resilience of the transportation system	**Action-**Ensuring that climate resilience is integrated into urban planning and infrastructure **Project-**Climate Resilience Project **Action-** Implementing the National Climate Resilience Investment Plan (NCRIP)
Air quality and health impacts of air pollution (SDGs 3,11,12)	-Concentration pf air pollutants (mg/m3)	-Measure air concentration frequent traffic areas	**Action-**Convention of International Civil Aviation (ICAO)-The country is obliged to comply with the standard and recommended practices under the convention. Reduce the impact of aviation on local air quality
Noise pollution	-Noise level (decibels)	-Measure the noise concentration levels in frequent traffic areas	Impact assessment of projects (General considerations about the measures included in the Action Plan)
Traffic congestion (SDG 11)	-Time lost during transportation -Economic cost of time lost	-User satisfaction survey result can identify motorist, transit user's transportation experience	**Action-**Capacity increase to accompany traffic growth and reduce air traffic congestion
Road safety	-Number of deaths and injuries from road traffic accidents per year	-Measure the number of deaths and injuries from road traffic accidents per year	**Project:** Implementation of Road Safety Project

Annex 16 Coastal Zone/ Fisheries sector non-GHG impacts and progress indicators

Impact category	Indicators	Description	Projects/Actions
Fish stock sustainability	-Maximum sustainable yield (MSY)	-Is the largest catch that can be captured from a fish stock under existing environmental conditions and is sustained over-time	Manage Access Program (Sustainable fishing program)
Biodiversity of freshwater and coastal ecosystems	-Proportion of marine area protected -Proportion of fish stocks within safe biological limits -Percentage of fish tonnage landed with maximum sustainable yield	-Measure the number of marine protected areas under strict conservation -Percentage of fish stock that are exploited within the level of maximum sustainable yield -Measure the fishing capacity of fleet size with maximum sustainable yield	-Data is available for the indicators presented **Action**: Fisheries Priority Areas (FPAs) and aquatic reserves must be identified, designated and managed to better bridge the gap between biodiversity conservation and food security
City and community climate resilience	-Proportion of the coastal community that is most vulnerable to natural disasters -Number of community-based adaptation interventions	-Number of coastal communities that are most at risk from natural disasters -Number of improved or new intervention in place for coastal communities -Skills and experience developing and evaluating adaptation solutions -Monitoring and Protecting in Infrastructure	National Climate Resilience Investment plan (NCRIP)- The plan is focused mostly on infrastructure
Economic Productivity	-Revenues generated from fisheries priority areas and aquatic reserves	-Measure the socio-economic returns from fisheries priority areas and aquatic reserves	**Action**: Development of Fisheries Value Chain and Blue Economy is Critical for Belize's Economic Development (National Fisheries Policy
Economic development from tourism and ecotourism	-Revenue from tourism -Tourism GDP as a proportion of total GDP	-Measure the contribution of travel and tourism to % GDP -Measure the number of direct and indirect related tourism jobs generated in coastal areas proportionate to jobs	

	-Number of jobs in tourism industries as a proportion of total jobs, and growth rate		
Quality of life and well-being (SDG 3)	-Proportion of coastal community that have experience improvement in quality of life	-Percentage of the coastal community satisfied with standard of living	**N/A**
Loss of damage associated with environmental impacts	-Extent of land use planning policies to address coastal communities and agricultural lands from natural hazards	-Percentage of coastal community with access to support from environmental impacts	**Action-**Information on estimates from past storms, NEMO has some information, however lands information center (LIC) that carries out damage assessment
Food security	-Health status of mangrove ecosystem and reef-based fisheries	-Measuring the health status of mangrove and fisheries system can determine the stability of and longevity of food security and the economy	**Action**- Management research, fisheries research and bioprospecting are foundational pillars for the fisheries sector Research is crucial to improve food and nutrition security, increase income and improve livelihoods
Alternative livelihood opportunities	-Proportion of the coastal community that have access to alternative livelihood opportunities	-Measure the percentage of community that have seen increased in income and improve livelihood	
Recreational and tourism benefits	-Number of tourism related jobs and recreational activities	-Measure the number of zoning scheme for sustainable marine recreation and tourism -number of new tourism related jobs	**Action-**Implement an informed Management zoning scheme for the integrated management of activities of the coat to ensure that the coastal resource base yield returns on the benefits from nature to communities in the short, medium and long term
Marine spatial planning	-Access to spatial technologies	-Measure the number of sectors that have integrated marine spatial planning	**Action-**Selectively apply Marine Spatial Planning approach as a tool to integrate and manage cross-sector interest from fishing, tourism, marine research and bioprospecting
Climate change education, public awareness, capacity building and research	-Number of people who have received training -Proportion of population aware of climate change	-Measure the extent of climate change in school curricula at all levels	**Action:** Implement capacity building and training program for the fisheries sector based on priorities identified for policy delivery

Public participation in policymaking process	-number of community representation in the policy making process	-Measure the community representation in the management of coastal resources	-The CZM Act does seem to establish a process of public participation

Annex 17. Forestry sector non-GHG impact and progress indicators

Impact category	Indicators	Description	Projects/Actions
Biodiversity of terrestrial ecosystem	-Areas of protected areas -Percentage of threatened species conserved -Threat status of ecosystems -Quality of ecosystem service -Species richness	-Measure the number of terrestrial protected areas -Measure the number of threatened flora and fauna under conservation -Quality of ecosystem service- Measure the quality of provisioning, regulating and cultural services.	**Action:** Create new or extend current institution, with the requisite capacity and competence, to monitor, distribute and account for all payments of ecosystem services **Action-** Develop and implement mechanisms, such as increased law enforcement and stricter penalties, to reduce incidence of illegal logging, deforestation and squatting **Action:** Promote land usage and planning, contributing to maintenance of forest for timber, biodiversity and ecological services, and forest connectivity with emphasis on abandoned and degraded lands, urban areas and agricultural lands
Land-use change, including deforestation, forest degradation and desertification	-Proportion of land area covered by forest -Area of forest under sustainable forest management -Annual change in degraded or desertified arable land (% or hectares) -**Annual change rate in deforestation (% and ha)**	-Measure the countries percent forest cover -Measure the area of degraded and deforested land from agriculture practices -Measure the country's agriculture land-use type proportionate to forest cover	
Gender equality and the empowerment of women	-Average income for women/men -Proportion of women in the labor force -Proportion of women in senior government positions	-Measure the average yearly income of women/men -Measure the ratio of women in the labor force proportionate to men	**Action**-Promote changes in attitudes and organizational cultures, to break down gender barriers and to provide mutual respect and dignity for all people irrespective of social group, or background. **Action**-Encourage active participation of women and youth in decision-making, resources management and sharing benefits
Protection of poor and negatively affected communities	-Proportion of poor and negatively affected communities under	Percentage of forest dependent communities that received support from direct and indirect threats to climate change	**Action**: Provide guidance for actions to be taken with regards to the direct and indirect threats posed by global climate change on forests and forest dependent people in order to reduce their vulnerability

	sustainable forest financing schemes		
Resilience of ecosystem to dangerous climate change and extreme weather	-Flood intensity -Tree density -Bushfires frequency	-Measure the health status of forest ecosystem from sustainable forest management to increase the resilience of vulnerable communities	
Capacity, skills and knowledge development	-Number of new skilled trainees and workers	- Measure the percentage of the population and number of institutions that have integrated professional skills with traditional knowledge to improve forest management	**Action:** Promoting collaboration amongst people and institutions who are involved in the various aspects of forest management, including timber and non-timber production, integrating professional skills and training with traditional knowledge
Public participation in policy making processes	-number of community representation in the policy making process	-Measure community representation in policymaking process through the number of participations	
Access to information and public awareness (SDG 12)	-Proportion of population that have access to public information via media platforms	-Percentage of the population that have access to information on the importance of forest ecosystem to wildlife, climate stability and human welfare.	**Action-** Develop an awareness campaign to sensitize the forest sector at all levels on the qualities and values of Belize's timber resources, and develop training programs for product development and quality assurance **Action:** Develop and implement a communications strategy aimed at enhancing public awareness about forest as central to wildlife, ecosystem and climate stability and human welfare
Climate change education public awareness, capacity-building and research	- Extent to which climate change is mainstreamed in the national forest policy -Proportion of population aware of climate change -Number of people who have received training	-Percentage of the population that is aware of the impacts of climate change to forest ecosystems and forest dependent communities	
Indigenous rights	-Extent of protection of indigenous traditional knowledge -Extent of empowerment of indigenous communities	Measure community participation in sustainable forest management which includes the recognition and respect of indigenous rights	**Action-** The development and management of natural forest on community-owned and managed land by indigenous people and rural communities

Annex 18. Water sector non-GHG impacts and progress indicators

Impact category	Indicators	Description	Projects/Actions
Water quality (SDGs 6, 14)	-Acidity (pH) -Eutrophication from nutrient pollution (such as phosphorus and nitrogen compounds	-Measure the water quality content in venerable communities (e.g. Low availability of freshwater)	**N/A**
Availability of freshwater	-Water consumption (m3) or total amount of water removed from freshwater sources for human use -Proportion of total water resources use (water scarcity)	-Measure the extraction rate of water from freshwater sources -Measure freshwater resources per capita (cubic meters)	**N/A**
Access to adequate water supply	-Proportion of the population that have access to a steady supply of water	-Measure the percentage of the population that have a good quality and steady water supply	**Action**: Make safe potable water supplies available inadequate quantities 24hrs a day and ensures that every property is provided with an approved means of disposal of domestic wastewater and water borne wastes
Access to safe drinking water	-Percentage of population with access to safe drinking water	-Measure the percentage of the population with access to safe drinking water -Percentage of household that have access to a tap water system	

Annex 19. Health sector non-GHG impacts and progress indicators

Impact category	Indicators	Description	Projects/Actions
Accessibility and quality of healthcare (SDG 3)	-Proportion of people with health insurance or access to public health -**Number and distribution of health facilities per ten thousand population**	-Measure the percentage of the population have received universal health coverage	**Action**: Strengthening of the Belize Health Information System to support evidence-based planning in the provision and delivery of health care
Illness and health (SDG 3)	-**Infant mortality (yearly %)** -**Life expectancy (years)** -**Proportion of population with diagnosed diseases or hospitalized from specific diseases** -Prevalence of diseases	-Measure the cause of mortality among infancy/children -Measure the percentage of the population that have live above 60 years -Measure the number of major causes of morbidity	**Action:** Strengthen disease surveillance; reinforce control of non-communicable diseases **(**notably diabetes and cardiovascular illness) via the use of decision support tools **Action:** Promote health research and strengthen local and international partnership on health information system
Gender equality and empowerment of women (SDG 5)	-Average income for women/men -Proportion of women in the labor force -Proportion of women in senior government positions	-Measures the gender equity gaps in the health sector	The Revised National Gender Policy 2013-Is the framework to address gender equity gaps through structured process engaging stakeholders at all levels
Cost of policy implementation and cost-effectiveness of policies	- Cost efficiency assessment	-**External audit mechanism**	**Action-** Achieving greater equity, cost effectiveness and efficiency in allocation and use of health resources (Improved Health Financing to achieve Universal Health coverage)
Poverty reduction (SDG 1)	-Number of social welfare programs -Number of poverty relief projects	-Measure the mitigation efforts to improve poverty rates	**N/A**

Climate change education, public awareness, capacity-building research	-Extent to which climate change education is mainstreamed in the National Health Policy -Proportion of population aware of climate change -Number of climate change related publishing -Number of people who have received training	-Measure the extent of climate change being integrated in the National Health Policy -Measure the number of climate change related studies in relation to vector borne diseases	**N/A**

Annex 20. List of stakeholders

Stakeholder List

Waste: Belize Solid Waste Management Authority (BSWaMA)

Tourism: Belize Tourism Board (BTB), Ministry of Tourism

Agriculture: Caribbean Agriculture Research and Development Institute (CARDI); Sugar Industry Research and Development Institute (SIRDI); Belize Agricultural Health Authority (BAHA); Food and Agriculture Organization (FAO); Ministry of Agriculture

Energy: Ministry of Public Service, Energy and Public Utilities**;** SOL Belize limited, Belize Electricity Limited (BEL); Farmers Light Plant Corporation (FLPC)

Transport: Transport Department, Punta Gorda Traffic Department, Corozal Traffic Department

Coastal Zone/Fisheries-Coastal Zone Management Authority & Institute (CZMAI); Belize Fisheries Department; World Wildlife Fund (WWF)

Forestry- Belize Forest Department, Toledo Institute for Development and Environment (TIDE), Ya'axche Conservation Trust, University of Belize Environmental Research Institute (UB-ERI), Belize National Indigenous Council (BENIC), Sustainable Development Unit, Programme for Belize

Water- Belize Water Services Limited (BWSL); Hydrology Unit of the Ministry of Natural Resources

Health- Ministry of Health