

# Building Climate Resilient Agriculture in Caribbean Countries: The Bahamas

## The Bahamas' Agriculture Sector in Context

The Bahamas is an open economy and is therefore vulnerable to external economic uncertainties and geopolitical upheavals, coupled with its susceptibility to climate shocks and stressors by virtue of its geography. The Bahamas' economy experienced a steep decline in 2020 with Gross Domestic Product (GDP) falling to USD 11.25 billion from USD 13.58 billion in 2019. This was due, in large part, to the associated ongoing effects of the passage of Hurricane Dorian in 2019, coupled with the onset of the COVID-19 pandemic which, in 2020, complicated the recovery efforts. Agriculture in The Bahamas is primarily subsistence in nature, mainly because of the unavailability of arable land. Ninety percent of consumption in The Bahamas is imported food. The tourism sector, which accounts for 50% of GDP, imports all its food to feed the tourists. The sector employs approximately 2% of the workforce and along with fisheries contributes an overall 5% of GDP. The priority crops and livestock for The Bahamas are citrus crops (lemons, limes, and oranges), bananas, tomatoes, potatoes, peppers, mangoes, coconuts,

and cucumbers. Livestock categories are cattle, goats, sheep, pigs, and poultry.

The Bahamas has a fledgling agro-processing industry that is constrained by inconsistent and inadequate supply of raw material and inadequate agro-processing technologies resulting in high spoilage, according to the Bahamas Agricultural Industrial Corporation. In addition, because of the subsistent nature of its agriculture, most of the local produce is consumed in the primary state. Honey, however, is an industry that demonstrates economic potential.

## Agriculture in The Bahamas' NDCs

In its initial Nationally Determined Contribution (NDC) (2016), The Bahamas had broadly defined adaptation priorities for the agricultural sector. The country stated that it would embark on (i) the formulation and implementation of food security and sustainable food production strategies and (ii) measures to reduce the overall import dependency and strengthen food security. As of August 2022, The Bahamas has not submitted its updated NDC.



Source: Rolle, Jonathan, accessed August 2022, <http://bahfarming.weebly.com/the-future-of-farming-in-the-country.html>

## Emissions Profile for Agriculture in The Bahamas

The emissions profile for Bahamian agriculture in 2018 was 14.23 Gg CO<sub>2</sub>e, representing 0.24% of the total national emissions (excluding forestry and other land use). The most significant source of emissions is nitrous oxide (N<sub>2</sub>O) from managed soils, and this was attributed to nitrogen-based fertiliser application, as well as dung and urine inputs from livestock. Enteric fermentation is the second largest emission source, and based on livestock population numbers (5 dairy cattle, 101 other cattle, 2,142 sheep, 6,147 goats, 264 horses, 100 mules, 7,059 swine, and 114,000 chickens in 2018), much of these emissions are from small ruminants. Poultry does not contribute to enteric fermentation emissions but has been a significant contributor to manure management emissions. Agriculture emissions are shown to have decreased by 11% since 2001, although there is fluctuation in the time series with a peak in 2004, a decline in 2013, and then an increase again in 2018.

## Barriers to Inclusion of CRA Actions in NDCs

There was a dearth of information regarding barriers impacting climate resilient agriculture (CRA) inclusion in The Bahamas' NDCs. A review of the TNA website indicated that The Bahamas was to complete its fourth TNA process in 2020, which may have been impacted by the COVID-19 pandemic. However, based on in-country consultations, key barriers to the CRA transition and inclusion in NDCs were found to be related to:

- Limited access to baseline data to conduct relevant analyses.
- High cost associated with CRA technologies, such as protected agriculture systems, which are predominantly imported.
- Availability of the majority of inputs, including germplasms, which are outsourced regionally and from North America.
- Inadequate capacity for research, even with research partner, the Caribbean Agricultural Research and Development Institute (CARDI) located in the country. Critical research actions are often performed outside of The Bahamas.
- Limited or non-existent extension or farmer advisory services.
- Consumer preference that favours imported food.
- Limited agro-processing capacity.

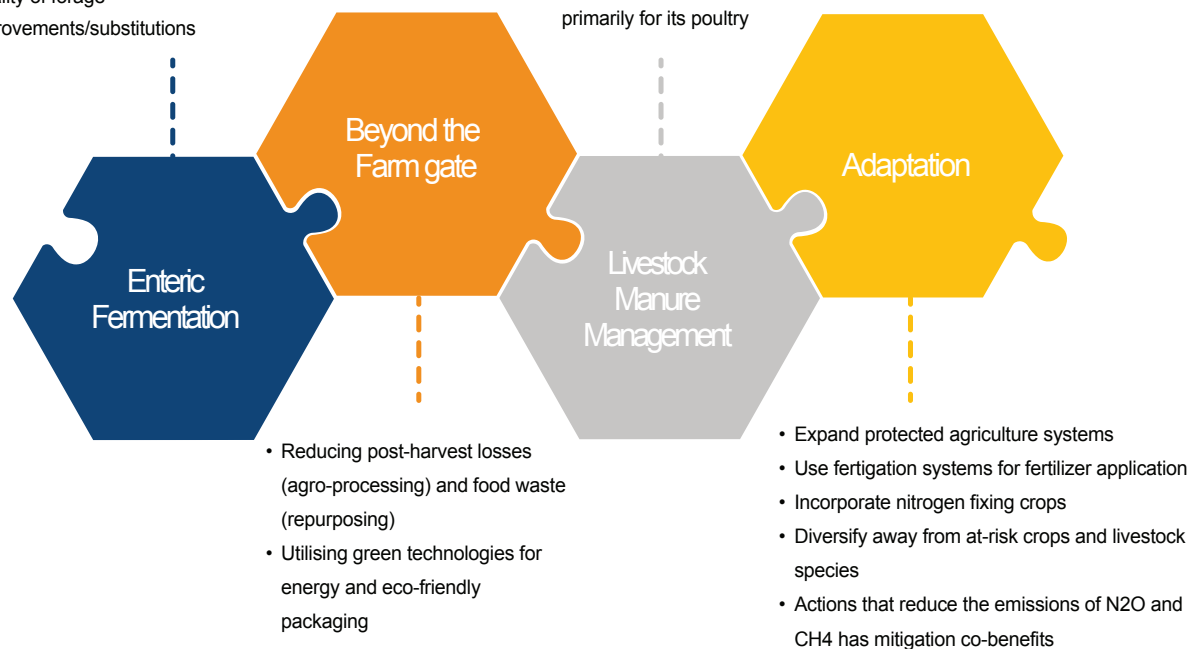
## Opportunities for Building CRA and Enhancing Climate Ambition in The Bahamas' NDCs

Although the quantities of agriculture GHG emissions are generally low, there are opportunities for The Bahamas to realise increased mitigation ambitions from N<sub>2</sub>O and enteric methane (CH<sub>4</sub>) reduction from agricultural systems. The Bahamas also has opportunities beyond the farmgate to reduce the carbon footprint of its food system. The following infographic demonstrates a mix of measures including adaptation co-benefit actions.

## Opportunities for enhancing CRA in The Bahamas

- Selection and application of appropriate animal genetics through breeding and reproduction
- Improving the quality of forage
- Other dietary improvements/substitutions

- Anaerobic bio-digesters – primarily for its poultry



### Capacity Needs for Building CRA in The Bahamas

- Strengthened climate information services (cropping and water management decisions).
- Enhanced capacity building for farmers that include CRA programmes or goals (drought resistant varieties, agroforestry systems, soil, and water conservation, etc.).
- Strengthened institutional capacity for CRA technologies (extension and business advisory services).
- Strengthened data management system, including tools and methodologies for monitoring GHG inventory along the food value chain.
- Multi-pronged financing strategies that provide support for CRA uptake and retrofitting, for e.g., mainstreaming CRA investment opportunities in a climate financing strategy, complementary to the updated NDC.
- Established disaster risk financing strategies (including insurance) to strengthen the sector's capacity to recover from the occurrence of climate shocks and stressors.

### 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 (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 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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