Building Climate Resilient Agriculture in Caribbean Countries: Suriname

Suriname's Agriculture Sector in Context

Agriculture is a key economic sector in Suriname that saw a decline in Gross Domestic Product from 9.5% in 2010 to 8.5% in 2020. Small scale operations dominate the sector, which has approximately 10,000-12,000 farmers who produce rice and bananas, poultry, cattle, pigs, and small ruminants, providing employment and income to some 17% of the economically active population. Employment in the sector is typically part-time and the majority of farms range from a few hundred m2 to 2-3 ha. 85% of the land suited for agriculture is found on the coastal plain, while in the interior, indigenous and tribal peoples depend on the forest as a source of food, fuel, medicine, and agriculture, using shifting cultivation. Agriculture is mainly rainfed, with limited application of irrigation technology. Small farms in Suriname are typically characterised by low levels of specialisation, knowledge and skill, inferior technology, low capital investment, uncertain levels of production, and poor productivity.

Agriculture is a priority sector for the Government, but limited land resources (less than 10% of the land is suitable for agriculture) and water management issues constrain the future development of the sector. The location of sector assets on the coast makes them vulnerable to coastal erosion and the sector has suffered damages linked to heavy rainfall, flooding, droughts, increased temperatures, and high winds. Saltwater intrusion, variations in rainfall patterns, and other climate change impacts could lead to a decrease in available productive land, which could have negative repercussions on national food security and export earnings. In addition to the challenges and risks to agriculture that are attributable to climate variability and change, the COVID-19 pandemic, the Russia-Ukraine war, and other externalities have had a detrimental impact on demand dynamics and supply chains.

Agriculture in Suriname's NDC

In 2015, Suriname reported its initial Nationally Determined Contribution (iNDC), which was revised to an updated NDC (uNDC) in December 2019. The iNDC did not explicitly mention agriculture in mitigation targets, but for adaptation, unconditional contributions linked to the sector were specified, and included: (i) rehabilitation and enhancement of infrastructure such as dikes and river defence; (ii) improvements in water resources management; (iii) promotion of sustainable land management, and (iv) application of innovative technologies in the use of land.

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Source: © UNDP Suriname, accessed August 17, 2022, https://www.undp.org/suriname/news/climate-smart-agriculture-boosts-farmers-suriname

The profile of agriculture was raised in Suriname's uNDC in recognition of the fact that agriculture is a source of emissions, while being strongly impacted by climate change. The agriculture sector was therefore prioritised as one of four mitigation contributing sectors, though no sector-specific targets were defined in the uNDC. As regards adaptation, in addition to the actions identified in the uNDC, the Suriname National Adaptation Plan 2019-2029 describes in detail how NDC adaptation commitments are going to be achieved, and included the following four strategic objectives:

- Comprehensive national research programme on climate resilient crops, agricultural practices, animal husbandry, and fisheries.
- Integration of climate resilience into agricultural extension services.
- Development and implementation of a Sustainable Agriculture Policy, including relevant climate resilience mechanisms in existing and new regulations.
- Financial support to farmers, pastoralists, and fisherfolk to build up climate resilience.

Emissions Profile of the Agriculture Sector in Suriname

Suriname has recently updated its inventory as part of the Third National Communications (NC), and from which the draft updated time-series for 2000 to 2017 for the agriculture sector was obtained. The recalculated 2008 data, based on country-specific livestock population and cropland data, shows that rice cultivation was still the dominant emitter at 52.2% of sector emissions, but direct N2O emissions from soils was the second highest contributor at 19.8%, followed by enteric fermentation (13.9%). The total recalculated agriculture emissions for 2008 were 480 Gg CO2e, which is much lower than the 2008 data in the Second NC, which was based on FAOSTAT data. The 2017 data shows a similar pattern as the recalculated 2008 data but with a slightly increased percentage from rice cultivation, and a decreased percentage from direct nitrous oxide (N2O) and enteric fermentation. Total agriculture emissions in 2017 were estimated at 428.68 Gg CO2e.

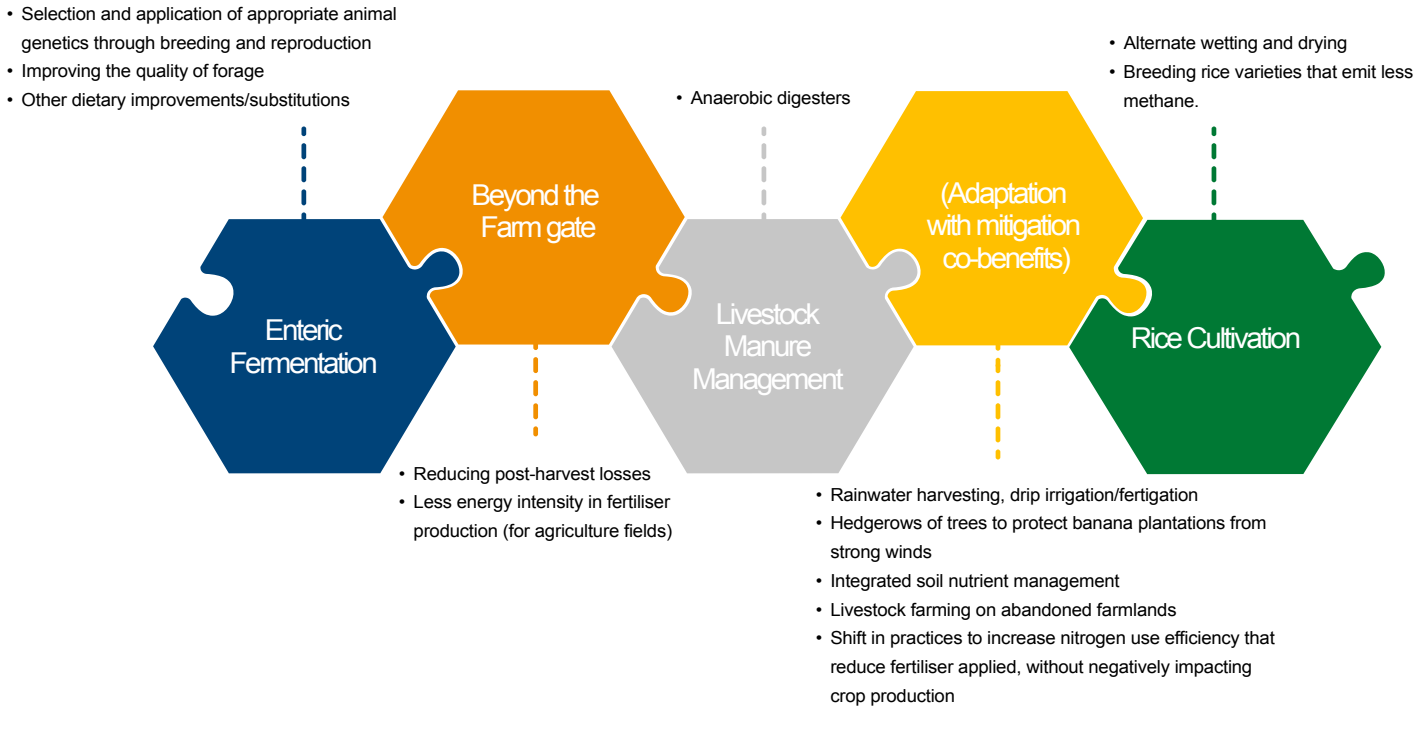
Barriers to Inclusion of CRA Actions in NDCs

While Suriname has prioritised agriculture inclusive of Climate Resilient Agriculture (CRA) actions in its NDCs for both mitigation and adaptation, the following factors will constrain implementation as well as enhanced ambition:

- Limitations in availability and accessibility of required data to support NDC-related analysis, target setting, monitoring, reporting, and verification, as well as GHG inventory profiling.
- Inadequate data management and integration across the sector.
- Human and financial resources inadequacies to address mitigation and adaptation goals, for example, as regards facilitating the transition to new technologies, new practices, or new types of crop production.
- Financial institutions lacking the requisite know-how on agricultural finance and value chain financing.
- Limitations in institutional capacity, coordination efforts, and commitment from key stakeholders.
- Prevalence of land tenure insecurity.
- Reluctance of farmers to do business with a formal financial institution.Opportunities for Building CRA and Enhancing Climate Ambition in NDCs

Through government and donor support, Suriname has implemented several CRA programmes and projects. To further the CRA transition as well as agriculture sector-related climate ambition in NDCs, the country should give consideration to emissions sources within the sector and options for reducing them. Mitigation actions addressing emissions from rice cultivation, livestock manure management, enteric fermentation, and nitrogen inputs to agricultural fields provide opportunities for enhanced mitigation actions in future versions of the NDC but will need further evaluation for their economic and social feasibility. Additional climate ambition can be enhanced through measures beyond the farmgate, more widespread implementation and quantification of adaptation actions, and associated mitigation co-benefits.

Opportunities for enhancing CRA in Suriname



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

Capacity Needs for Building CRA in Suriname

- Technical capacity to develop GHG inventories and run mitigation scenarios.
- Data availability, quality, and archiving.
- Research and development, including validation of technologies prior to adoption.
- Incorporation of digital technology in decision-making.
- Enhanced extension, research and development, climate and other advisory services that provide sound technical assistance and technology transfer to the sector on viable CRA practices.
- Enhanced multi-level governance and coordination across the food value chain.
- Financing to facilitate transition to new technologies, new practices, and new types of crop production.
- Training and technical guidance in climate resilient crop and livestock production systems, including water resource management, integrated farming systems, improved irrigation efficiency, and climate resilient livestock breeds.
- Infrastructure development to conserve water, provide irrigation or fast drainage, and protect agriculture from saltwater intrusion.
- Enhanced engagement of the private sector to promote wider adoption of CRA, including outreach and awareness to farmers and manufacturers to support changes in practices and behaviours, aligned with national climate and other policies.

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

- Alignment of agricultural climate targets, policies, and actions with National Adaptation Plans or Sustainable Development Goals.
- Enhancing financing for climate resilient agriculture.
- Strengthening Monitoring, Reporting and Verification 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 incentivize 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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