



Preparing a National Inventory Improvement Plan

Remote Training on the Building of Sustainable National Greenhouse Gas Inventory
Management Systems

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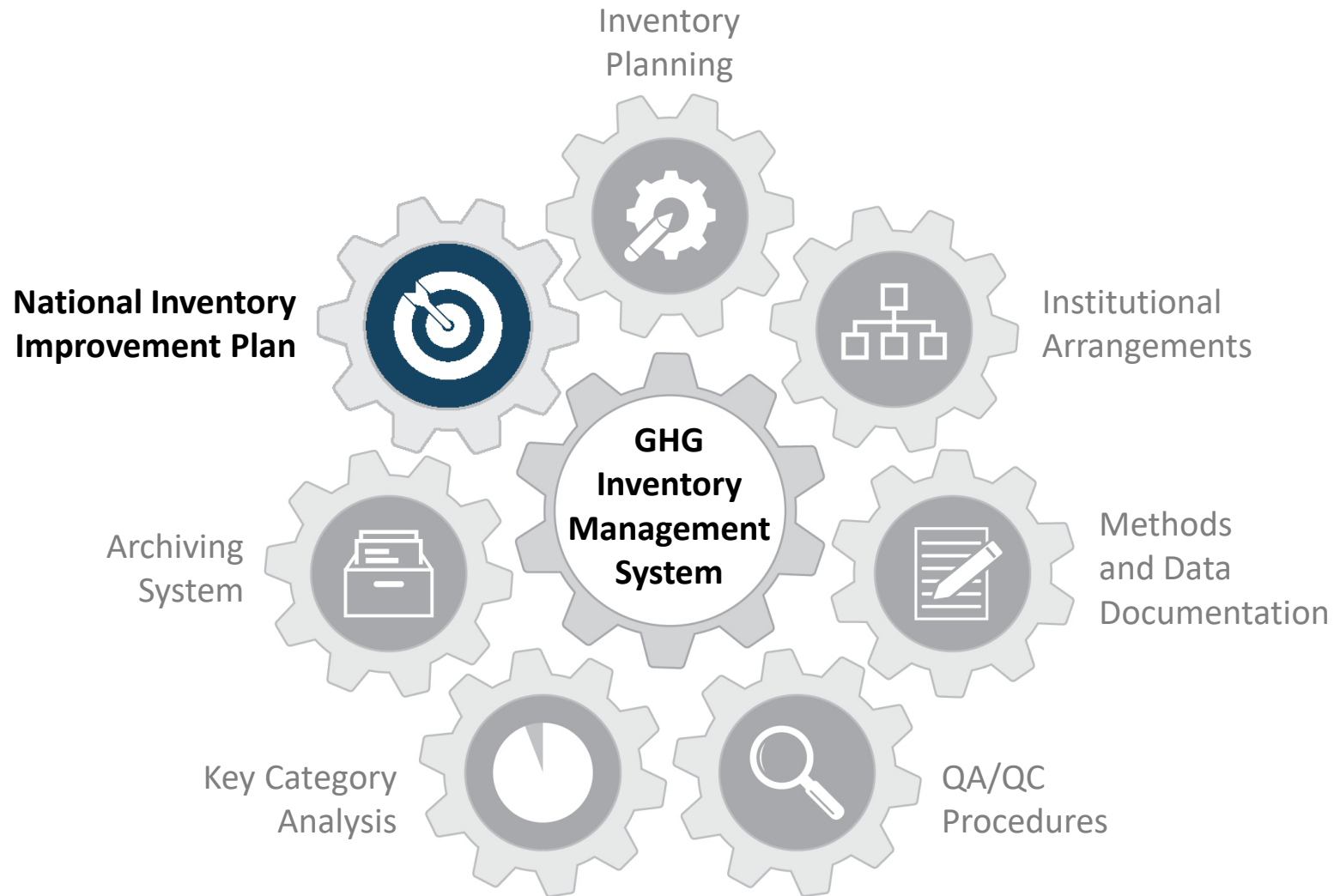
U.S. Environmental Protection Agency

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Developing a Sustainable National GHG Inventory System



National Inventory Improvement Plan



National Inventory Improvement Plan



What is a National Inventory Improvement Plan?



Review of the Template

The NIIP: Allowing Continual Improvement



The NIIP template gives an inventory team a place to:

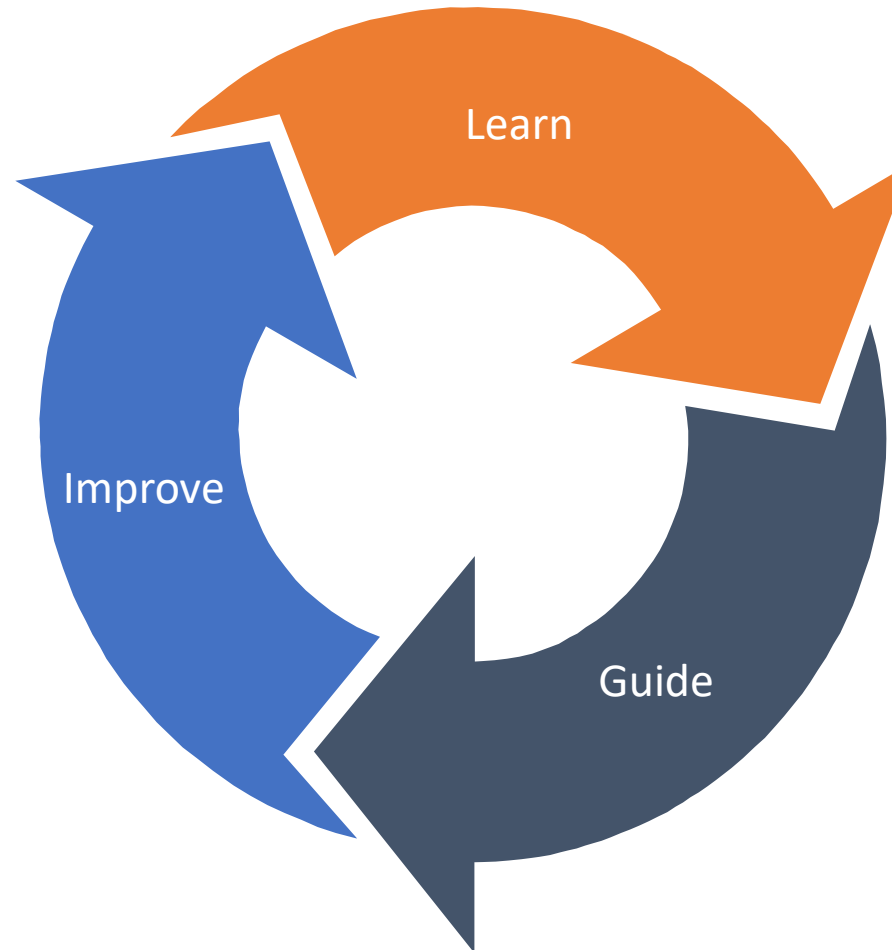
- Compile & synthesize improvements from other templates
- Identify specific actions to address improvements
- Prioritize improvements
- Plan how to implement of improvements



The NIIP: Allowing Continual Improvement



The NIIP will facilitate **continual** inventory improvements over time



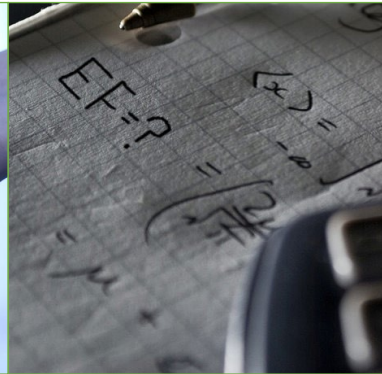
Benefits of a National Inventory Improvement Plan



Find better data



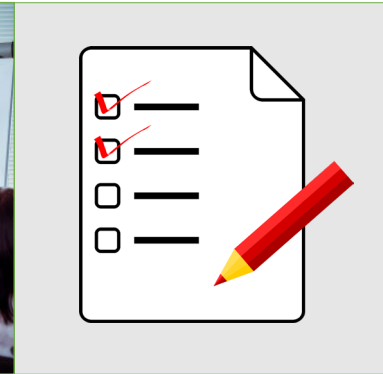
Facilitate coordination among institutions to support data collection



Adopt a higher Tier methodology



Train current staff members



Enhance QA/QC procedures



Guide new staff



1. Does your country have a national GHG inventory improvement plan? [choose one]

- a) Yes
- b) No
- c) I do not know

2. What types of improvements are in your improvement plan? [please describe]

Describe

[Respond using Mentimeter link in the chat!](#)



3. How have you identified improvements and updated your plan in the past? [please describe]

Describe

[Respond using Mentimeter link in the chat!](#)

The graphic features a central dark grey horizontal bar with the text "National Inventory Improvement Plan" in white, italicized font. The bar is surrounded by several grey gears of varying sizes. One gear on the right side of the bar is highlighted in dark blue and contains a white target icon with a pencil. Other gears contain icons for a target, a pencil, a hierarchy chart, a folder, a document with a pencil, a clock, and a magnifying glass. The background is white with a blue geometric pattern on the left side.

*National Inventory Improvement
Plan*

How this Template Will Help!



The *National Inventory Improvement Plan* template will help the inventory team:



- Record improvements identified in previous templates, including QA/QC findings
- Prioritize improvement projects
- Outline implementation steps/details for high priority projects

Step 0: Review “Default” Introduction in Template



Review and update default introduction to *National Inventory Improvement Plan* included in template



National Inventory Improvement Plan

This National Inventory Improvement Plan (NIIP) presents options for improving the national GHG inventory system to support compilation of a high-quality inventory consistent with the 2006 IPCC Guidelines. The NIIP will guide future efforts to increase the transparency, consistency, comparability, completeness, and accuracy of future inventories. It will inform the overall improvement of the national GHG inventory, including strengthening institutional capacity over the coming years. These improvements have been identified through documentation of existing institutional arrangements, category-by-category analyses of methods and data, QA/QC procedures, key categories, and the archiving system.

Table 7-1 identifies the improvement options for this NIIP and their level of priority. Table 7-2 proposes inventory improvement projects, consisting of the high-priority options from Table 7-1.

STEP 1: Compile the list of improvement options in Table 7-1, below.

Purpose of Table 7-1	To provide a clear overview of the improvement options identified by the inventory team in Templates 2 through 6 and an explanation of the basis of the assigned priority level.
How to use the table when complete	To guide efforts to increase the transparency, accuracy, consistency, comparability, and completeness (TACCC) of future national GHG inventories.
General instructions	Consolidate all improvements listed in Templates 2 through 6 into this table. Ensure that these improvements include enough identified in Templates 2 through 6. Improvements in these categories need to be specific, not general. Improvements that are too general are unlikely to be completed

Who completes this table: National Inventory Coordinator (NIC)

Step 1: Listing Improvement Options from Template 2 through 6

Instructions by column	Key Category: Record "Yes" if the category to which the issue applies is a key category. Record "No" if it is not a key category. Record "N/A" if the issue does not pertain to an individual category.
	Category Code and Name: If the relevant improvement is related to methods and data documentation, record the IPCC code and name of the <u>source</u> or sink category to which this improvement relates. The codes are in the <i>2006 IPCC Guidelines, Volume 1, Chapter 8, Table 8.2</i> , available here: https://www.ipcc-nggip.iges.or.jp/public/2006gl/vol1.html .
	Issue: Describe the issue and why an improvement is recommended.
	Improvement Option: Describe what will be done to address the issue.
	Priority of Improvement: Indicate the priority of the improvement: High, Medium, or Low. Explain why this level of priority is warranted. For example, acquiring activity data for a category that has not been estimated to date but is considered to have substantial emissions, will likely be more important than developing a country-specific emission factor for a non-key category. Consider what your high-level priorities for the GHG inventory should be (e.g., improving completeness, enhancing accuracy with key categories, reducing overall uncertainty, improving time series consistency, increasing transparency, improving data availability, enhancing institutional structures). This may help you decide whether an improvement option should be <u>high-priority</u> .

Table 7-1 Improvement options

No.	Key Category	Category Code and Name	Issue	Improvement Option	Priority of Improvement	Timing of Improvement	Additional Information Needed for Improvement
1							
2							
3							



Who completes this table: National Inventory Coordinator (NIC)

Step 1: Listing Improvement Options from Template 2 through 6

Table 7-1 Improvement options (examples)

No.	Key Category	Category Code and Name	Issue	Improvement Option	Priority of Improvement	Timing of Improvement	Additional Information Needed for Improvement
1		Cross-cutting (Inventory Planning)	Limited time for Inventory cycle (See “Inventory Planning”)	Start the GHG Inventory development cycle 1 month earlier	High	Next Inventory cycle (beginning in June 2022)	Communicating plan needs to begin ASAP
2	Y	1A3b Road Transport-CO2	Required data is not submitted to inventory in time for Expert Review (See “Inst. Arrangements”)	Develop a formal MOU with Department of Transportation to ensure data is provided in a timely manner and format	Medium	Next Inventory cycle (pending signature of MOU)	Use Memorandum of Cooperation (MoC) template as starting point
3	Y	3A1 Enteric Fermentation-Cattle-CH ₄	Shift from Tier 1 methods to Tier 2 given this is key category (See MDD and KCA)	Collect data to implement enhanced characterization or Tier 2 methods consistent with IPCC methodological decision tree and improve accuracy.	High	Longer-term, complete within 2 Inventory cycles, by 2024	See Task 3 in contract with University DC
4		Cross-cutting (Archiving)	No back-up of data (See “Archiving”)	Copy data files from Source Lead computers to a CD or back-up external hard drive	High	At the end of the next inventory cycle	

Who completes this table: National Inventory Coordinator (NIC)



Step 2: Detail inventory improvement projects from Step 1 (Table 7-1) that were high priority

Table 7-2. Potential projects for improving the national GHG inventory system

No. (from Table 7-1)	Estimated Staff Time (workdays)	Estimated Cost for Services (local currency)	Estimated Cost of Equipment (local currency)	Reference to Further Information	Responsible Staff



Who completes this table: National Inventory Coordinator (NIC)

Example of Identifying Potential Projects to Implement High-Priority Improvements



Table 7-2. Potential projects for improving the national GHG inventory system

No. (from Table 7-1)	Estimated Staff Time (workdays)	Estimated Cost for Services (local currency)	Estimated Cost of Equipment (local currency)	Reference to Further Information	Responsible Staff
1	60	\$10,000	N/A	See Task 2 in contract with University DC	V. Cambo
2	120	\$15,000	N/A	See Task 3 in contract with University DC	J. Steller

**From Table
7-1**

Upon completion of 7-1 and 7-2, improvement plan is ready to move forward

Prepare a NIIP: Example from Republic of Moldova



Access here: https://unfccc.int/sites/default/files/resource/NIS_Report_2021_EN_211211-web.pdf

Chapter 6: National Inventory Improvement Plan



6. National Inventory Improvement Plan

6.1. Objectives

This National Inventory Improvement Plan (NIIP) presents actions that the Republic of Moldova has identified to improve its The NIIP will guide future efforts to increase the transparency, consistency, comparability, completeness, and accuracy of dresses many of the shortcomings of the previous inventory, and will inform future inventory teams of needed improvements identified through documentation of existing institutional arrangements, category-by-category analyses of methods and data archiving systems, and an assessment of key categories in the Republic of Moldova.



6.2. Institutional Arrangement Priorities

The National Inventory System involves all of the institutional, legal, and procedural arrangements made by the Republic of genic emissions and removals, as well as the reporting and archiving of inventory information. Identified within a National In government agency responsible for producing a national greenhouse gas inventory, the key organizations that contribute d the end-users of the inventory.

Preparing a comprehensive inventory requires establishing, identifying, and documenting all relevant contributors to the N documenting the status of existing institutional arrangements for inventory development will ensure continuity and integrit tionalization of the inventory process, and facilitate prioritization of future improvements.

Table 6.1 lists the priority actions identified in the Chapter 1: Institutional Arrangements.

Table 6.1: Priority Actions for the National Inventory System

Strengths of the National Inventory System Management Structure	Potential Improvements of the
<p>The key strengths in the management structure of the National Inventory System (NIS) are as follows:</p> <ul style="list-style-type: none"> The existence of regulatory provisions (Government Decision No. 1277 as of 26 December 2018 on establishing the National System for Monitoring and Reporting (NSMR) Greenhouse Gas Emissions and Other Information Relevant to Climate Change) that establish the obligation to submit data related to the inventory process of GHG emissions towards specific deadlines to the competent authority designated with responsibility for national inventory preparation; Existence of a group of qualified experts specializing in areas related to the process of GHG emissions inventory with rich experience gained over the years 1998-2020, starting from the first cycle of GHG emissions inventory conducted during preparation of the First National Communication of the Republic of Moldova to the UNFCCC (1997-2000) and ending with the latest inventory cycles conducted during preparation of the Second Biennial Update Report of the Republic of Moldova under the UNFCCC (2017-2019) and of the Third Biennial Update Report of the Republic of Moldova under the UNFCCC (2020-2021); Possibilities for elucidation of quantitative and qualitative aspects related to the inventory process from sectorial, national and international statistical reports and publications; The existence of national studies in various sectorial areas, which allowed for the possibility in the near future to start using calculation methodologies of higher tiers within the national inventory; The existence of a database of activity data related to the inventory process of GHG emissions, which is updated within each inventory cycle and is maintained institutionally starting from the first cycle of GHG emissions inventory. Experience gained in implementing quality verification, quality control and quality assurance measures for the national inventory of GHG emissions. 	<p>The estimations process of the be also enhanced through th</p> <ul style="list-style-type: none"> Enhancing the level of volved in developing th a series of thematic tra Enhancing the profes involved in developing izing the gradual transi country specific EFs as case of key categories; Strengthening the dat cycle, as well as the mentation on which inv principle of transpar

Source: Chapter 1: Institutional Arrangements.

Chapter 6: National Inventory Improvement Plan



Table 6.10: National Inventory Improvement Priorities

#	Sector	Priority Level	Improvements Needed
1	General	High	Enhancing the professional capacities of national experts involved in the inventory process, specifically in the application of 2006 IPCC Guidelines and the associated GHG emissions calculation and reporting software, through thematic trainings with participation of international trainers.
2	General	High	Transitioning from default EFs and Tier 1 methodologies to country specific emission factors and Tier 2 and 3 methodologies, particularly focusing on key categories.
3	General	High	Strengthening the data management system for tracking and archiving the inventory information used in each inventory cycle.
4	Energy	High	Implementing in extent possible all recommendations contained in the "Report on the technical review of the National Greenhouse Gas Inventories of the Republic of Moldova for 1990-2016 periods – Energy Sector", conducted by Dr. Veronica Ginzburg, Institute of Global Climate and Ecology, Roshidromet / Academy of Science of the Russian Federation within January-February 2019 periods.
5	Energy	Medium	Transitioning from default EFs and Tier 1 methodologies to country specific emission factors and Tier 2 and 3 methodologies, in particular for the following key categories: 1A3 Transport and 1B2 Fugitive Emissions from Oil and Natural Gas.
6	Industrial Processes and Other Products	High	Setting up an on-line reporting system for collecting AD from companies that import, use, dispose, recover and recycle refrigerants and refrigerant equipment; this information system will provide the Ministry of Environment, Environment Agency and Public Institution "Environmental Projects Implementation Unit" more accurate AD that could potentially help reduce uncertainties in estimating GHG emissions from the ZF "Product Uses as Substitutes for ODS" category in the Republic of Moldova
7	Agriculture	High	Estimate the share and usage of manure management systems in the Republic of Moldova (MS%) in order to enhance the accuracy of GHG inventory results within 3B "Manure Management" (the activity will be similar to that undertaken within May-June 2015 periods by the specialists from the Scientific-Practical Institute of Biotechnology in Animal Breeding and Veterinary Medicine as well as from the National Agency for Food Security, when dairy cows and other cattle farms with a herd of more than 5 heads were inspected, as well as pig farms with more than 30 heads and the largest poultry farms in the country, the inspections covered 36 districts of the country; in total, manure management systems from 179 farms have been inspected, of which 96 cattle farms, 66 pig farms and 17 poultry farms).
8	LULUCF	High	Complete the implementation process of the recommendations contained in the "Report on the technical review of the National Greenhouse Gas Inventories of the Republic of Moldova for 1990-2016 periods – LULUCF Sector", conducted by Dr. Viorel Blujdea from the National Institute for Forestry Research and Development "Marin Dracea" (former ICAS Bucharest, Romania) in January-February 2019.
9	LULUCF	High	Raising the quality of GHG inventory in the LULUCF sector, through periodic (e.g., at least once in 5 years) "Forest Inventory" to provide updated information, not only for the state of forest fund, but also for private forest land or those under the administration of local authorities; also, new production tables and other forest relevant information are needed; to accomplish these imperatives, the inter-institutional collaborative effort, and the needed financial resources may be very significant; thus, it is imperative to identify as soon as possible opportunities for obtaining such a financial support from the international donors and/or partners.
10	LULUCF	Medium	In collaboration with the specialists from the Institute of Pedology, Agrochemistry and Soil Protection "Nicolae Dimo" and Forestry Research and Management Institute of "Moldsilva" Agency, undertake a research study focused on identifying the soil organic carbon stocks (SOC ₀) in the most recent years; the content of humus in arable soils (the layer of 0-30 cm) has to be identified in representative sites in the northern part of the country (e.g., Napadova, Floresti district), in the southern part of the country (e.g., Lebedenco, Cahul district), as well as in the central part of the country (e.g., Ivancea, Orhei district); the results of the study will be used to estimate CO ₂ emissions from annual change in carbon stocks in mineral soils through a Tier 2 methodological approach.
11	Waste	Medium	Accomplishing an external independent technical evaluation of the GHG inventories – Waste Sector, by an international consultant with a good knowledge of the 2006 IPCC Guidelines and with extensive expertise in assessing GHG inventories of the Annex I Parties.
12	Waste	Medium	Conducting a new study on determining the morphological composition of solid municipal waste deposited in various urban areas of the Republic of Moldova, in each locality at least 3 analyses per season (autumn, winter, spring and summer).

Improvement Planning in the Inventory Compilation Cycle



Action Items for National Inventory Improvement Plan



1. To save time and effort, identify improvements and issues when completing the other templates, so they can feed into the NIIP.
2. The NIIP facilitates the implementation of improvements over time.
3. Establish the *issue*, the *improvement plan*, the *priority*, and the *timing* of when the improvement needs to or can be completed.
4. Once a plan is established, estimate staff time, cost, when it should be completed be, and who is responsible
 - Supports efficient use of resources



Thank You For Your Attention!

For questions & more information, email:
ghgi.transparency@epa.gov



Toolkit for Building National GHG Inventory Systems
<https://www.epa.gov/ghgemissions/toolkit-building-national-ghg-inventory-systems>