National Action Plan for Agriculture GHG Inventory Improvement

Haiti

2022

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the Ministry of the Environment
under the IICA GCF CARICOM AgREADY Project
With the support of

Inter-American Institute for Cooperation on Agriculture (IICA), 2023

This publication is also available in electronic (PDF) format from the Institute's web site: http://www.iica.int.

Editorial coordination: Kelly Witkowski, Chaney St. Martin, and Shanna Prevost
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National Action Plan for Agriculture GHG Inventory Improvement: Haiti/
Castries, Saint Lucia : IICA, 2023
26 p.; 21x16 cm.

ISBN: 978-92-9273-048-2

1. agricultural planning 2. climate change mitigation
3. greenhouse gas emissions 4. climate-smart agriculture
5. project design 6. Haiti I. IICA II. Title

AGRIS P01
DEWEY 363.738.74

Castries, Saint Lucia
2023

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Acronyms

AFOLU	Agriculture, Forestry and Other Land Use
AGD	General Customs Authority
CARICOM	Caribbean Community and Common Market
CBIT	Capacity Building for Increased Transparency
FAO	Food and Agriculture Organization
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	Greenhouse Gas
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial Processes and Product Use
MARNDR	Ministry of Agriculture, Natural Resources and Rural Development
MoU	Memorandum of Understanding
QA	Quality Assurance
QC	Quality Control
UNDP	United Nations Development Programme

1. Introduction

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

The agriculture sector in Haiti is one of the most important as it employs a large portion of the Haitian population and represents 26% of the GDP.[1] Agriculture has, however, been declining in recent years. Land tenure is a major issue and the predominantly informal land management methods with small farm sizes make this sector very vulnerable to climate change.[2] None of this creates a favourable environment for investment. The national GHG emissions are dominated by the AFOLU sector with agriculture sector being the largest contributor to the total emissions in 2000. Enteric fermentation contributed 52% of the total emissions, and N_2O from managed soils contributed 20%.[3] Haiti has recently updated their GHG inventory for 2000 to 2010, however, it is still in the validation phase and was therefore not available for assessment.

Haiti is currently updating its NDC and in the draft update[4] several conditional mitigation actions in the agriculture sector are mentioned, namely:

- Improving pasture quality
- Fruit tree growing
- Manure management by increasing fat content
- Increasing crop cover
- Increasing agroforestry

Haiti has recently received CBIT funding[5], which is due to start in the next few weeks.[6] This project will contribute significantly to the improvement of the GHG inventory process. The overall project goals are to:

- Setup a sustainable framework for the national MRV system
- Develop a sustainable national GHG inventory system
- Set up an NDC tracking system
- Define specific indicators to track the NDC at sectoral level
- Use project feedbacks to inform approaches to enhanced transparency domestically and internationally
- Promote participation of women in the process

1 Ministry of Environment, 2022. "Draft Nationally Determined Contribution of the Republic of Haiti, First Update 2021".

2 Ministry of Environment, 2022.

3 Ministry of Environment, 2022.

4 Ministry of Environment, 2022.

5 GEF, 2019. Strengthening National Institutions in Haiti to meet the Transparency Requirements of the Paris Agreement, https://www.cbitplatform.org/projects/59.

6 Meeting with the Ministry of Environment on April 7, 2022.

3. Objectives and Methodology

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

- Assessing the status of the national agriculture GHG inventory
- Identifying areas for improvement
- Developing actions for taking the improvement plan forward
- Prioritising the actions

A review of Haiti'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 improvements are required to improve the agriculture GHG inventory compilation process in each country and improve agriculture emission estimates in the future. The synthesis of the results was framed in accordance with current situations of, and opportunities for improving institutional arrangements, data sources, collection, quality control and verification procedures, MRV and archiving.

4. Assessment of Current Status and Opportunities for Improvement

4.1 Institutional arrangements

4.1.1 Current situation

Currently the Climate Change Directorate in the Ministry of Environment co-ordinates climate change activities. The Mines and Energy Office compile the Energy and IPPU sector inventory, while the AFOLU and Waste sectors are compiled by the Faculty of Agronomy and Veterinary Medicine at the State University of Haiti. The sector compilers are responsible for going to the various data providers and collecting the relevant data for the inventory. There are no formal institutional arrangements for data collection. The recent inventory update was supported by a team from UNDP.

4.1.2 Opportunities for improvement

At a meeting with the Ministry of Environment[7], it was highlighted that the most important need for the Haitian inventory is clear and formalised institutional arrangements. Institutional mechanisms to facilitate access to data are required and there is a need for a unit within the statistical department of the Ministry of Agriculture, Natural Resources and Rural Development (Ministère de l'Agriculture des Ressources Naturelles et du Developpement Rural (MARNDR)) to deal with and compile the GHG inventories. Institutional arrangements and procedures for the preparation of the inventory reports also need to be considered and this could be part of the responsibilities of the unit. Creating clear guidelines on the responsibilities of the unit and the roles of the various staff members would be a crucial step for moving this unit forward.

Capacity building of the staff for this unit would be important. This would not only be training on sectoral inventory compilation but also on the general processes, such as quality control, uncertainty, key category analysis, report writing and quality assurance processes. As part of this, it is suggested that a procedural manual for the inventory process be adapted to national circumstances, developed, and formalised. This would contain all the required tools and templates to guide the unit staff through the inventory compilation process.

Setting up institutional arrangements for the MRV system for GHG inventories and building capacity are key components of the upcoming CBIT project[8], so these issues will likely be addressed over the next year or two.

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

7 Meeting with the Ministry of Environment on April 7, 2022.

8 GEF, Strengthening National Institutions in Haiti to meet the Transparency Requirements of the Paris Agreement, details found at https://www.cbitplatform.org/projects/59.

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

Goal	Actions	Supporting programmes
Strengthen institutional foundations for agriculture inventories	Build awareness around agriculture GHG inventories and their compilation.	GFC CARICOM AgREADY project
	Develop a GHG inventory unit (or climate change unit) within the MARNDR	
	Identify key data providers of agricultural GHG inventory data (see section 1.2).	
	Draft a set of data requirements from the various identified organisations (including details on what, how often, what format, etc.).	
	Draw up a data flow diagram and identify areas where MoUs may be required.	
	Draft MoUs, attach the data requirements and formalise the data collection process with each data provider.	
	Develop policies to create an enabling environment for agriculture data collection.	
GHG inventory procedural manual for agriculture	Develop a guidance document for the agriculture inventory compilation process detailing institutional arrangements, team composition, roles & responsibilities, timelines, etc., and taking into account national circumstances.	CBIT project

4.2 Data sources and data collection procedures

4.2.1 Current situation

The previous inventory was compiled using the IPCC 1996 Guidelines, but the IPCC 2006 software was utilised in the recent update. Data for the recently updated GHG agriculture inventory (see Table 2) was obtained from the Statistical Unit of the Agriculture Ministry, General customs authority (AGD), and FAO.

In-country data is limited and there are several gaps in the time-series. The last agriculture census was in 2009 and therefore the recently updated inventory spans the period 2000 to 2010. To fill the gaps in the time-series the FAO data was utilised. Fertiliser data, as with most countries, was obtained from the AGD, but the data set was incomplete so data from the Statistical Unit of the Agriculture Ministry was also utilised to fill the gaps. There is no available data source for lime consumption.

The priority emission sub-categories, in order, for Haiti are (a) enteric fermentation, (b) direct N_2O from managed soil and (c) rice cultivation.

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

Activity data	Data source
Livestock population numbers	
Cattle	Statistical unit of the Agriculture Ministry / FAO database.
Buffalo	NA.
Sheep/goats	Statistical unit of the Agriculture Ministry.
Swine	Statistical unit of the Agriculture Ministry.
Horses/mules/asses	FAO database / Statistical unit of the Agriculture Ministry.
Poultry	Statistical unit of the Agriculture Ministry.
Manure management data	Statistical unit of the Agriculture Ministry.
Lime consumption	No data.
Urea consumption	General customs authority (AGD) / Statistical unit of the Agriculture Ministry.
N fertiliser consumption	General customs authority (AGD) / Statistical unit of the Agriculture Ministry.
Crop residue data	Expert Judgement.
Rice cultivation area and data	Statistical unit of the Agriculture Ministry / FAO database.

Table 3: Categories included in the Haiti 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_4	E	Tier 1
3A2 Manure management N_2O	E	Tier 1
3C1 Biomass burning	E	Tier 1
3C3 Lime application (CO_2)	NE	
3C3 Urea application (CO_2)	E	Tier 1
3C4 Direct N_2O from managed soils	E	Tier 1
3C5 Indirect N_2O from managed soils	NE	
3C6 Indirect N_2O from manure management	E	Tier 1
3C7 Rice cultivation	E	Tier 1

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

All the inventory estimates are based on a Tier 1 approach, and there are a few categories that have not been included due to a lack of data (Table 3).

4.2.2 Opportunities for improvements

The number of staff involved in the inventory compilation is insufficient and there is a lack of proficiency in the IPCC methodologies. Capacity needs to be built around the IPCC 2006 Guidelines, as the recent update was the first time these guidelines were used. This is particularly important for the Ministry of Agriculture, as they were not involved in the previous training. More training on the software is therefore required to increase the understanding of the methods, but also to expand the number of staff that are proficient in compiling the inventory. This is important for sustainability because if a staff member leaves, then there will be other staff members to pick up the inventory and move forward without a delay. Increased numbers are also useful for quality checking purposes, as one can compile, and another can conduct quality checks. The staff could be part of the climate change unit that was mentioned in the previous section.

Besides training on the IPCC software, other capacity building requirements have been identified:

- Quality control and quality assurance procedures
- How to fill and manage data gaps so more country specific data can be utilised
- How to select the most appropriate emission factors for the country
- Tier 2 methodologies for key categories to understand the requirement for Tier 2

In addition to capacity building, there is a need to collect country specific data on a more regular basis. The last census data was completed in 2009 and it would therefore be useful to conduct another census and continue to do this at 10-year intervals. This data can be used to validate activity data for the inventory. It would be important to ensure that the agriculture census included data requirements for the GHG inventory compilation.

In terms of agriculture, it is important to align the data collection for the inventory with data collection from agriculture. This would require that the current data collected be assessed to determine how it could be adapted to accommodate additional data requirements for the inventory.
Fertiliser data is obtained from two sources as time-series data is not complete. It is suggested that the data collection templates or processes in the Statistical Unit at the Agriculture Ministry be assessed and enhanced to include the collection of fertiliser data on an annual basis. The customs data can continue to be used as validation of this data.

A guidance document outlining data collection protocols could also assist in ensuring all the data collected is high quality and comparable.

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	Supporting programmes
Trained agriculture GHG inventory team	Develop a set of roles and responsibilities for the Agriculture GHG Inventory compiler and quality controller.	
	Identify a team of agriculture specialists to undergo inventory training.	
	Identify training opportunities to capacitate the inventory compilers.	CBIT project
	Source funding to ensure team can undergo training.	
	Complete the training.	
Conduct an agriculture census		
Collect inventory related agriculture data through agriculture extension unit	Assess existing data collection templates for agriculture and the data collection templates provided by AgREADY project, which provide requirements for the inventory to determine how they can be integrated with each other.	GCF CARICOM AgREADY project
	Develop an updated data collection template that satisfies the current data collection needs and the needs of the inventory.	
	Pilot the data collection templates at the regional training centres.	
	Utilise materials developed during the AgREADY project together with the updated template to conduct awareness campaigns for extension officers and farmers, and train them on data collection templates.	GCF CARICOM AgREADY project
	Implement the data collection process.	
Improve completeness of agriculture inventory	Identify categories where emissions are not estimated but do occur, such as liming, and identify potential data sources to include these categories.	
Data collection protocol guidance document	Develop a guidance document on data collection protocols for agriculture.	

4.3 Quality control and verification procedures

4.3.1 Current situation

The UNDP support team conducted verifications on the sectoral inventories and a quality control was also conducted at the level of the Climate Change Directorate of the Ministry of the Environment. The specific details of these controls were not provided.

4.3.2 Opportunities for improvements

A guidance document on quality control processes and a list of quality control checks could be developed to assist the inventory team in undertaking and documenting the quality control procedures. To start, the UNFCCC QA/QC guidance document can be used and then altered to make it more relevant to national circumstances. The document can include information on what checks need to be conducted to ensure that the data collection protocols have been followed, calculations are correct, and documentation has been included. These can be general checks (which an expert from another sector could complete) and detailed check (which would need to be conducted by another agriculture expert). Quality control should occur at all stages of the GHG inventory's development including activity data collection, data processing, data archiving, emission calculations, and inventory compilation. Templates can be used to guide the process and allow documentation of the quality control process. As mentioned in an earlier section, building capacity of various staff members would enable them to compile the inventory, while others can complete the quality checks.

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 quality assurance and quality control for the agriculture GHG inventory compilation process

Goal	Actions	Supporting programmes
Improved QC for agriculture inventory	Capacitate the inventory team to conduct quality control checks on the agriculture inventory.	CBIT project
	Draw up a checklist of the specific checks to be completed for the agriculture inventory.	
	Archive all checklists on the online MRV system.	

4.4 MRV and archiving

4.4.1 Current situation

There is no central archiving system for the inventory and MRV measures appear to be limited.

4.4.2 Opportunities for improvements

The lack of a central archiving system is a challenge which has been recognised and the CBIT project aims to address this issue by assisting the Haitian government to setup a sustainable MRV system. It is suggested that, as part of this development, staff and users be trained on the system and a procedural document be developed to standardise the use of the archiving system.

Table 6 shows the identified actions to improve the quality assurance and quality control procedures for the agriculture GHG inventory compilation.

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

Goal	Actions	Supporting programmes
Sustainable MRV system for agriculture GHG inventory data	Develop a robust national on-line information system for archiving all inventory data.	CBIT project.
Transparent GHG inventory report for agriculture	Develop a template for the agriculture GHG inventory report to ensure all required components (and annexures) are included (should contain notes of what to include in each section).	
	Archive this manual on the developed on-line system.	

5. Overall action plan for improving Haiti's agriculture sector GHG inventory

Goal	Task	Responsibility	Year 1	Year 2	Year 3
Strengthening the institutional foundations for AgrGHG	Awareness	MDE			
	Policy-making	MDE- InterMinisterial Committee & Legislative branch			
	Institutional arrangements	MDE-MARNDR			
Capacity-building	Training	MDE/MARNDR			
	Guidelines document for GHG inventory (preparation/dissemination)	MDE/MARNDR			
	Facility set-up	MDE/MARNDR/MEF			
Data	Data sources identification	MDE-MARNDR			
	Adaptive methodology for collect	MDE-MARNDR			
	Archiving	MDE-MARNDR			
Tools & Infrastructure	Technological (soft & hardware) equipments	MDE			
	Data access	MDE			
	Think-tank	MDE-MARNDR			
Empowerment	Role-playing	MDE			
	Responsibility for effective/informed actions	MDE-MARNDR			
	People buy-in	MDE-MARNDR			
	Historic data	MDE-MARNDR			
	Quality-control				

Priority Level

HIGH	MID	LOW

Goal	Task	Responsibility	Year 1	Year 2	Year 3
Strengthen institutional foundations for agriculture inventories	Build awareness around agriculture GHG inventories and their compilation.				
	Develop a GHG inventory unit (or climate change unit) within the MARNDR				
	Identify key data providers of agricultural GHG inventory data (see section 1.2).				
	Draft a set of data requirements from the various identified organisations (including details on what, how often, what format, etc.).				
	Draw up a data flow diagram and identify areas where MoUs may be required.				
	Draft MoUs, attach the data requirements and formalise the data collection process with each data provider.				
	Develop policies to create an enabling environment for agriculture data collection.				
GHG inventory procedural manual for agriculture	Develop a guidance document for the agriculture inventory compilation process detailing institutional arrangements, team composition, roles & responsibilities, timelines, etc. and taking into account national circumstances.				
Trained agriculture GHG inventory team	Develop a set of roles and responsibilities for the Agriculture GHG Inventory compiler and quality controller.				
	Identify a team of agriculture specialists to undergo inventory training.				
	Identify training opportunities to capacitate the inventory compilers.				
	Source funding to ensure team can undergo training.				
	Complete the training.				
Conduct an agriculture census					
Collect inventory related agriculture data through agriculture extension unit	Assess existing data collection templates for agriculture and the data collection templates provided by AgREADY project, which provide requirements for the inventory to determine how they can be integrated with each other.				
	Develop an updated data collection template that satisfies the current data collection needs and the needs of the inventory.				
	Pilot the data collection templates at the regional training centres.				
	Utilise materials developed during the AgREADY project together with the updated template to conduct awareness campaigns for extension officers and farmers and train them on data collection templates.				
	Implement the data collection process.				
Improve completeness of agriculture inventory	Identify categories where emissions are not estimated but do occur, such as liming, and identify potential data sources to include these categories.				
Data collection protocol guidance document	Develop a guidance document on data collection protocols for agriculture.				
Improved QC for agriculture inventory	Capacitate the inventory team to conduct quality control checks on the agriculture inventory.				
	Draw up a checklist of the specific checks to be completed for the agriculture inventory.				
	Archive all checklists on the online MRV system.				
Sustainable MRV system for agriculture GHG inventory data	Develop a robust national on-line information system for archiving all inventory data.				
Transparent GHG inventory report for agriculture	Develop a template for the agriculture GHG inventory report to ensure all required components (and annexures) are included (should contain notes of what to include in each section).				
	Archive this manual on the developed on-line system.				

Priority level – High (orange); Medium (yellow); Low (green).

6. References

Ministry of Environment, 2022. *Draft Nationally Determined Contribution of the Republic of Haiti, First Update 2021.*

Global Environment Facility (GEF), 2019. *Strengthening National Institutions in Haiti to meet the Transparency Requirements of the Paris Agreement*. https://www.cbitplatform.org/projects/59.

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