CTCN Technical Assistance

Request Submission Form

Guidelines:

- This Request Submission Form should be completed by the organisation requesting technical assistance from the Climate Technology Centre & Network (CTCN) in collaboration with the National Designated Entity (NDE) of the country in question
- The Form must be signed by the NDE. Please see updated contact list of NDEs here: http://unfccc.int/ttclear/support/national-designated-entity.html
- The Form can be submitted as a Word file containing a digital signature or as a signed and scanned PDF file in combination with an un-signed Word file
- For requests submitted by multiple countries, all the NDEs of the respective countries shall sign identical Forms before official submission to the CTCN
- NDEs have the opportunity to submit CTCN requests in collaboration with National Designated Authorities (NDAs) for the Green Climate Fund (GCF) if targeting the GCF Readiness Programme.

Requesting country or countries:	**Belize**
Request title:	**Technical Assistance for the development of an integrated and comprehensive agroforestry policy.**
NDE	**Lennox Gladden (PhD)**, Chief Climate Change Officer, **National Climate Change Office**, **Ministry of** Agriculture, **Fisheries, Forestry, the Environment, Sustainable Development**, and Immigration Market Square, Belmopan, Belize Email address: coord.cc@Environment.gov.bz Phone Number: (501)828-5962
Request Applicant:	**Percival Cho (PhD)**, Chief Executive Officer, **Ministry of** Agriculture, **Fisheries, Forestry, the Environment, Sustainable Development**, and Immigration Market Square, Belmopan, Belize Email address: ceo@environment.gov.bz Phone Number: (501)828-5977

Climate objective:

- ☐ Adaptation to climate change
- ☐ Mitigation of climate change
- ☒ Combination of adaptation and mitigation of climate change

Geographical scope:

- ☐ Community level
- ☐ Sub-national
- ☒ National
- ☐ Multi-country

If the request is at a sub-national or multi-country level, please describe specific geographical areas (provinces, states, countries, regions, etc.).

Problem statement related to climate change:

Although Belize, like most small island developing states, is not a major contributor to the release of greenhouse gases (GHG), which has caused rapid climate change, it will be severely affected by its impacts. In Belize, priority economic sectors are at high risk, such as agriculture, tourism, fisheries, coastal development, forestry etc. Impacts to these sectors pose significant obstacles to sustainable economic and social development. These impacts do not affect individual sectors but are interrelated, therefore addressing them requires a cross-sectoral, multidisciplinary and comprehensive approach. As is the case for most SIDS, to effectively implement the United Nations Framework Convention on Climate Change (UNFCCC), cooperation from developed countries and international agencies is needed to build national capacity and increase resiliency.

Due to climate change, the agriculture sector is susceptible to alterations in water supply, agricultural production and growing season leading to crop loss and food shortage, and the spread of pests and diseases. The forestry sector may experience changes in growth patterns and productivity, habitat loss and decreased defense against pests, diseases and forest fires.

Although agriculture, forestry and other land uses (AFOLU) is a major contributor to emissions of GHGs, it can also be a major sink for emissions reduction. Forestry, especially converting forests for agricultural use, leads to deforestation and an increase in the concentration of GHGs in the atmosphere. However, with sustainable forest and land management practices, such as agroforestry, these ecosystems can sequester a significant amount of carbon while still meeting the needs of society. Therefore, one way to adapt to and mitigate the effects of climate change is to manage this natural resource sustainably and in a manner that allows growth without extensive deforestation.

The need for agricultural and forest products continues expanding. Hence, sustainable production in both sectors is necessary while still maintaining current national levels of forest cover. Agroforestry poses part of the solution to deforestation, reduction in GHG emissions, and the need for more productive and sustainable use of resources. Agroforestry systems manage trees and crops and/or animal production together to create more diverse, profitable, healthy, ecologically sound and sustainable land uses. It has a strong potential to address food insecurity and, if done properly, it allows farmers to make the best use of their land, boost crop yields, diversify income, and decrease

vulnerability to climate change. It also helps to control soil erosion and runoff by reducing the loss of water, soil material, organic matter and nutrients.

Unlike traditional forestry and agricultural systems, agroforestry can serve as a tool in mitigating and adapting to climate change. This system decreases deforestation by providing farm-grown forest products or forest-grown farm products, which in turn increases sequestration of carbon by trees, and provides habitats and crossing for wildlife. Agroforestry will also lead to a reduction in the unsustainable local practice of clearing forested areas for agricultural purposes.

Currently the importance of agroforestry is well known amongst stakeholders, but implementation is fragmented. A policy will set forth a clear and comprehensive roadmap for integrating agroforestry in small and large-scale farms and increasing national capacity. In the National Forest Policy, the Government of Belize (GOB) aims to reduce deforestation and forest degradation. Agroforestry is one strategy that can be used to reach this target. The Government of Belize (GOB) aims to promote the development of agroforestry in forest areas which directly buffer community lands (where the pressure for agricultural expansion is strongest). This is necessary to maximize the economic output of forest buffer zones. The government also aims to promote sustainable management of private lands by developing the capacity of the public to initiate agroforestry activities. Belize holds great potential for implementing agroforestry and many efforts have been carried out to strengthen capacity in this regard. Hence, a National Agroforestry Policy will aid in guiding Belize towards a more sustainable future. Support is needed from CTCN to develop such a strategy.

Past and on-going efforts to address the problem:

Belize has committed itself to developing, adopting and implementing policies and measures to mitigate the adverse effects of climate change and adapt to its changes. The Government of Belize through the Ministry of Agriculture, Forestry, Fisheries, the Environment and Sustainable Development recognized the need for a National Climate Change Policy, Strategy and Action Plan (NCCPSAP) to address the vulnerabilities to climate change of key productive sectors and the adverse effects it may have on social and economic development of the country. This policy aims to facilitate the conservation, utilisation and sustainable use of the forest resources while ensuring the establishment of climate resilient cropping/livestock agricultural systems; all in an effort to mitigate climate change and foster climate resilience in these sectors.

In the agriculture sector, governmental and non-governmental organizations have taken interest in agroforestry. In October 2014, the Toledo Institute for Development and the Environment (TIDE) along with the National Climate Change Office (NCCO) held a two-day training program entitled, “Agroforestry and Riparian Reforestation Exchange: Tools for Climate Change Adaptation and Mitigation.” The training allowed community leaders to gain and share first-hand experiences in agroforestry and to gain new skills.

The Ya’axche Conservation Trust (YCT) has also been promoting agroforestry in Southern Belize, where many subsistence farmers reside. In 2014 they received a 936-acre agroforestry concession within the Maya Mountain North Forest Reserve from the GOB. YCT has implemented a sustainable cacao-based program, growing cacao under the forest canopy along with other crops, reaching out to hundreds of families. In June 2016 they partnered with the University of Missouri and the University of Belize – Environmental Research Institute to host a three-day training workshop on agroforestry. The Belize Foundation for Research and Environmental Education (BFREE) also has a successful model, they have developed over 13 acres of certified organic shade grown cacao and coffee for their Belize Cacao-based Agroforestry Project. The five-year project began in October 2012. BFREE and Ya’axché also hosted a Cacao and Agroforestry Forum in July 2017, where they brought together farmers, NGO representatives, community leaders, and government representatives.

The National Forest Policy recognizes the need for agroforestry, as does the National Food and Agriculture Policy, which states that the government will promote agroforestry as an alternative livelihood for farmers and businessmen. It is evident from these efforts that government and non-governmental sectors know and recognize the importance of agroforestry in providing alternative livelihoods, increasing food production, security, and diversification, and decreasing deforestation and reducing GHG emissions.

Specific technology[1] barriers:

Although many farmers and public and private sectors have realized the importance of agroforestry for sustainable development, there are still many obstacles in its widespread diffusion. Currently, agroforestry is practiced mostly by small-scale farmers; on farms that average between 10 to 25 acres. It is often difficult to implement agroforestry on a commercial level because large-scale farmers prefer conventional agricultural methods.

There is a lack of knowledge about the benefits of agroforestry. Farmers rely on traditional crops, such as corn, beans, oranges, and on monoculture systems because they know that they will generate immediate income. Many are unaware of the improvement in yields and income through agroforestry technologies. There are farmers that know of the benefits but, due to lack of experience and limited capacity, they are not able to implement it. Trainings in agroforestry have taken place but these events have not targeted a wide range of stakeholders. As such, many farmers remained untrained with respect to agroforestry.

Currently, most agroforestry activities involve growing trees in areas that have been cleared for growing crops or raising livestock. However, there is lack of technology in moving from the field into the forest. Very few farmers have experience in moving to the forest and growing crops among trees, thus reducing deforestation. This form of agroforestry is known as forest farming and it involves growing high-value non-timber forest products under the protection of a forest canopy that provides optimum shade and site conditions. Although some organizations have been striving to implement this form of agroforestry, such as Ya'axché Conservation Trust, it is mostly isolated with a few farmers in Southern Belize. Great efforts are needed for national implementation.

Many farmers do not want to invest in agroforestry because it has a delayed return on investment. The breakeven point for some systems occur after several years; meaning that farmers must absorb the initial net losses before they see returns from their investment. This makes many farmers hesitant because they do not have the financial resources to absorb such initial losses.

Seed availability is another barrier to implementation. In Belize there is limited capacity for proper seed collection, propagation and multiplication of tree seeds. Therefore, tree germplasm of certain standards is often difficult to obtain. The genetic quality of seeds is crucial in the success of agroforestry projects.

A major drawback is the lack of a policy specifically for agroforestry. While many projects in Belize have dealt with agroforestry and many other national policies have emphasized the importance of agroforestry, there is the absence of a legal policy for its implementation.

With the technical assistance of the CTCN these barriers could be overcome if a focused policy is

[1] *"**any equipment, techniques, practical knowledge and skills** needed for reducing greenhouse gas emissions and adapting to climate change" (Special Report on Technology Transfer, IPCC, 2000)*

developed to address these barriers and promote research and capacity development in agroforestry and the establishment of new projects.

Sectors:

Please indicate the main sectors related to the request:

☐ Coastal zones	☐ Early Warning and Environmental Assessment	☐ Human Health	☐ Infrastructure and Urban planning
☐ Marine and Fisheries	☐ Water	☒ Agriculture	☐ Carbon fixation
☐ Energy Efficiency	☒ Forestry	☐ Industry	☐ Renewable energy
☐ Transport	☐ Waste management		

Please add other relevant sectors:

Cross-sectoral enablers and approaches:

Please indicate the main cross-sectoral enablers and approaches

☒ Communication and awareness	☐ Economics and financial decision-making	☒ Governance and planning	☒ Community based
☐ Disaster risk reduction	☒ Ecosystems and biodiversity	☒ Gender	

Technical assistance requested:

The overall objective of this request is to obtain technical assistance from CTCN to develop an integrated and comprehensive agroforestry policy that will aid in mainstreaming this form of Sustainable Forest Management.

Activities:

- Analysis of gaps, constraints, issues and strengths that exist in the agroforestry sector in Belize and gaps and constraints that hinder its adoption countrywide
- Generate solutions to the challenges encountered
- Enhance and mobilize technical capacity of farmers, farming institutions, NGOs, academia, etc. in agroforestry
- Conduct stakeholder consultation workshop to gain feedback on past and ongoing efforts in agroforestry and identify the most important needs of farmers
- Establish effective links among farmers, research institutions, academia, NGOs, and development partners to ensure knowledge sharing
- Site visits to established agroforestry project sites in the country to gain insight on their strengths and weaknesses

- Review the National Forest Policy and National Food and Agriculture Policy and other relevant documents and make recommendations for stronger integration of agroforestry
- Assistance in sourcing adequate funds and in identifying a consultant that can continue where CTCN's technical assistance ends and develop the agroforestry policy

With this assistance it is expected that the weaknesses and strengths in agroforestry will be identified and aid in building the technical capacity of farmers and other institutions to implement this form of SFM. It is also expected that stronger ties will be established among stakeholders and that more farmers will realize the benefits of practicing agroforestry and move away from more traditional forms of farming. At the end of CTCN's assistance it is expected that a consultant experienced in agroforestry and policy development will be identified to develop the agroforestry policy in collaboration with the Government of Belize and all relevant stakeholders. Additionally, we would request assistance in identifying funding sources that can assist in the effective completion of the agroforestry policy.

Expected timeframe:

It is expected that this activity would be completed within a period of 7 months from its conception.

Anticipated gender and other co-benefits from the technical assistance:

Women are often involved in agricultural practices and in agroforestry systems. However, most times they do not receive as much benefits as men. The Toledo district in Southern Belize has the highest concentration of farms in the country; about one-fourth of all farms, most of which are small scale. These small-scale farms are cultivated by both men and women; but men form the majority of decision makers. Despite their crucial role in agriculture, women in Belize remain disadvantaged due to cultural, social and economic factors. These factors usually include limited access to resources and limited participation in household decision making.

With the development of a policy for the implementation of agroforestry some of barriers women face can be addressed to promote gender equity. Gender sensitive interventions are needed to facilitate the formation of women's associations, to assist women to improve productivity and marketing of products and improve women's capacity by providing more trainings for women and ensuring women are always represented in meetings.

Agroforestry also provides alternative livelihoods to male and female farmers who have relied on unsustainable, traditional methods in the past. This can diversify the economy and lead to many other social benefits, such as reduced poverty, by increasing income through the production of wood, tree products, and NTFPs, increasing subsistence by increasing food security and improving health by diversifying farm products consumed.

Agroforestry cultivation of high value crops that are not widely grown in Belize can be introduced, focusing on strengthening women's leadership in farming. Traditional small-scale vanilla farming, for example, can be done in the forest, as the orchid requires a host tree and shade to grow. Introduction of vanilla can lead to the formation of women's groups and farming cooperatives to be trained in vanilla farming and marketing. Growing vanilla requires extensive knowledge and is labour intensive but the crop has low impact on the forest and can generate high revenue. This can greatly diversify women's engagement in agroforestry and can then be expanded to incorporating more men in the venture. Currently, the Belize Spice Farm grows vanilla, using Madre de Cacao trees as host, which grow quickly and fix nitrogen. Their efforts can be studied to develop an appropriate method for growing in the forest.

The Growth and Sustainable Development Strategy 2016 – 2019 of Belize places emphasis on

promoting sustainable livelihood programs in ecologically sensitive areas. Agroforestry programs can be developed in several communities with concepts for sustainable production, especially in forest buffer communities, to teach farmers sustainable management methods and move away from traditional farming.

Key stakeholders:	
Stakeholders	**Role to support the implementation of the technical assistance**
National Climate Change Office, **Ministry of** Agriculture, **Fisheries, Forestry, the Environment, Sustainable Development**, and Immigration	Oversight, planning and coordination of all activities being implemented.
Ministry of Agriculture, **Fisheries, Forestry, the Environment, Sustainable Development**, and Immigration	Providing oversight, direction and coordination to all activities. Ensuring that the deliverables of the project have widespread government support.
Agriculture Department	Technical and logistical assistance, provision of information and resources
Forest Department	Technical and logistical assistance, provision of information and resources
Public & private sector, NGOs, CBOs, Farmers, Educational & research institutions	Participation in stakeholder consultations and development of the policy

Alignment with national priorities:	
Reference document (please include date of document)	**Extract** (please include chapter, page number, etc.).
Nationally Determined Contribution (NDC) - 2016	The mitigation section in the NDC places great emphasis on sustainable forest management and one way to achieve this is through agroforestry. This can be found in Section 3, Mitigation, on page 4, under the activity "reserves and sustainable forest management.'' Agriculture and forestry are both identified as priorities, emphasizing sustainable management of resources and increasing resilience against climate change. This can be found in Section 4, Adaptation, under "Priority Sectors" on pages 12 and 13.
Technology Needs Assessment (TNA)	

TNA – Mitigation – September 2017	Agroforestry was identified as a prioritized sector in the preparation of the TNA Mitigation Report. It is discussed throughout the report on pages 75, 86, 87, 90, 91, 92, 96, 102, 131, 132, 135, 138, 141, 198, 199, and 200.
TNA – Adaptation – June 2017	Agroforestry was also identified as a prioritized technology for the agriculture sector in the TNA Adaptation Report. It is discussed on pages 12, 51 – 53, 55, 66, 69, 91, 142, and 171 – 173.
National Forest Policy - 2015	The policy identifies the importance of developing the capacity of individuals in agroforestry for sustainable management of private lands and forests in buffer communities. This can be found in Section II, The Forest Policy, sub-section 4, Policy Statements. Policy Statement 6 on page 45 focuses on developing capacity for agroforestry on private lands and Policy Statement 9 on page 47 promotes the development of agroforestry in buffer communities where there is pressure for agricultural expansion.
National Food and Agriculture Policy – 2002 - 2020	The NFAP states that the Agriculture Department will promote agroforestry to farmers and businessmen. This can be found in Chapter 6, Agriculture Policies, Section 6.2, Policy, Subsection vi, Improve and conserve the natural and productive resource base to ensure long term sustainable productivity and viability, on page 35.
Third National Communication - 2016	The TNC emphasize the importance of agroforestry in Chapter 5, section 5.2, subsection 5.2.3, page 142 where it discusses agroforestry trainings that have taken place.
National Climate Change Policy Strategy and Action Plan	Page 95 of the policy states the main objective of interventions in the agriculture sector while page 98 states the objectives for interventions for the forestry sector.

Development of the request:

This request was developed based on several stakeholders voicing the importance of agroforestry to increase resilience against climate change. Many NGOs and farming groups have proven that agroforestry can be successful in Belize.

The request was developed by the National Climate Office, along with the Nationally Designated Entity, considering the needs of farmers and relevant stakeholders and the need for a policy to mainstream agroforestry countrywide. The CEO of the Ministry of Fisheries, Forestry, the Environment, and Sustainable Development sees agroforestry as a crucial step in conserving forests and in building resilience against climate change.

The Government of Belize also recognizes that, although the country has a high percentage of forest cover remaining, these are under threat from deforestation and agricultural expansion. In 2014, to promote sustainable land management, the GOB granted 379 hectares agroforestry concession to Ya'axché in the Maya Mountain North Forest Reserve. It is the first agroforestry concession to be granted in a protected area. They were also granted co-management of the area in late 2015. The program has focused on cacao farming, but other crops are also grown, such as plantains, honey, and a variety of vegetables. In 2017 over 58,000 cacao trees had been grown, as well as other crops, aiding

farmers who had no land in establishing profitable alternative livelihoods. This establishes Ya'axché Conservation Trust (YCT) as a leader in the field and their model can be used as an example in other protected areas, with support from the government in promoting sustainable agriculture and alternative livelihoods.

Several government officials in the Ministry of Fisheries, Forestry, the Environment and Sustainable Development, as well as other line ministries, have also expressed the importance of implementing agroforestry to ensure sustainable management of our resources. Thus, sustainable forest management measures, such as agroforestry, are necessary to ensure that our resources are not overexploited.

Background documents and other information relevant for the request:

- Please list all relevant documents that will help the CTCN analyze the context of the request and national priorities. Please note that all documents listed/provided should be mentioned in this request in the relevant section(s), and that their linkages with the request should be clearly indicated. For each document, please provide web-links (if available) or attach to the submission form. Please add any other relevant information as required.
- Nationally Determined Contributions (NDC) (2016)
- National Forest Policy 2015
- National Food and Agriculture Policy 2002 - 2020
- Technology Needs Assessment Adaptation Report
- Technology Needs Assessment Mitigation Report
- Growth and Sustainable Development Strategy 2016 – 2019
- National Climate Change Policy, Strategy, and Action Plan to Address Climate Change in Belize

Please indicate if this request has been developed with the support of the CTCN Request Incubator.
This request was not developed with the support of the CTCN Request Incubator.

OPTIONAL: Linkages to Green Climate Fund Readiness and Preparatory Support

The CTCN is collaborating with the GCF in order to facilitate access to environmentally sound technologies that address climate change and its effects, including through the provision of readiness and preparatory support delivered directly to countries through their GCF NDA. These actions are in line with the guidance of the GCF Board (Decision B.14/02) and the UNFCCC, particularly paragraphs 4 and 7 of 14/CP.22 that addresses Linkages between the Technology and the Financial Mechanisms[2].

The CTCN is therefore implementing some of its technical assistance using GCF readiness funds accessed via the country's NDA. Any application for GCF support, including the amount of support provided, is subject to the terms and conditions of the GCF and should be developed in conjunction with the NDA.

Please indicate whether this request has been identified as preliminarily eligible by the NDA to be considered for readiness support from the GCF.

☐ Initial engagement: The GCF NDA of the requesting country has been engaged in the design of this request and the NDA will be involved in the further process leading to an official agreement for

[2] Please see:
https://unfccc.int/files/meetings/marrakech_nov_2016/application/pdf/auv_cop22_i8b_tm_fm.pdf

accessing GCF readiness support.

☐ Advanced engagement (preferred): The GCF NDA of the requesting country has been directly involved in the design of this request and is a co-signer of this request, the signature indicating provisional agreement to use readiness national funds to support the implementation of the technical assistance.

NDA name:

Date:

Signature:

Monitoring and impact of the assistance:

By signing this request, I affirm that processes are in place in the country to monitor and evaluate the technical assistance provided by the CTCN. I understand that these processes will be explicitly identified in the CTCN Response Plan and that they will be used in the country to monitor the implementation of the technical assistance following standard CTCN procedures.

Signature:

NDE name: Lennox Gladden (PhD)

Date: 2018/03/09th

Signature: 

THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG

The CTCN is available to answer all questions and provide guidance on the application process.