

RALI Series: Promoting Solutions for Low Emission Development

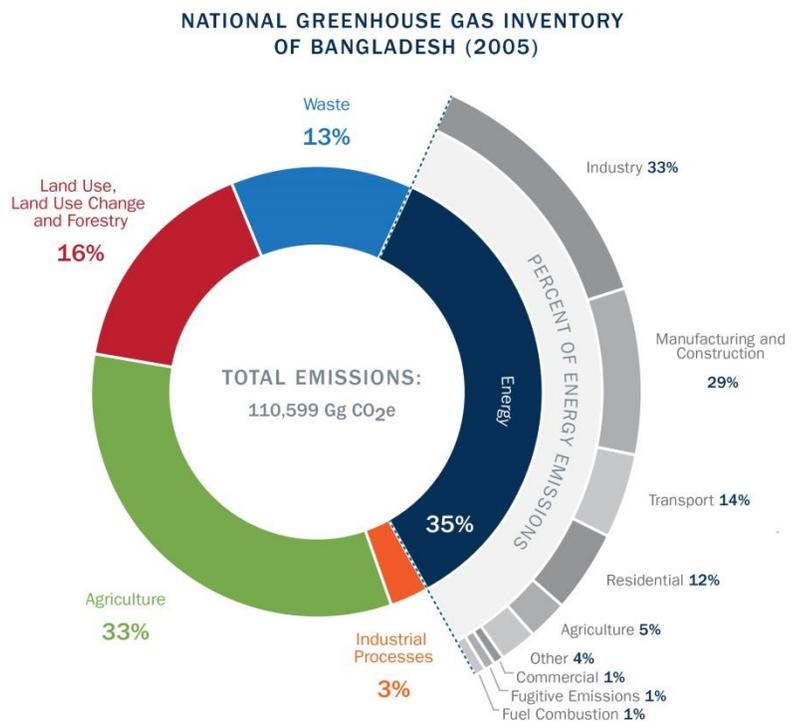
Tools for Strengthening Greenhouse Gas Inventories: Building Blocks for Transparency & Green Growth

July 2017

The RALI Series is a collection of papers developed by the RALI project to share examples of low emission development in practice. The series features case studies, tools, and innovative new approaches in this space, highlighting user benefits and lessons learned. To learn more about the RALI project, visit <https://www.climatelinks.org/projects/rali>.

Greenhouse gas (GHG) inventories are integral to meeting critical international and domestic needs and taking advantage of opportunities, yet many countries struggle with how to prepare them and ensure that they are sufficiently robust. In this paper the Resources to Advance LEADS Implementation (RALI) team describes how institutions – national, municipal, organizational – can benefit from the systematic institutional learning approach advanced by the U.S. Agency for International Development (USAID) and the U.S. Environmental Protection Agency (US EPA) to developing GHG inventories.

Three tools developed by USAID and the US EPA are the foundation of this approach, and have been shown to improve national inventories:¹ (1) the US EPA's Developing a National Greenhouse Gas Inventory System workbook, (2) US EPA's inventory toolkit, and (3) USAID's National GHG Inventory System curriculum. Countries and other institutions can apply these tools to meet various needs, such as compliance with reporting obligations, to monitor emissions over time, and to build institutional capacity to plan and track GHG emission reductions, ultimately paving the way for green growth.



National GHG inventories are critical for compliance with reporting requirements and for guiding and monitoring policy formulation/implementation. Recognizing this, the Government of Bangladesh used the US EPA workbook to prepare its Third National Communication (forthcoming).

Source: Bangladesh's Second National Communication (2012), available at <http://unfccc.int/resource/docs/natc/bgdn2.pdf>

UNFCCC Inventory Requirements

The United Nations Framework Convention on Climate Change (UNFCCC) requires member parties to periodically report their national GHG emissions. Parties must also comply with UNFCCC transparency requirements, which are being developed to augment existing guidance, and to track implementation of Nationally Determined Contributions (NDCs).

¹ During 2011-2016, the USAID Low Emissions Asian Development program (USAID LEAD) deployed these three tools in regional technical assistance and training to GHG inventory preparers in several South and Southeast Asian nations. Using the Inventory Performance Progress Indicator (IPPI), USAID LEAD demonstrated that by these tools helped countries to prepare better national GHG inventories than they could before using the tools.

The Importance of Robust National GHG Inventories and Systems

Robust GHG inventories are critical for compliance with reporting requirements, and also to guide and monitor policy formulation and implementation. Robust GHG accounting can produce reliable inputs for strategic plans that aim to meet long-term GHG emission reduction goals while also supporting economic growth and rising living standards. Put simply, you cannot manage what you do not measure.

Reports on GHG emissions:

- present emission and removal trends over time, and thus reveal sectors of the economy that can benefit the most from policies and measures targeting emission reductions;
- show progress towards goals, or indicate when a course correction is needed;
- serve as the foundation for other analyses that can inform policy, such as cost benefit analysis; and
- keep stakeholders informed of what actions are being taken to address climate change.

The Need for Tools and Capacity Building

Despite how vital national and institutional GHG inventories are, many teams lack the capacity to prepare robust inventories. This is due to a variety of challenges, such as weak or absent institutional arrangements, a lack of suitable activity data² or emission factors,³ indecision about GHG estimation methods, inexperience in applying IPCC guidance, the loss of instructive documents from prior inventories, or inexperience with important inventory concepts, such as key category analysis or quality assurance and control.

To address this, the US EPA and USAID developed three tools to provide technical assistance and training to national GHG inventory preparers around the world to help them prepare better inventories. These tools are valuable for enhancing the GHG inventory system for any institution, from national to organizational. Used in tandem, these tools help inventory teams improve the quality of their inventory and instill a process that will increase the efficiency of inventory development over time.

Tool 1: US EPA's GHG Inventory Workbook

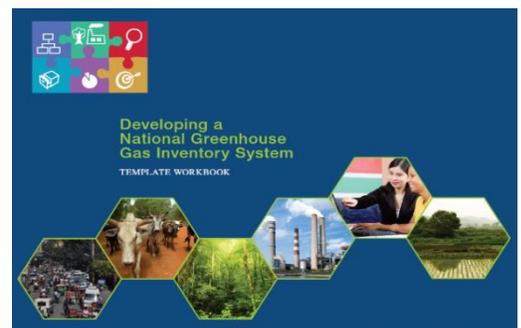
The workbook, *Developing a National Greenhouse Gas Inventory System*, consists of a series of worksheets that walk users through the six key ingredients to developing robust inventory systems: (1) institutional arrangements; (2) record-keeping of the GHG estimation methods and data selected; (3) quality assurance/quality control (QA/QC); (4) archiving of inventory inputs and outputs for efficient future reference; (5) key category analysis; and (6) national inventory improvement planning.

This workbook helps inventory preparers succeed by:

- systematically teaching the vital processes of inventory management from start to finish by providing a comprehensive list of steps that sets the gold standard for inventory preparation;
- helping users assign specific individuals to specific tasks with specific due dates, matching needs to the people who can meet them, and establishing accountability;⁴ and
- serving as a standard operating procedure for subsequent inventories, which can easily be modified as needed.

Municipality Reporting

Subnational coalitions such as the [Global Covenant of Mayors for Climate and Energy](#), [C40](#), and [Under 2 MOU](#) are now playing a major role in efforts to reduce global GHG emissions. Members of the coalitions make a wide range of commitments to take action on climate change, including conducting and reporting a GHG inventory on a regular basis, according to the guidance established by each coalition.



² Activity data refers to data on the magnitude of human activity resulting in GHG emissions or removals taking place during a given period of time.

³ An emission factor is the average emission rate of a given GHG for a given source, relative to units of activity.

⁴ For an inventory to be prepared, countless decisions must be made about the roles and responsibilities of ministries, offices, and staff. By effectively offering the user a list of critical inventory assignments, the workbook facilitates the decisions upon which the inventory depends.

Tool 2: The U.S. EPA Inventory Toolkit

The US EPA's inventory toolkit provides additional tools and resources to complement the inventory workbook. Specifically, the inventory toolkit consists of a series of templates that the user modifies to his or her specific situation in order to:

- alert interested parties to the launch of the inventory preparation process;
- define sector-specific roles and responsibilities in writing;
- use memoranda of understanding (MoUs) or similar document to formalize institutional arrangements; and
- use agreements (e.g., MoUs or non-disclosure agreements) to obtain data sharing commitments that take confidential or sensitive data into account.

These templates are resources that help practitioners accomplish the objectives outlined in each module of the GHG inventory workbook. For example, where the workbook requires the inventory practitioner to link activity data needs to data providers, the inventory toolkit includes tools the practitioner may use to ensure those links are ultimately established by the parties involved, such as the Confidential Business Information Agreement Template and the Memorandum of Understanding Template.

In short, while the GHG inventory workbook lays out a *process*, the inventory toolkit goes further by providing inventory preparers with supplementary tools for documenting their current inventory process, identifying and filling gaps, and much more. For example, it provides:

- a template for an inventory inception memorandum that invites people to meet in order to start the new inventory process, and provides them with an agenda that can be customized according to their circumstances;
- role-and-responsibility templates for each sector to facilitate staffing agreements that underpin the work to be performed; and
- other templates to facilitate cross-ministry cooperation and building of trust among data providers, thus overcoming a major and common hurdle related to data requests (which may go unanswered).



Tool 3: The National GHG Inventory System Curriculum

To teach GHG inventory preparers how to use the US EPA inventory workbook and toolkit, USAID developed a National GHG Inventory System curriculum to be used by trainers for effectively facilitating knowledge acquisition, application, and skills in use of these tools. This is a unique, interactive, application-oriented course that can turn inventory beginners into fluent and skilled practitioners in five modules. Dozens of inventory preparers from countries across Asia contributed to the curriculum design, thus ensuring it would meet the needs of the intended audience.

Asia LEDS Training

National Greenhouse Gas Inventory System Curriculum

Source Organization: USAID LEAD Program

Date: 07/28/2016

Length: 52 PDFs, 43 PPTs, 15 Excel spreadsheets

Training Audience: Planner / policy-maker / implementer (national government)

Short Description

The National Greenhouse Gas Inventory System (NIS) Curriculum was developed to help countries implement a series of activities to build their institutional capacity to develop high quality national GHG inventories on a regular basis. By developing a system to sustainably prepare national GHG

The curriculum is designed to be delivered in a way that helps inventory preparers succeed by:

- including exercises that require cooperative interaction among all learners and give participants a strong incentive to engage deeply, to better internalize the information they acquire; and
- developing expertise through manageable, modular information-sharing, with each session building on the next.

It is recommended that each training module be delivered over a four-day period in a setting that allows for peer-to-peer learning among participants from multiple organizations. This type of lateral approach to training (i.e., participants helping participants)—as opposed to a vertical approach (i.e., participants depending exclusively on expert trainers)—unlocks local knowledge and perspectives and instills participants with confidence based on the recognition that they bring valuable experience to the work. This approach also translates that experience into actionable steps that participants can take to improve their own inventories. Moreover, this format of learning empowers participants to become valuable authorities and members of a community of practitioners, through which they develop a network of peers they can reach out to for future questions and advice.

Accessing the Tools

The GHG inventory workbook, inventory toolkit, and national GHG inventory system training curriculum are all available online free from the following websites:

- [U.S. EPA's Developing a National Greenhouse Gas Inventory System](#)
- [U.S. EPA's Inventory Toolkit](#)
- [USAID's National Greenhouse Gas Inventory System Training Curriculum](#)

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