John Venezia

ICF International

In support of U.S. EPA

January 27, 2011

Preparing a National Inventory Improvement Plan (NIIP)

Training workshop on national systems for GHG inventories
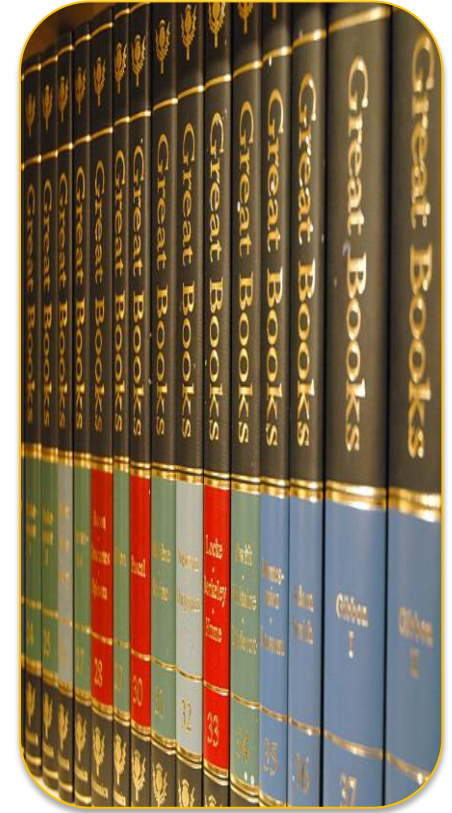
24-28 January 2011, Rome

OVERVIEW

EPA National Inventory System Templates

What is a National Inventory Improvement Plan?
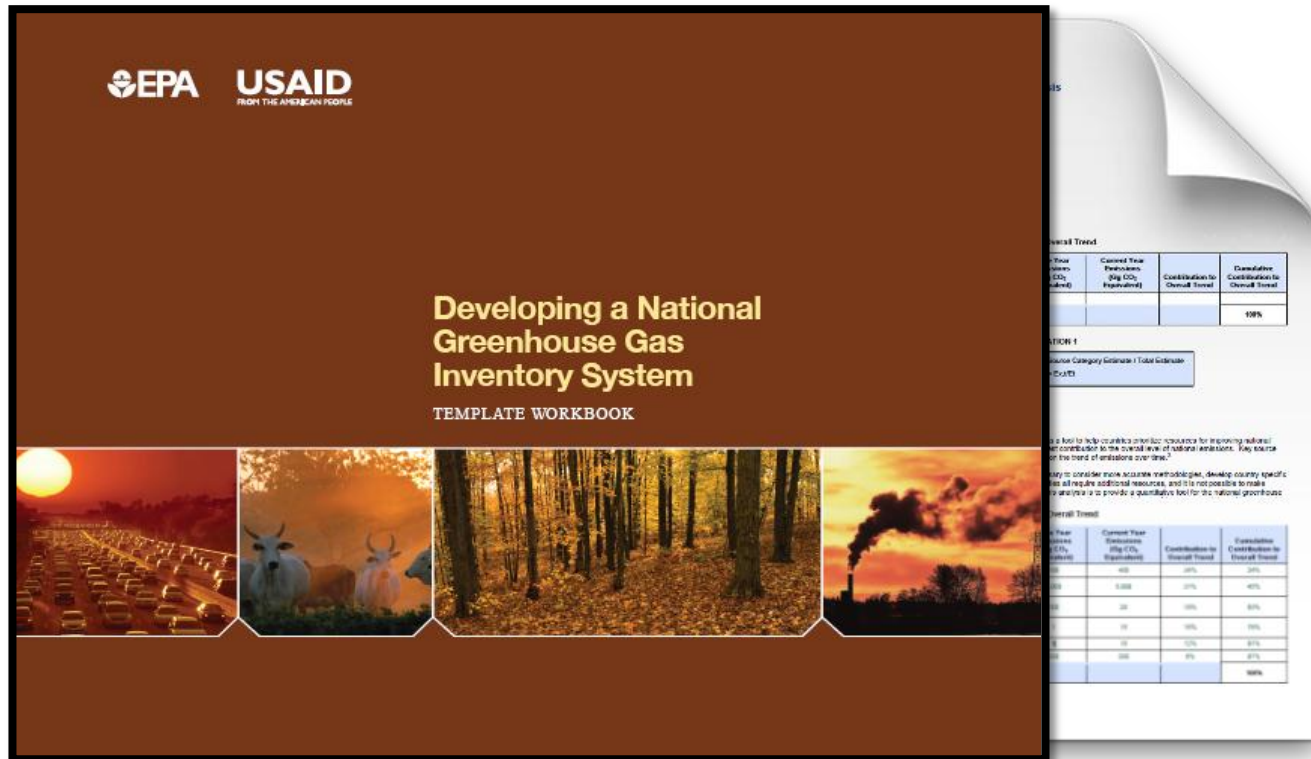
Benefits of Developing This Plan

Step-by-Step Through the Plan

The EPA Template Workbook

- Based on inventory systems developed in concert with other countries
- Each template becomes a chapter of the National Inventory System Report

Benefits of the Template Workbook

- Documents critical information, facilitates review
- Ensures roles and responsibilities are understood
- Standardizes tasks
- Accommodates varying levels of national capacity
- Creates transparency and improves credibility
- **Provides a clear starting point for future inventories**
- **Builds a sustainable national system**
- **Improves inventory quality over time**

Six Templates

Institutional Arrangements

Source-by-Source Background Document

Description of QA/QC Procedures

Description of Archiving System

Key Category Analysis

National Inventory Improvement Plan

National Inventory Improvement Plan

How this Template Will Help!

This template gives an inventory team a place to:

- Synthesize findings from other templates
- Identify and prioritize future areas of improvement
- Identify concrete actions to address improvements
- Start thinking about implementation of improvement actions

These steps will help the inventory team:

- Prepare a National Inventory Improvement Plan
- Adhere to internationally accepted inventory principles
- Meet the needs of policy-makers, researchers, and the public
- Identify projects to address the areas of highest priority
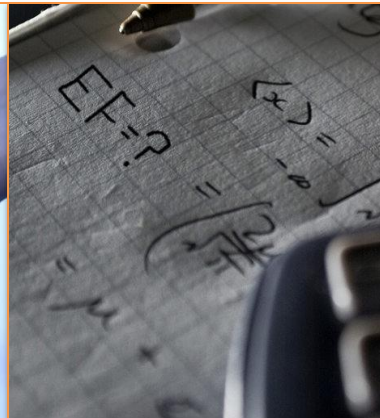- Propose projects for funding to improve emission estimation

Inventory Improvement Areas

Identifying availability of better quality data

Facilitating coordination among institutions to support data collection efforts

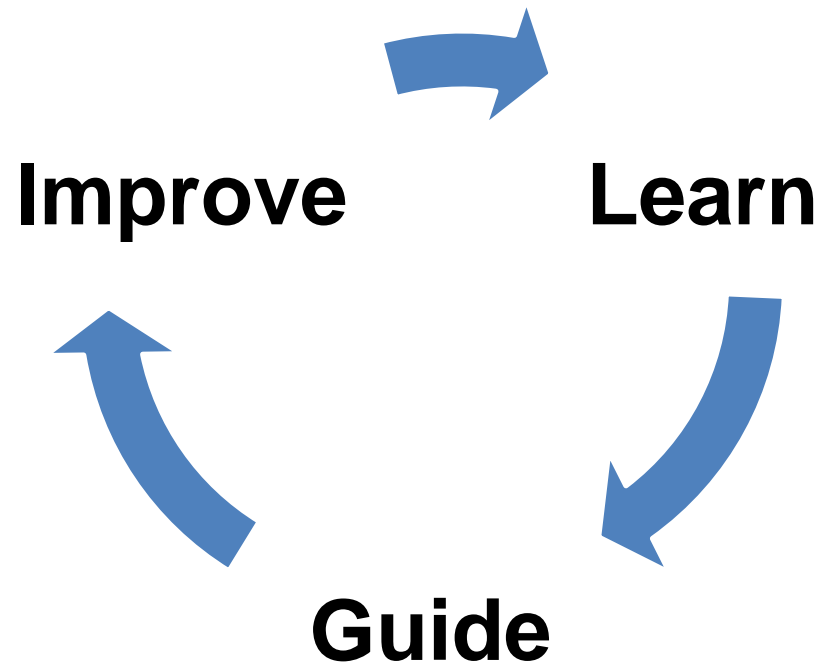Adopting a higher Tier methodology

Training of current staff members

Hiring additional staff

How The National Inventory Improvement Plan (NIIP) Works

This plan will facilitate **<u>continual</u>** inventory improvements

Improve　　　　**Learn**

Guide

Steps In The NIIP Template

Step 1. Define objectives for developing a NIIP

Step 2. Summarize <u>key source categories</u>

Step 3. Describe individual <u>source category</u> improvements

Step 4. Summarize potential improvements to <u>Institutional Arrangements</u>

Step 5. Prioritize the most important improvements

Step 6. Describe current activities or future plans for outreach, communication, and training *(optional)*

Step 7. Summarize the Inventory Improvement Plan by identifying potential projects to address priorities

Step 1
Define objectives for developing a NIIP

- ***Synthesize*** findings of previous templates
- ***Identify*** areas for improvement
- ***Propose*** projects
- ***Guide*** and inform future efforts and teams
- ***Adhere*** to UNFCCC Inventory Principles
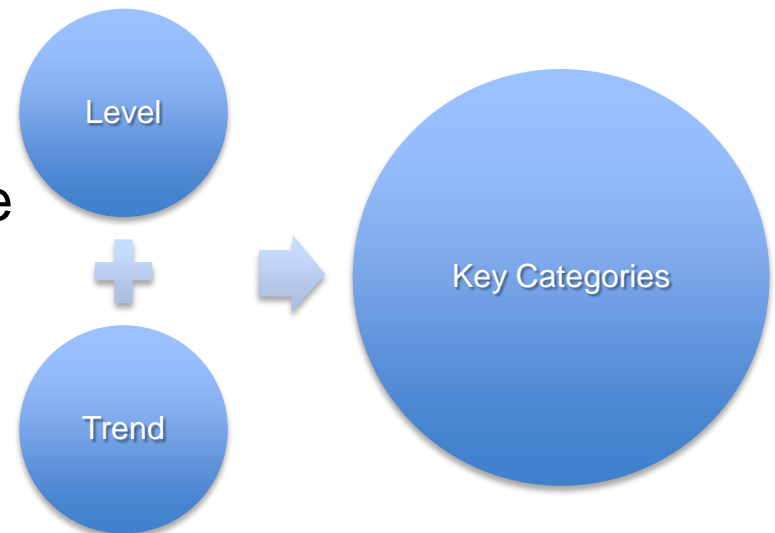

VI.1 Objective

[INSTRUCTIONS: List any additional ways in which you have identified improvements. Describe any further objectives that your country may have in developing this plan.]

This National Inventory Improvement Plan (NIIP) presents actions that [Country] has identified to improve its national systems. The NIIP will guide future efforts to increase the transparency, consistency, comparability, completeness, and accuracy of future inventories. The plan addresses many of the shortcomings of the previous inventory, and will inform future inventory teams of needed improvements. These improvements have been identified through an assessment of key sources in [Country], methodologies and data used to estimate emissions, and existing institutional arrangements. *[List any additional ways that improvements have been identified.]*

Step 2
Summarize Key Categories

- ***Sources*** with the most significant influence on a country's total emissions
  - Level Analysis, Trend Analysis

- ***Already*** identified in KCA template
  - Fill in this section using your completed table in KCA template

Level

Trend

Key Categories

VI.2 Summary of Key Sources

The concept of "Key Source Categories" was created by the IPCC as a tool to help countries prioritize resources for improving national greenhouse gas inventories. Key source categories have the greatest contribution to the overall level of national emissions. Key source categories can also be those categories that have a large influence on the trend of emissions over time.[1]

To improve the national greenhouse gas inventory, it may be necessary to consider more accurate methodologies, develop country-specific emission factors, or collect more detailed activity data. These activities all require additional resources, and it is not possible to make improvements for every source category. The primary purpose of this analysis is to provide a quantitative tool for the national greenhouse gas inventory team to use to develop an inventory improvement plan. A secondary purpose is to provide more complete and transparent information for the National Communication.

I.1 Level Analysis

[Write a short paragraph to provide context on the key sources for your country. Explain why certain sources represent a large portion of national emissions. If possible, identify which sources have become increasingly important in recent years, or which are likely to be increasingly important in the future.]

Table VI.1: Key Sources for [Country]

Source Category
Changes in forest and other woody biomass stocks

Step 3
Describe individual source category improvements

- Review completed Source-by-Source documentation

- Determine improvements for improving estimates for source categories

- Describe problem and list improvement
  - Obtain more complete activity data
  - Higher Tier methodology
  - Regional or country-specific emission factors

Examples of Potential Improvements to Source Categories

Activity Data

- Acquire or develop GIS land use maps
- Conduct livestock survey
- Carry out a waste composition study

Methodologies

- Use an agriculture/land use or ecosystem process model

Emission Factors

- Conduct a soil carbon analysis

Other

- Conduct QA/QC measures for fossil fuel combustion and forestland
- Conduct an emission trend analysis over multiple years

Examples of Potential Improvements to Source Categories

Activity Data

- Conduct livestock survey
- Improve waste composition assessments

Table VI.2: Priority Areas of Improvement for Key Source Categories

Sector	Source Category	Describe Problem	Potential Improvement
Agriculture	CH_4 & N_2O Emissions of enteric fermentation & manure management	Emission estimates are highly uncertain due to poor activity data	Conduct livestock survey to improve activity data.

Table VI.3: Improvements Planned for Additional Source Categories

Sector	Source Category	Describe Problem	Potential Improvement
Waste	N_2O, CO_2 Emissions from waste	No current emission estimates for waste incineration.	Conduct waste composition study to improve understanding of the country's waste stream composition

Step 4
Summarize improvements to Institutional Arrangements

- Agreements between lead inventory agency, national inventory management team, data providers

- Already identified in Step 3 of the Institutional Arrangements template

- Transfer them in, discuss how identified

Types of Potential Improvements to Institutional Arrangements

- Identify additional institutions to support inventory development

- Improve information sharing among relevant agencies

- Hire additional qualified staff

- Develop better archiving systems

Examples of Potential Improvements to Institutional Arrangements

Table VI.4: Priority Actions for [Country's] National Inventory

Action Number	Priority Action
1	Work with School of Agronomy and Forestry to develop estimates for LULUCF
2	Identify expert reviewers for agricultural sources
3	Establish agreements with institutions to facilitate data collection (e.g. establish MOU with Ministry of Transportation to be the data gatherers for mobile combustion)
4	Hire one staff member to assist in developing inventory emission estimates
5	Create a centralized statistical database to automate data sharing

Step 5
Prioritize the most important improvements

- Identify up to 10 of the most critical areas for improvements

- Rank (high, medium, low), considering
  - Significance in key category analysis
  - Confidence in emissions estimate

- Towards a higher quality inventory and sustainable and a sustainable inventory management system

- Discuss highest priorities

Prioritize Areas of Improvement

Table VI.5: National Inventory Improvement Priorities

Priority Level	Improvement Needed
High	Work with School of Agronomy and Forestry to develop estimates for the LULUCF sector categories
High	Conduct livestock survey to improve emission estimates from enteric fermentation and manure management
Medium	Establish memorandum of understanding with the Ministry of Transportation to be the data gatherers for mobile combustion.
Low	Carry out a waste composition study

Step 6
Communication, Outreach, and Training

- Current and future plans

- Raise awareness of inventory efforts

  - Discuss importance and benefits of producing a regular national inventory

  - Identify and invite experts to comment on and improve the inventory

- Train inventory staff on national inventory system

Potential Activities

Communication

- Develop or improve the national inventory website

- Publish soil and land use maps

- Develop brochure on national inventory and circumstances

- Add an annex to the national communications to include more complete methodological explanations, information on sources not estimated, etc.

Potential Activities

Outreach

- Schedule meetings with key stakeholders
- Raise awareness with government, academia, and the public
- Create a process for expert or public review
- Create a national forum or participate in regional forums

Potential Activities

Training

- Provide feedback to government and associated institutions

- Train or hire inventory staff

- Improve methods for reporting and documentation

- Develop a quality assurance/

quality control plan

Step 7
Summarize the Inventory Improvement Plan

- ## Summarize country priorities
- ## **Propose projects** to address most important improvements needed (identified in Step 5)
  - ### Specific project
  - ### Estimated personnel needed
  - ### Estimated cost
  - ### Estimated equipment needed (supplies, software)

Examples of Potential Projects

Table VI.6: Potential Projects for Improving the National Inventory System

#	Potential Project	Estimated Personnel Needed	Estimated Cost ($)	Estimated Capital (equipment) Needed
1	Work with School of Agronomy and Forestry to develop estimates for the LULUCF sector categories	All LULUCF staff, plus one coordinator	$XXXX	ALU tool, GIS land use maps
2	Conduct a livestock survey	All Ag staff plus several field work interns	$XXXX	Field supplies and software
3	Develop a system to archive inventory documents and spreadsheets	Current staff and one coordinator (to be identified)	$XXXX	Filing cabinets; necessary computer software and hardware
4	Carry out waste composition studies	One waste expert plus several field work interns	$XXXX	Field supplies
5	Hire additional qualified staff to support general inventory development	One new staff member	$XXXX	None
6	Develop brochures, a website, and other outreach materials	Two staff and one manager	$XXXX	Computer software and paper supplies

Benefits of Completing the NIIP template

- ***Synthesize*** findings of previous templates
- ***Identify*** areas for improvement
- ***Propose*** projects (can inform project proposals)
- ***Guide*** and inform future efforts and teams
- ***Adhere*** to IPCC inventory principles
  - Transparency, consistency, comparability, completeness, and accuracy

Thanks for your attention!

ICF INTERNATIONAL®

John Venezia

jvenezia@icfi.com

+1.202.862.1212

www.icfi.com

U.S. EPA Inventory Preparation Tools

www.epa.gov/climatechange/emissions/ghginventorycapacitybuilding