



# National Action Plan for Agriculture GHG Inventory Improvement

## Dominica 2022



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# National Action Plan for Agriculture GHG Inventory Improvement

## Dominica 2022

Prepared by:  
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under the IICA GCF CARICOM AgREADY Project  
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## Acronyms

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<b>BUR</b>	Biennial Update Report
<b>ECU</b>	Environmental Coordinating Unit
<b>FAOSTAT</b>	The Food and Agriculture Organisation Corporate Statistical Database
<b>GHG</b>	Greenhouse Gas
<b>IMS</b>	Information Management Systems
<b>INDC</b>	Intended Nationally Determined Contributions
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>MEA</b>	Multilateral Environmental Agreements
<b>NAP</b>	National Action Plan
<b>NC</b>	National Communication
<b>NDC</b>	Nationally Determined Contribution
<b>QA</b>	Quality Assurance
<b>QC</b>	Quality Control
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change

# 1. Introduction

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The GCF-Readiness Project titled “Strengthening the foundation for a climate responsive agricultural sector in the Caribbean” (GCF CARICOM AgREADY, in short) is funded through a Grant Agreement with the Green Climate Fund (GCF) with The Ministry of Environment and Housing, The Bahamas as the lead National Designated Authority (NDA) and the Inter-American Institute of Cooperation on Agriculture (IICA) as the delivery partner.

The AgREADY project seeks to raise the profile of the agricultural sector in GCF’s climate financing prioritisation processes by positing an evidence-based and inter-sectoral argument that seats Caribbean agriculture as “low-emissions” and part of the solution for addressing climate change. The project logic is premised on a vision of developing “a climate responsive agricultural sector in the Caribbean that supports food security, livelihoods and uses natural resources sustainably” by addressing barriers of ineffective mechanisms and engagement with agricultural experts and stakeholders in GCF climate programming processes, policy gaps, and limited or fragmented data/information to inform climate risks planning, programming, and action in the sector.

The IICA-GCF Readiness Project targets nine countries (The Bahamas, Belize, Dominica, Haiti, St. Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, and Trinidad and Tobago) in the CARICOM sub-region, with specific activities related to the following objectives:

- To improve the enabling conditions to design, implement and evaluate options for enhanced climate action in the agricultural sector by strengthening policies, capacities, frameworks, methods, and institutional arrangements for collecting, monitoring, measuring, reporting, verifying (MRV), and analysing agricultural and associated activity data from the sector.
- To increase the number of projects identified for development and investment in a pipeline of evidenced-based and bankable projects aligned with regional and national priorities as informed by climate risk assessments of the agriculture sector.
- To disseminate best practices for institutional capacity building, coordination, and pipeline development of more robust proposals for building climate resilience along prioritised agricultural value chains, with a focus on cultivating the innovative capacity of the region’s youth.

## 2. Context

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Dominica's national emissions arise largely from the energy and agricultural sectors. The agricultural sector released ~15.9% of total emissions in 2018.<sup>1</sup> The in-development updated Nationally Determined Contribution (NDC) for Dominica will include an emissions reduction target of 50% within the agricultural sector by 2030.<sup>2</sup> Its primary focus is on adaptation, building resilience, and mitigation.<sup>3</sup> NDC implementation in Dominica is still in its early stages and has been impacted by the ongoing COVID-19 crisis along with natural disasters. Thus, several technical capacities and funding gaps have arisen. In addition, many ministerial changes occurred following the 2019 national election that has slowed the institutionalisation of sectoral NDC goals.<sup>4</sup>

Dominica's most recent inventory covers the years 2006 – 2017. During the inventory process, no formal institutional arrangement or structure, or record of quality control and verification procedures was documented. In addition, heavy reliance on FAO data seemed to be prevalent in the agriculture sector, similar to other Caribbean islands, despite some viable sources of national data existing within Dominica's current data-gathering practices that could have improved the accuracy of some GHG emission source calculations.<sup>5</sup>

The inventory development process has been hindered by a lack of centralised data storage and inadequate archiving practices.

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1 *Climate Watch*, 2022. *Dominica*. World Resources Institute. [https://www.climatewatchdata.org/countries/DMA?end\\_year=2018&source=CAIT&start\\_year=2015](https://www.climatewatchdata.org/countries/DMA?end_year=2018&source=CAIT&start_year=2015)

2 Commonwealth of Dominica, 2021. Institutional Capacity Assessment for NDC Implementation. UNDP Climate Promise.

3 Hunter, Edgar. Jan 18, 2022. Interview.

4 Commonwealth of Dominica. 2012. Commonwealth of Dominica Second National Communication to the United Nations Framework Convention on Climate Change UNFCCC Submissions. <https://unfccc.int/sites/default/files/resource/dmanc2.pdf>.

5 Bradley Guye, Natalia Lugay, and Al-Mario Casimir, June 23, 2022. The Ministry of Forestry and the Ministry of Agriculture. Interview.



### 3. Objectives and Methodology

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The objective of this initiative was to develop a National Action Plan to improve the agriculture GHG inventory by:

- a) Assessing the status of the national agriculture GHG inventory
- b) Identifying areas for improvement
- c) Developing actions for taking the improvement plan forward
- d) Prioritising the actions

A review of Dominica's latest available agriculture GHG inventory was completed to identify current institutional arrangements, data sources, data collection procedures, quality control and verification procedures, and tools utilised for inventory compilation. Any improvement plans suggested in the inventory reports or BURs and NCs were extracted and assessed. This information was used as a basis for discussions with national experts to determine what amendments are required to improve the agriculture GHG inventory compilation process and improve agriculture emission estimates in the future. The synthesis of the results was framed in accordance with current situations and opportunities to improve institutional arrangements, data sources, collection, quality control and verification procedures, and MRV and archiving.

Appendix 1 is provided at the end of this document to assist country-level stakeholders in identifying action plan tasks, assigning responsible entities to accomplish them, prioritising the actions, and setting the timeframe goal for their completion.

## 4. Assessment of Current Status and Opportunities for Improvement

### 4.1 Institutional arrangements

#### 4.1.1 Current situation

The Environmental Coordinating Unit (ECU) within the Ministry of Health and the Environment – referred to as the Ministry of the Environment henceforth) is the National Climate Change focal point for all multi-lateral environmental agreements (MEA), including for the UNFCCC.<sup>6</sup> The ECU is responsible for coordinating activities relating to these agreements nationally, which, significant to this report, includes the national GHG inventory as reported in the first, second, and third National Communications to the UNFCCC, and Dominica’s Intended Nationally Determined Contribution (INDC) from 2015.<sup>7</sup> The ECU is also broadly tasked with coordinating, facilitating, and administering all environmental management and sustainable development programs within Dominica.<sup>8</sup> The ECU is the national entity responsible for conducting the national GHG inventory and ensuring emissions data are reported to the UNFCCC.<sup>9</sup>

In addition to the ECU, the Ministry of Finance’s Planning Institute is charged with international funding and agreements, including multilateral environmental agreements.<sup>10</sup> There is some engagement and coordination that occurs between the ECU and the Planning Institute relating to climate reporting, NDC goal setting, and national climate priorities. Based on Dominica’s second National Communication, agricultural development and planning are conducted within the Ministry of Blue and Green Economy’s Division of Agriculture.<sup>11</sup> The livestock department is within this division and includes extension officers. The Agriculture Division is comprised of 60 staff members of which 45 are extension officers.<sup>12</sup> Through the extension officers, the Agriculture Division provides training, conducts outreach, and gathers data directly from farmers typically through digital means such as through the use of a tablet or phone to ease compilation and reduce data errors.<sup>13</sup> Overall, extension officers’ efforts have been hampered by COVID-19 restrictions that have reduced the size of in-person gatherings and resulted in a shift to virtual engagements with agricultural stakeholders, which has reduced participation.<sup>14</sup>

An Environment Bill is working its way through Dominica’s legislature which proposed to create a “Climate Change Committee” with sub-groups focused on specific areas of relevance as the country seeks to address climate change.<sup>15</sup> This bill includes a proposed expansion of the government departments with environmental responsibilities in addition to the creation of a Climate Change Committee to function as a cross-institutional coordinating body.<sup>16</sup> Such a committee existed in the past on an ad-hoc basis managed by the ECU and included representatives from the energy sector, utility

6 Commonwealth of Dominica, 2012. Commonwealth of Dominica Second National Communication to the United Nations Framework Convention on Climate Change UNFCCC Submissions. Available: <https://unfccc.int/sites/default/files/resource/dmanc2.pdf>.

7 Commonwealth of Dominica, 2012.

8 Commonwealth of Dominica, 2012.

9 Guye, Lugay, and Casimir, June 23, 2022.

10 Guye, Lugay, and Casimir, June 23, 2022.

11 Commonwealth of Dominica, 2012.

12 Commonwealth of Dominica, 2021.

13 Guye, Lugay, and Casimir, June 23, 2022.

14 Al-Mario Casimir, January 20, 2022. Interview.

15 Hunter, Edgar. Jan 18, 2022. Interview.

16 Hunter, Jan 18, 2022.

companies, the transportation sector, and planning offices (among others).<sup>17</sup> However, this committee is not presently active and it is identified as a gap that no other intra-governmental coordinating bodies were identified through Dominica's national communications, or the expert stakeholders interviewed.

Based on Dominica's second and third National Communications, no mention is made of the institutional arrangements for the GHG inventory covering the years 2006 - 2017.<sup>18</sup> The second National Communication identifies that the staff capacity to conduct the national GHG inventory is severely lacking throughout the government and that sufficient institutional structures are a gap that must be addressed to improve the national GHG inventory, UNFCCC reporting efforts, and national climate action objectives.<sup>19</sup> New and existing staff are lacking the support they require and do not have any incentives at present to invest their limited time and resources to complete GHG inventory-related tasks and objectives.<sup>20</sup>

One existing barrier is the lack of sufficient compensation beyond the usual salary for government staff to take on the additional duties associated with conducting the GHG inventory. At present, government officials may not be contracted to provide work for government offices, which might be a barrier to high-achieving government staff who could be willing to take on some additional tasks if provided fair compensation.<sup>21</sup>

#### *4.1.2 Opportunities for improvement*

It appears that a formal institutional structure for developing the national GHG inventory has not been documented. The Environment Bill working its way through the legislature may provide measurable improvement, but the contents of the bill were not made available to this report's authors and its legal review is still pending. The bill must still progress through parliament before being assessed and potentially enshrined in law by the cabinet.<sup>22</sup>

The legal structure of such a bill could support the development of additional capacity for the national GHG inventory and provide institutional arrangements where they are needed.

Defining the national GHG inventory process and assigning responsible entities for the various stages of data collection, compilation, review, QA/QC, and reporting would be an excellent first step. The definition of the GHG inventory process is an opportunity to establish the necessary structures that can orient relevant stakeholders to their roles, their importance, and the reasons that the national GHG inventory is worth the devotion of limited time (e.g., to support the NDC, the unlock additional international climate financing, to uncover possible emission reduction projects through Article 6 or other carbon market avenues).

Typically, an intra-governmental committee is a useful tool that can bring together the various actors from all sectors and relevant government departments to collaborate and manage the GHG inventory process. The Climate Change Committee proposed through the Environment Bill could provide a meaningful institutional structure to support the

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<sup>17</sup> Guye, Lugay, and Casimir, June 23, 2022.

<sup>18</sup> Commonwealth of Dominica, 2020. Third National Communication to the United Nations Framework Convention on Climate Change of the Commonwealth of Dominica. UNFCCC Submissions. [https://www4.unfccc.int/sites/SubmissionsStaging/NationalReports/Documents/02487591\\_Dominica-NC3-1-Dominica%20TNC%20-%20Final%20\(March%202020\).pdf](https://www4.unfccc.int/sites/SubmissionsStaging/NationalReports/Documents/02487591_Dominica-NC3-1-Dominica%20TNC%20-%20Final%20(March%202020).pdf).

<sup>19</sup> Commonwealth of Dominica, 2012.

<sup>20</sup> Guye, Lugay, and Casimir, June 23, 2022.

<sup>21</sup> Guye, Lugay, and Casimir, June 23, 2022.

<sup>22</sup> Guye, Lugay, and Casimir, June 23, 2022.

national GHG inventory. Generally speaking, committees functioning in this capacity can identify essential capacity-building improvements, hire consultants to fill capacity gaps for immediate needs in tandem with capacity-building efforts, and foster policy or program development to accomplish cross-cutting objectives (e.g., aligning agricultural census data collection with national GHG inventory emission sources), and achieve efficiencies through the development of shared resources such as quantification tools, data collection guidance, reporting templates, and standardised data archiving practices. Such a committee could also provide input and recommendations or make decisions regarding multilateral environmental agreements.<sup>23</sup>

Enhanced intra-government cooperation is crucial to support improvements to the national GHG inventory. Training for entities involved with the GHG inventory will be valuable to support the deployment of new institutional structures like a Climate Change Committee.

Lastly, although challenging, it is vital to devote additional resources to the ECU and other offices supporting the GHG inventory efforts to improve the GHG inventory overall. Existing staff must receive an allocation of time and reduction of other duties, fair compensation for additional work responsibilities, or further staff may be required to improve GHG inventory outcomes.

Table 1 shows the identified actions to improve the institutional arrangements for the agriculture GHG inventory compilation process.

*Table 1: Potential actions to improve the institutional arrangements for the agriculture GHG inventory compilation process*

Goal	Actions
Documentation, formalisation, and improvement of the institutional arrangements to support the national GHG inventory	Identify the flow of information and any existing entities' roles in the GHG inventory process by building an institutional arrangements 'map' that defines the GHG inventory process' data flows.
	Identify points in the process/flow of data where challenges (may or may likely) exist.
	Consider what staff, data management systems, and technical capacity are needed to ensure the institutional structure supporting the GHG inventory can produce high-quality national GHG inventories for the agriculture sector.
	Develop a document that presents the institutional arrangements, flow of data, and any necessary areas for improvement to address in the future.
	Conduct a workshop bringing stakeholders together to present the document and GHG inventory process.
Formalise and assign roles and responsibilities	Conduct outreach to identify and uncover all stakeholders involved (or to be involved in the future) with the GHG inventory process.
	Survey stakeholders to uncover their roles and responsibilities (or past roles if part of any previous GHG inventory efforts) and assess their level of technical capacity.
	Establish standardised roles for GHG inventory stakeholders that specify the roles' responsibilities.
	Maintain a list of stakeholders (including contact info, current job, GHG inventory role title, etc.) of the current entities within each role.
	Conduct a workshop bringing GHG inventory stakeholders together to present the formalised roles and responsibilities, and to provide training to the gathered stakeholders based on their specific roles.
Form an intra-government coordinating committee	Pass a legal mandate or bill (e.g., the "Environment Bill") requiring the formation of the climate change coordinating committee and identify that its scope includes oversight of the national GHG inventory effort (including the agriculture sector). Consider assigning GHG inventory roles and responsibilities through the Environment Bill (e.g., inventory compilers, QA/QC entities, external approved verifiers).
	Ensure representative inclusion from relevant government and civil society entities relevant to the GHG inventory on the coordinating committee.
	Begin to coordinate the GHG inventory by hiring staff or consultants or by shifting existing staff duties to provide appropriate support, time allocation, and incentives to accomplish the GHG inventory. Provide oversight and review and assist GHG inventory implementers and compilers by connecting them with appropriate stakeholders.
Increase staff capacity or adjust staff incentive structures	Additional staff may be needed, or the incentive structures for staff, such as their reasons for taking on additional work relating to the GHG inventory and receiving additional compensation for these additional duties must at a minimum be adjusted to allow overachieving staff to be fairly compensated.

<sup>23</sup> Guye, Lugay, and Casimir, June 23, 2022.

## 4.2 Data sources and data collection procedures

### 4.2.1 Current situation

The 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National GHG Inventories were used to compile the latest national GHG inventory for 2006 – 2017.<sup>24</sup> Before this GHG inventory, the last agricultural census was conducted in 1995, making country-specific information less relevant and therefore it was not used in the GHG inventory. However, national-level agricultural data is collected via extension officers and Dr. Lugay conveyed that an agricultural census had occurred in the past few years.<sup>25</sup>

Additionally, extension officers use tablets or phones to gather data using Excel sheet templates that were regionally specific and identified individual livestock enterprises.<sup>26</sup> Similar approaches are used for the collection of crop production data with extrapolation and expert judgment applied when farmers did not collect the data themselves.<sup>27</sup> At present, the Lead Data Collection Officer from the Ministry of Agriculture has access to this data and collection templates, but they are burdened with many other duties.<sup>28</sup> This represents an example of national-level data that would be available for future GHG inventory efforts.

Within the agriculture sector, regional default IPCC emission factors and most activity data were obtained from FAO for 2006-2016.<sup>29</sup> The most significant sources of emissions were methane from enteric fermentation and manure management, which were calculated using the IPCC tier 1 approach.<sup>30</sup> Animal population data from 2006 to 2016 were obtained from the FAO with estimates for 2017 extrapolated based on past trends.<sup>31</sup> The third National Communication identifies that the estimates are likely high for cattle based on knowledge of the state of livestock production in Dominica.<sup>32</sup> Future estimates could be informed by national-level data collected by extension officers.

The amounts of nitrogen input from synthetic fertilizers, animal waste, nitrogen-fixing crops, and crop residues were used to estimate the overall N<sub>2</sub>O emissions from soils, animal production, and fertiliser application. Default IPCC emission factors were then used to estimate the direct and indirect atmospheric N<sub>2</sub>O emissions.<sup>33</sup> Dominica has identified a goal for the future to establish national-level emission factors for soil-related emission sources, but at present will continue to rely upon IPCC default factors.<sup>34</sup>

Dominica has relied on FAOSTAT for recent inventory calculations. Additionally, the scope, coverage, and accuracy of calculations have not been captured by past inventorying efforts.<sup>35</sup> Table 2 below shows a representation of the various data sources used during the most recent revision of the agriculture sector's GHG inventory.

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<sup>24</sup> Commonwealth of Dominica, 2020.

<sup>25</sup> Guye, Lugay, and Casimir, June 23, 2022.

<sup>26</sup> Guye, Lugay, and Casimir, June 23, 2022.

<sup>27</sup> Guye, Lugay, and Casimir, June 23, 2022.

<sup>28</sup> Guye, Lugay, and Casimir, June 23, 2022.

<sup>29</sup> Commonwealth of Dominica, 2020.

<sup>30</sup> Commonwealth of Dominica, 2020.

<sup>31</sup> Commonwealth of Dominica, 2020.

<sup>32</sup> Commonwealth of Dominica, 2020.

<sup>33</sup> Commonwealth of Dominica, 2020.

<sup>34</sup> Guye, Lugay, and Casimir, June 23, 2022.

<sup>35</sup> Casimir, January 20, 2022.

The priority emission sub-categories, in order, for Dominica are (a) biomass burning, (b) enteric fermentation, and (c) lime application. Biomass burning was identified by interviewed expert stakeholders as largely resulting from bushfires, identified as grasslands, with acreage assessed via aerial survey, so perhaps the source is not as significant for agricultural areas and not the result of intentional efforts to burn biomass.<sup>36</sup>

Table 2: Data sources for Dominica agriculture GHG Inventory activity data

Activity Data	Data Source
Livestock populations	
<i>Cattle</i>	FAOSTAT
<i>Rabbits</i>	FAOSTAT
<i>Sheep</i>	FAOSTAT
<i>Goats</i>	FAOSTAT
<i>Pigs</i>	FAOSTAT
<i>Poultry</i>	FAOSTAT
Crop production	FAOSTAT & Central Statistics Office
Synthetic fertiliser import data	FAO & International Trade Center (Trade Maps)
Manure management data	Expert judgment
Lime application	Central Statistics Division
Urea application	N/A
N fertiliser consumption	FAOSTAT
Crop residue data	N/A
Rice cultivation area and data	FAOSTAT

Source: Third National Communication to the United Nations Framework Convention on Climate Change of the Commonwealth of Dominica (2020)

Table 3: Categories included in the Dominica agriculture GHG inventory and the tier-level approach

Category	E/NE/NO	Tier 1/Tier 2
3A1 Enteric fermentation	E	Tier 1
3A2 Manure management CH <sub>4</sub>	E	Tier 1
3A2 Manure management N <sub>2</sub> O	NE	
3C1 Biomass burning	E	Tier 1
3C3 Lime application (CO <sub>2</sub> )	E	Tier 1
3C3 Urea application (CO <sub>2</sub> )	NE	
3C4 Direct N <sub>2</sub> O from managed soils	E	Tier 1
3C5 Indirect N <sub>2</sub> O from managed soils	E	Tier 1
3C6 Indirect N <sub>2</sub> O from manure management	E	Tier 1
3C7 Rice cultivation	E	Tier 1

E = Estimated; NE = Not estimated; NO = Not occurring

<sup>36</sup> Guye, Lugay, and Casimir, June 23, 2022.

The second National Communication spoke to the gaps that exist in the national GHG inventory data collection process when it identified that:

Capacity assessments undertaken over the years consistently attest to the shortage of trained personnel, overburdened staff, and the absence of technical and financial resources as key reasons why complete and accurate data is not collected and maintained. This capacity constraint needs to be urgently addressed. Without current and accurate data, the Government of Dominica will continue to lack the information needed for informed decision-making that is necessary to reduce greenhouse gas emissions [...]<sup>37</sup>

The third National Communication identifies that in many cases national data did exist, but it was inaccessible to the entities conducting the GHG inventory. This was because instead of central and accessible file storage systems, the data relevant to the national GHG inventory was under the purview of individuals instead of a responsible government agency, thus being more challenging to access.<sup>38</sup>

Uncertainties in the inventory arise from the use of regional emission factors and inconsistencies in the availability of activity data due to poor archiving practices or an absence of recorded data.<sup>39</sup> These were accounted for using statistical adjustments with activity data to facilitate accuracy and consistency in reporting. These adjustments were guided by the 2006 IPCC Guidelines, Table 3.1 (Strategies for dealing with different causes of uncertainties) found in “Volume 1: General guidance and reporting and best estimates”.<sup>40</sup>

#### 4.2.2 *Opportunities for improvement*

Capacity building is the greatest need to improve data collection within the national GHG inventory process. Additional training for staff and hiring additional staff to reduce the burden on existing staff are necessary to improve the quality of data by coordinating with relevant sectoral stakeholders to gather national-level data. Training for these individuals should include the types of data requested for each source, formatting and common units for data that should be reported, the overall structure of the GHG inventory process, and archiving procedures. The specified data requests by source, formatting, and units should be reflected in the Excel-based data collection templates used by extension officers to collect agricultural information.

Improved data management can also ease the challenges faced by previous national GHG inventory compilers. Data relevant to the national GHG inventory should at a minimum be stored in shared locations so that data is always accessible by multiple entities. Instead of just one Lead Data Collection Officer with access, a team of appropriate entities engaged in GHG compilation and/or data collection should be identified and granted access to share in the responsibility of data management. This is important in case changes to personnel occur and especially relevant as staff are often overburdened. While it is important to ensure broad access to data, it is still important to delineate individual responsibilities relating to data collection and processing and to ensure a secure and reliable file storage system is in place. Uncertainties can be reduced by collecting and using national emission factors and gathering national data. These steps will improve the accuracy and reliability of the national GHG inventory emissions. Training will be essential

<sup>37</sup> Commonwealth of Dominica, 2012.

<sup>38</sup> Commonwealth of Dominica, 2020.

<sup>39</sup> Commonwealth of Dominica, 2020

<sup>40</sup> Commonwealth of Dominica, 2020

to build technical capacity as new staff and a formalised GHG inventory process for data collection and inventory compilation are added.

Table 4 shows the identified actions to improve the data and data collection process for the agriculture GHG inventory compilation.

*Table 4: Potential actions to improve the data collection and data collection process for the agriculture GHG inventory compilation process*

Goal	Actions
Sufficient trained staff to comprise an agriculture sector, GHG inventory team	Identify necessary staff capacities including technical capacity needed to fulfil the GHG inventory process for the agriculture sector.
	Hire the appropriate number of staff to fill the identified positions.
	Provide training on an ongoing basis to ensure staff has the technical capacity needed to complete their responsibilities for completing the agriculture GHG inventory. Training should cover: <ul style="list-style-type: none"> <li><input type="checkbox"/> types of data requested for each source,</li> <li><input type="checkbox"/> formatting and common units for data that should be reported,</li> <li><input type="checkbox"/> the overall structure of the GHG inventory process, and</li> <li><input type="checkbox"/> archiving procedures.</li> </ul>
Archiving system for agriculture inventory	Identify a process that integrates with the Agricultural Lead Data Collection Officer's existing file storage system (e.g., via google form submissions or accessible excel sheet templates designed for data input). Ensure cloud-based file storage for the archiving system, with backup storage, continues to be used to house all agricultural GHG emissions relevant to the inventory.
	Develop guidance materials, present the guidance, and train relevant staff in the appropriate archiving practice to employ for safely and consistently storing GHG inventory-related information.
	Ensure that entities are using the archival system by performing spot checks with relevant entities and walking through their file storage practices (correcting for the proper use of the archiving system as needed).
Improved data accuracy and collection	Evaluate data flows within the agriculture sector for livestock farming/sale, nitrogen fertiliser purchasing/usage, and crop production/sale. Document data flows to benefit future GHG inventory efforts (will benefit data collection, compilation, QA/QC, and verification to know how data moves).
	Identify opportunities where transactions occurring in the above GHG sources data flows are recorded electronically.
	Work with the entities recording transactions within the agriculture sector to establish a practice of sharing data with the Lead Data Collection Officer (or future team managing the agricultural GHG inventory) to integrate with the GHG inventory.
	Review and revise Excel-based data collection templates used by extension officers to collect agricultural information via tablet or phone to incorporate the specified data for the GHG inventory for each key category source of emissions and identify the format and units for input into the templates.
	Develop national-level emission factors, where possible, for the GHG inventory's key categories.



## 4.3 Quality control and verification procedures

### 4.3.1 Current situation

No quality control or verification procedures for the national GHG inventory process were mentioned in the materials accessible to the authors of this report or identified by interviewed stakeholders. QA/QC and verification are goals for future GHG inventory efforts.

### 4.3.2 Opportunities for improvements

The formal development and documentation of the national GHG inventory process would benefit the stakeholders involved by clarifying the overall process they are supporting. Further, the inclusion of quality control and assurance methods for data collection, emissions calculations, and compilation activities would increase the accuracy of national assessments of GHG emissions.

Bolstering the national inventory process through formalised quality control, quality assurance, and 3<sup>rd</sup> party verification measures would add legitimacy to the national GHG inventory as well. A designated staff person with responsibility for ensuring QA/QC is conducted and assisting QA/QC practitioners would be valuable to accomplish this goal. As Dominica strives to achieve its NDC goals, a more accurate GHG inventory may increase confidence in sectoral emission values, ease the establishment of mitigation objectives, and support tracking of progress towards NDC goals.

Table 5 shows the identified actions to improve the quality assurance and quality control procedures for the agriculture GHG inventory compilation.

*Table 5: Potential actions to improve the quality assurance and quality control for the agriculture GHG inventory compilation process*

Goal	Actions
QA/QC plan for inventory compilation	Identify both internal government and external non-governmental stakeholders with the required expertise to evaluate the GHG inventory and provide QA/QC.
	Assign QA and QC roles to the identified individuals and include their formalised responsibilities within a publicly available document that describes the GHG inventory process.
Establish a staff member as the GHG inventory QA/QC process coordinator	Locate sources of funding to support a staff member in taking on the responsibilities of working with internal and external stakeholders to conduct and progress the GHG inventory's QA/QC.
	Include "coordinate GHG inventory QA/QC process" within the job description of a designated position. This position should be newly created or if added to an existing role, other responsibilities should be reduced to accommodate these tasks sufficiently. Include this role within the publicly available document that describes the GHG inventory process.

## 4.4 MRV and archiving

### 4.4.1 Current situation

Hurricane Maria caused immense destruction in Dominica in 2017 and destroyed the equipment and computers of the ECU, which was home to the file archiving system for the national GHG inventory.<sup>41</sup> It appears that since 2017, although progress has been made, challenges in data storage and archiving practices have persisted. The Lead Data Collection Officer within the Ministry of Agriculture manages the Excel-based data collection templates for livestock as well as crop

<sup>41</sup> Commonwealth of Dominica, 2020.

production data and could potentially expand their purview to cover other agricultural data like GIS, or duties relating to GHG emissions reporting.<sup>42</sup> The data archiving system used by the Lead Data Collection Officer is backed up to the cloud.<sup>43</sup>

In the third National Communication, it was identified that “a significant volume of data was available nationally, but access to such information was not always straightforward as the repositories were diverse and scattered throughout many government ministries and departments.”<sup>44</sup> This issue is identified to occur across all sectors, including agriculture. Within the Ministry of Agriculture, several attempts were made to develop information management systems (IMS), and funding was applied to implement two such systems both of which failed to become institutionalised.<sup>45</sup> Within the Ministry of Agriculture, the Agricultural Information and Communication Technology Unit were set up to manage emissions data, develop training for delivery to farmers, and apply GIS to support the Ministry’s goals, but this unit is identified to be understaffed for the tasks assigned.<sup>46</sup>

The third National Communication identified that there is an “absence of data and...[a] systematic failure to maintain records that are needed to determine greenhouse gas emissions from key sectors.”<sup>47</sup> The third National Communication concluded that the lack of data and inadequate archiving procedures “undermined efforts to accurately calculate [GHG] emission[s] for Dominica.”<sup>48</sup>

#### 4.4.2 *Opportunities for improvements*

Data archiving is critical to the cyclical nature of any GHG inventory. Past years’ data, quantification, and compilation will always benefit future efforts to capture the national levels of GHG emissions. MRV systems similarly rely upon data accessibility and availability to function. For this reason, archiving procedures and practices are recommended to be documented and formalised. Training should be provided to all entities anticipated to interact with the national GHG inventory process and any supporting MRV systems, not just the specific Lead Data Collection Officer, or the Agricultural Information and Communication Technology Unit, in the Ministry of Agriculture.

Given that national data does exist, it could be a useful objective to prioritise the collection of this data through the process of establishing a centralised repository for archiving relevant documents and information. Coordination across government offices to collect and share GHG inventory data would be beneficial for consistent archiving and to ensure future data accessibility for inventory compilers.

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<sup>42</sup> Guye, Lugay, and Casimir, June 23, 2022.

<sup>43</sup> Guye, Lugay, and Casimir, June 23, 2022.

<sup>44</sup> Commonwealth of Dominica, 2020.

<sup>45</sup> Commonwealth of Dominica, 2012.

<sup>46</sup> Commonwealth of Dominica, 2012.

<sup>47</sup> Commonwealth of Dominica, 2020.

<sup>48</sup> Commonwealth of Dominica, 2020.

Table 6 shows the identified actions to improve the MRV and archiving practices for the agriculture GHG inventory.

*Table 6: Potential actions to improve the MRV and archiving for the agriculture GHG inventory*

Goal	Actions
Archiving system for agriculture inventory	Ensure agricultural stakeholders have appropriate access (given their GHG inventory roles) to the data archiving system.
Trained archiving staff	Develop guidance materials, present the guidance, and train relevant staff in the appropriate archiving practices to employ for safely and consistently storing GHG inventory-related information.
	Ensure that inventory compilers (whether government staff or consultants) are using the archival system by performing spot checks and walking through their file storage practices (correcting for the proper use of the archiving system as needed).
Increase cross-sectoral data sharing for GHG inventory	Coordination across government offices is needed to centralize GHG inventory data throughout all sectors for consistent archiving and to ensure future data accessibility.
Enhance government staff capacity	Hire additional staff to help manage the many priorities and objectives identified for the Lead Data Collection Officer within the Ministry of Agriculture.

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## Appendix 1: Tool for Assigning Responsibility to Accomplish Identified Action Plan Tasks

The below table is provided for reference (if helpful) to help structure Dominica's approach to accomplishing the tasks identified within this report.

Goal	Task	Responsibility	Priority (L/M/H) <sup>#</sup>	Timeline (S/M/L) <sup>*</sup>
To create/ establish policies to create enabling environment for mainstreaming data collection	<ul style="list-style-type: none"> <li>Documentation, formalisation, and improvement of the institutional arrangements to support the national GHG inventory.</li> <li>Awareness of data collection activities for policymakers.</li> <li>Identify points in the process/flow of data where challenges may exist.</li> <li>Form an intra-government coordinating committee.</li> <li>Prioritisation of funding at all levels (local, regional, international)</li> </ul>	GOCD/DOA	H	S
To improve the data and data collection process	<ul style="list-style-type: none"> <li>Train staff to comprise an agriculture sector, and GHG inventory team.</li> <li>Technology transfer, to complement existing data collection tools.</li> <li>Enhance government staff capacity (additional staff)</li> <li>Continue training of trainer's capacity building</li> </ul>		H(2)	M
To improve the quality assurance and quality control procedures	<ul style="list-style-type: none"> <li>Establish QA/QC plan for inventory compilation</li> <li>Utilisation of standardised data templates.</li> </ul>		M	M
Improve the MRV and archiving practices	<ul style="list-style-type: none"> <li>Archiving system for agriculture inventory.</li> <li>Increase cross-sectoral data sharing for GHG inventory.</li> <li>Increase interregional cooperation and data sharing/ review.</li> </ul>		M	L
Improved communication and consultation with relevant stakeholders	<ul style="list-style-type: none"> <li>Increased public awareness using all media platforms.</li> <li>Public consultations.</li> </ul>		L	S

<sup>#</sup>L = Low, M = Medium, H = High

<sup>\*</sup>S = Short term (within 1 year), M = Medium term (completed within 2 years), L = Long term (completed within 4 years)



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