

The header features a blue background with a white curved line on the left. Below this line are images of green leaves, a circular graphic with red, black, and white segments, and a greenhouse. The title is centered in white text on a dark blue background.

Building Climate Resilient Agriculture in Caribbean Countries: Trinidad and Tobago

Trinidad and Tobago's Agriculture Sector in Context

Although Trinidad and Tobago's (T&T) agriculture sector contributes only 1.2% of its gross domestic product (2020), the sector accounts for over 4% of employment and is important for the diversification of the economy. The agriculture land area is 10.5% of the total land area and supports the production of vegetables, root crops, fruits, rice, poultry, pig, and milk and beef cattle.

The agriculture sector is threatened by climate change and increasing biophysical impacts, which include lower precipitation, higher temperatures, soil aridity, and salinisation of soils and groundwater from coastal inundation. The installation of irrigation systems to address these climate risks to farming activities is already occurring at significant expense to farmers, and uptake is limited amongst subsistence farmers with limited resources. Agricultural production in the central and southern parts of Trinidad faces high vulnerability to climate change while the northern parts and Tobago are not as vulnerable.

The COVID-19 pandemic has had a significant impact on T&T, with an increased rate of food inflation and food prices,

attributed largely to a surge in international commodity prices. However, the influx of migrant workers from Venezuela was a positive factor that helped to boost food production. Other positive impacts were the increase in online sale and delivery services of agricultural produce, increase in value-added commodities from local foods, such as cassava and sweet potato flour, packaging of a range of other commodities from herbs to vegetables and food crops. Institutions such as the Caribbean Agricultural Research and Development Institute (CARDI) and the Inter-American Institute for Cooperation on Agriculture (IICA) have been providing training promoting the use and consumption of local foods in agro-processing, good manufacturing processes, and health and safety.

Agriculture in T&T's Nationally Determined Contribution (NDC)

Trinidad and Tobago submitted its initial NDC (iNDC) in 2018 but did not include agriculture in its mitigation targets. Adding to this, the country chose not to include adaptation in its NDC, as it had a sole focus on emissions reduction. The Government of T&T has noted that due to the dearth of data in the agriculture sector, it has proved difficult to conduct the required mitigation analysis on

the sector, in order to determine potential for emissions reduction. The country's Third National Communications (TNC) is referenced for adaptation actions in the agriculture sector that include climate smart agriculture as an adaptation goal.

Emissions Profile for Agriculture in T&T

The agriculture sector is estimated to have produced 192 Gg CO₂ eq in 2018, which is only 0.4% of the total country Greenhouse Gas (GHG) emissions (excluding Forestry and Other Land Use). The largest source of agricultural emissions is indicated to be enteric fermentation (41.8% of agriculture emissions), biomass burning and urea application. However, emissions from indirect N₂O from managed soils are in question which would require validation to support any future contribution to NDCs.

Barriers to Inclusion of CRA Actions in NDCs

There have been challenges to including the agriculture sector in T&T's mitigation ambition, the greatest of which is unavailability of data to conduct the required mitigation analysis, and as such, priority is given to the sectors with the most significant emissions. Notwithstanding, as identified in the TNC, Trinidad & Tobago has:

- A low level of Monitoring, Reporting and Verification (MRV) capacity in the Agriculture, Forestry and Other Land Use (AFOLU) sector.
- Limited data availability, particularly in the AFOLU sector. The agriculture sector largely relies upon FAOSTAT data to develop its GHG emission estimates and has identified improved agricultural data as an objective for future GHG inventories.
- Agricultural policies that do not acknowledge climate change or identify climate actions.
- Low levels of awareness of the NDC (its goals and purpose) amongst farmers, extension officers, and government workers, impacts the collection of data, the implementation of mitigation or adaptation actions, fundraising, and many other factors.

Further barriers include:

- Lack of information on climate impacts on specific commodities.



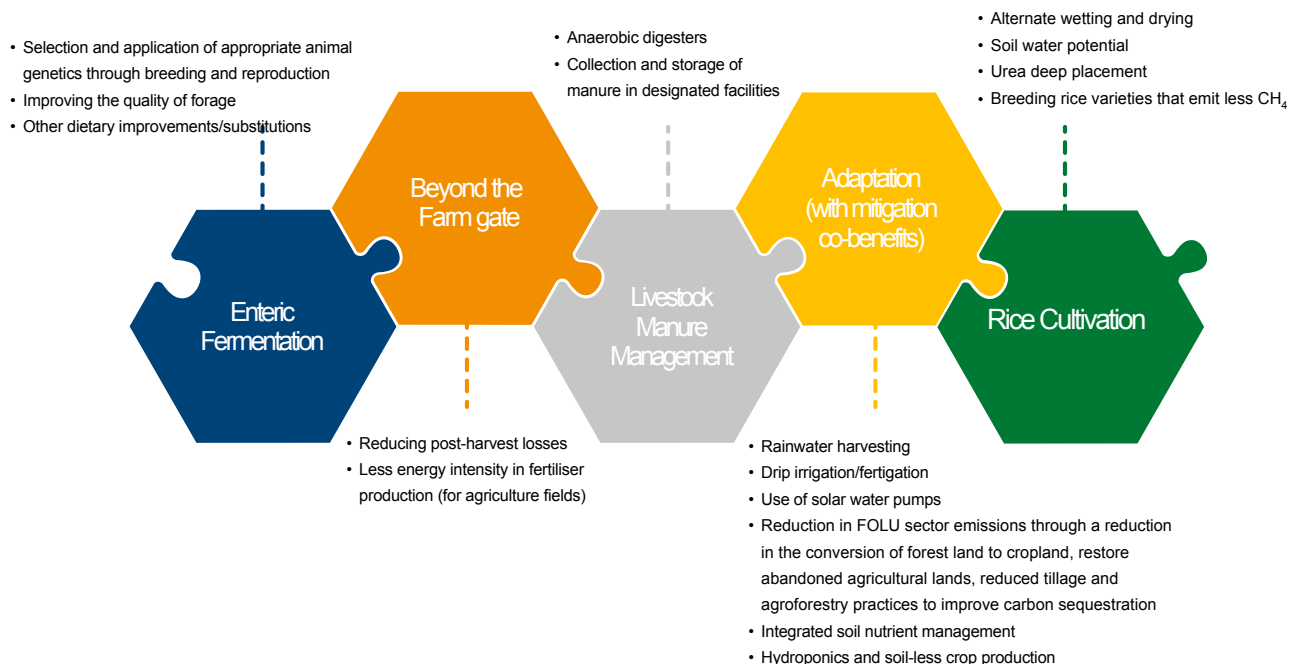
Source: ©NAMDEVCO, accessed August 16, 2022, <https://www.namdevco.com/>

- Limited knowledge and application of climate-resilient practices.
- Insufficient technical capacity amongst stakeholders to employ data and plan for forthcoming climate changes.
- Outdated technology and low levels of mechanisation.
- Lack of infrastructure to control exposure to changing climate conditions (e.g., greenhouses).
- Absence of agricultural insurance.
- Overuse and misuse of chemical fertilisers and pesticides.
- Absence of official safety standards and facilities for testing residual pesticide/chemical levels.
- The cost of infrastructure for irrigation is prohibitive and some farmers have been forced to reduce the amount of land under cultivation, which ultimately reduces domestic food security.

Opportunities for Building CRA and Enhancing Climate Ambition in Trinidad and Tobago's NDCs

T&T can reduce emissions within its agriculture sector by targeting crop and livestock production. The most significant emission sources are fertiliser applied to agricultural fields, enteric fermentation, and manure management. Rice cultivation is occurring within T&T; however, emissions are shown to be very low (0.2 Gg CO₂e) compared to the rest of the agriculture sector so not a lot of attention is received by this category. Improving the emission data for rice cultivation could assist in providing a more accurate assessment of its contribution and assessing the feasibility of emission reduction options for this category.

Opportunities for enhancing CRA in Trinidad and Tobago



Priority Capacity Needs and Key Approaches for Enhancing Agriculture's Contribution to Future NDCs

Capacity Needs for Building CRA in Trinidad and Tobago

- Technical capacity to develop GHG inventories and run mitigation scenarios.
- Data availability, quality, and archiving, especially for analysis and tracking of GHG emissions.
- Research and development, including validation of technologies prior to adoption.
- Access to climate information decision support for policy and on-farm planning and management.
- Incorporation of digital technology in decision-making.
- Enhancing capacity of extension and other advisory services for CRA.
- CRA mainstreamed in agriculture policies and proactively implemented.
- Multi-level governance and enhanced coordination across the food value chain.
- A comprehensive agriculture sector development plan and accompanying financing strategy.
- Long-term climate change strategy that supports achievement of food and nutrition security objectives.
- Outreach and awareness to farmers and manufacturers to support changes in practices and behaviours, aligned with national climate and other policies.
- Traceability, especially for MSMEs to produce value added that meets international standards. Technologies, including pressurised irrigation and protected agriculture cooling systems, and investment in rainwater harvesting and storage (from the latest TNA).

Approaches and Steps to Enhancing Agriculture's Contribution to Future NDCs

- Alignment of agricultural climate targets, policies, and actions with NAPs or SDGs.
- Enhancing financing for climate resilient agriculture.
- Strengthening Monitoring, Reporting and Verification (MRV) systems for better inventories, assessments of mitigation potentials or assessment of access to finance.
- Improvement of agricultural innovation and extension services.
- Identification of policies and measures to equitably clarify land tenure, protect small-scale farmers, and engage the private sector in the CRA transition.
- Identification or prioritisation of actions that support both mitigation and adaptation.
- Improved description of co-benefits for mitigation and/or adaptation actions.
- Link to niche markets that could incentivise sustainable, lower emission products.

The *Strengthening the Foundation for a Climate Responsive Agricultural Sector in the Caribbean Readiness Project* (CARICOM AgReady), financed by the Green Climate Fund, targets nine countries in the CARICOM region with The Ministry of Environment and Housing of The Bahamas as the lead National Designated Authority (NDA) and the Inter-American Institute

for Cooperation on Agriculture (IICA) as the delivery partner. Covering Bahamas, Belize, Dominica, Haiti, St. Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, and Trinidad and Tobago, the project works to provide information and tools to enable greater participation from the agriculture sector in climate action and finance processes.



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