Mausami Desai

U.S. Environmental Protection Agency

January 25, 2010

Setting up a Sustainable National GHG Inventory System

Training workshop on national systems for GHG inventories

24-28 January 2011, Rome

Coalition for Rainforest Nations

UN-REDD PROGRAMME

vTI Johann Heinrich von Thünen-Institut

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
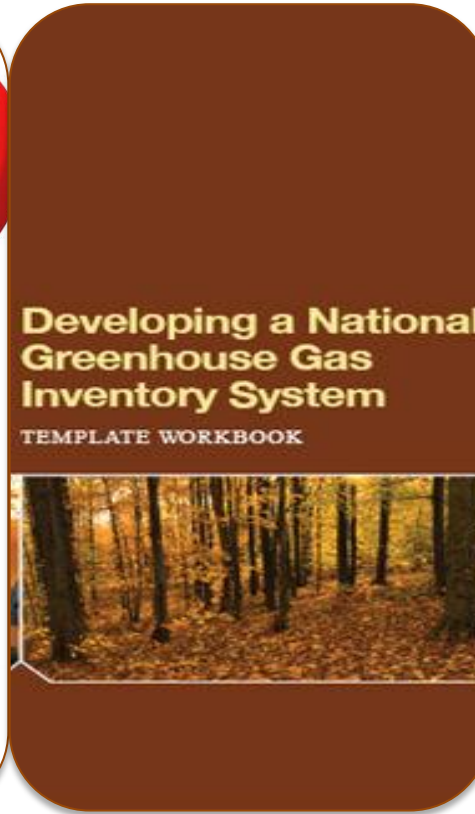
giz

FAO

UNDP

UNEP

Importance of Developing an Inventory

What is a National Inventory System?

Introduction to the National Systems Templates

Brief Discussion of Each Template

Importance and Benefits of Developing a National GHG Inventory

Assess global progress towards limiting the increase in global temperature and combating climate change

Meet country UNFCCC obligations and participate in future GHG agreements and programs

Useful for environmental assessment and environmental management

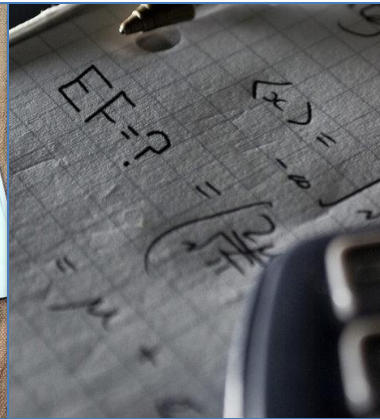Useful for economic development and planning

Challenges for Establishing National Inventory Systems and Inventory Compilation in NA-I Countries
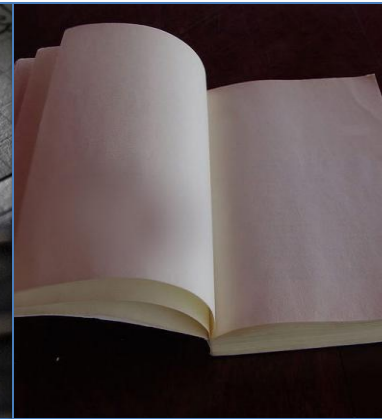

Small teams with limited resources and multiple responsibilities

Incomplete or non-existent activity data

Lack of country-specific emission factors

Insufficient documentation from previous inventories

Difficulty retaining expertise

Coordination of Inventory Data

Inventory Preparation Process

- Inventory Planning
  - Assign roles, Review methodologies, Data assessment
- Inventory Compilation
  - Estimate emissions, Uncertainty, Key Source Category Analysis, Documentation and Reporting
- Review, QA/QC
  - Data, calculations, implied emission factors, external review
- Report Emissions to UNFCCC
  - UNFCCC guidelines
- Archive Calculations and Report
  - Document and keep everything, electronic and hard copies

A *national inventory system* incorporates all the elements necessary to estimate GHG emissions and sinks.

- A central coordination agency
- Arrangements between agency and institutions
- Identification of technical experts
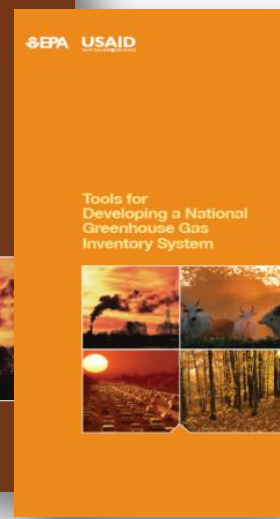- Procedures for inventory development

What if there was a tool?

- Templates to fill out

- A helpful starting point

- A gift to you and future inventory teams!
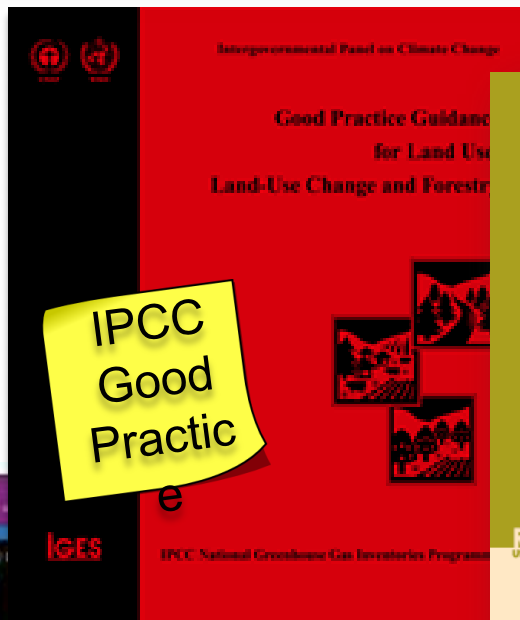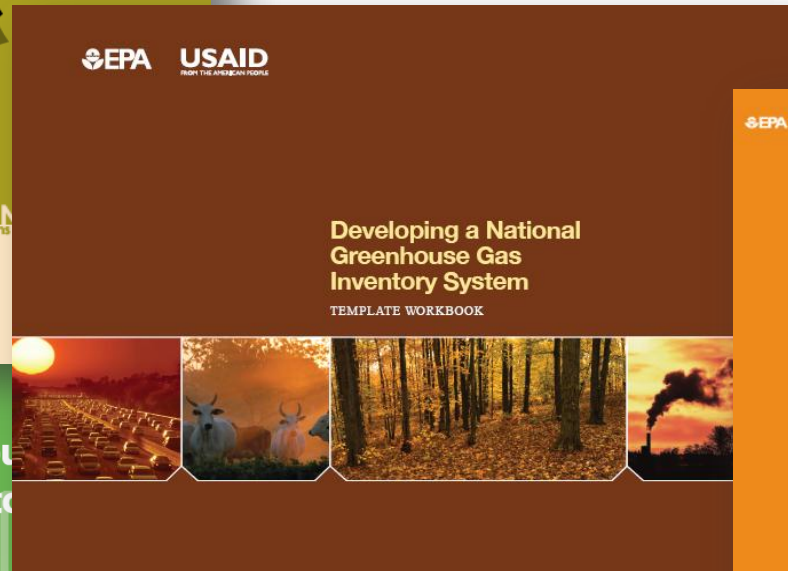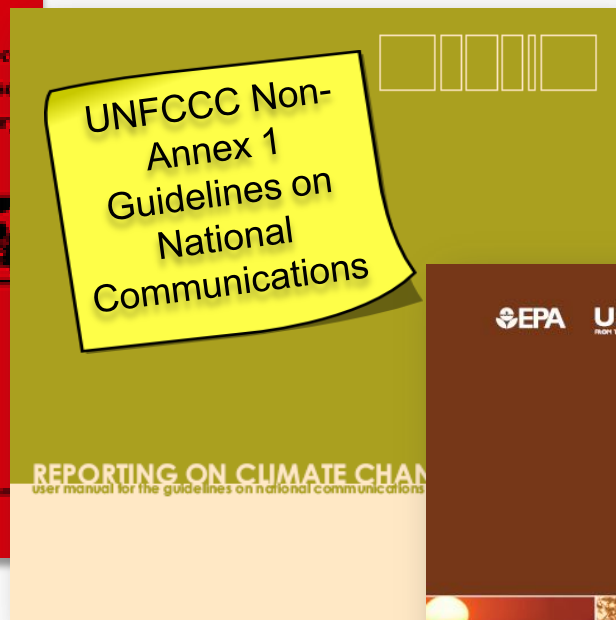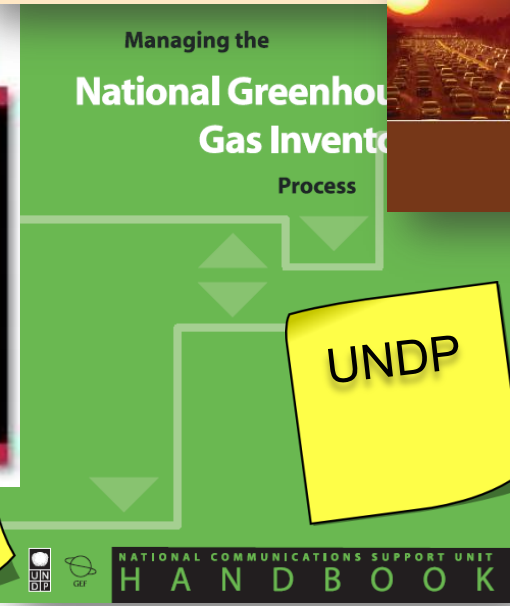
The EPA Template Workbook
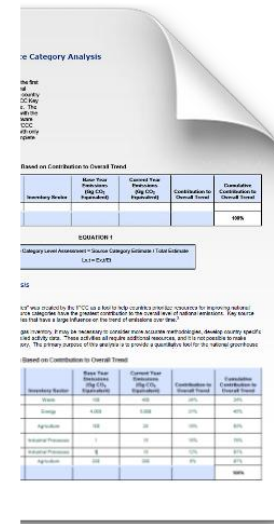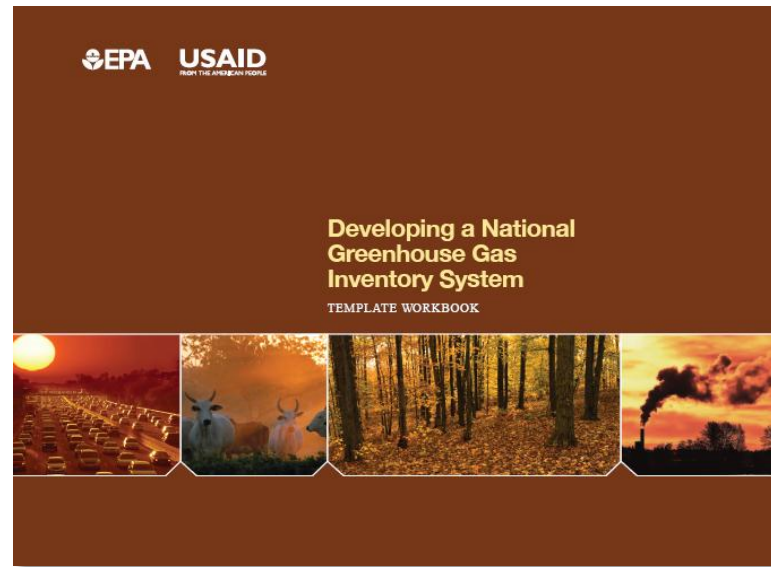
- Reflects lessons learned working in concert with other countries on key elements for establishing a sustainable national system
- Each template becomes a chapter of the National Inventory System Report

The 6 Templates

Institutional Arrangements

Source-by-Source Background Document

Description of QA/QC Procedures

Description of Archiving System

Key Category Analysis

National Inventory Improvement Plan

[Country's] National Greenhouse Gas Inventory System Report

Strengths of the Template Workbook

- Focus documentation on essential information, facilitates review

- Ensures roles and responsibilities are understood

- Standardizes tasks

- Accommodates varying levels of national capacity

- Provides a clear starting point for future inventories

- Improves inventory quality over time

- Creates transparency and improves credibility

- *Builds a sustainable national system*

The ***preparation*** of the National Inventory System Report will be as useful as the report itself.

- Documenting inventory systems
- Identifying key gaps/needs
- Prioritizing future improvements

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IPCC (Internationally Accepted) Inventory Principles

- Transparency
- Consistency
- Comparability
- Completeness
- Accuracy

Completed Workbooks for Developing a Sustainable National GHG Inventory System

Institutional
Arrangements

Source by
Source

QA/QC
Procedures

Background

Archiving
System

Key Category
Analysis

National Inventory
Improvement Plan
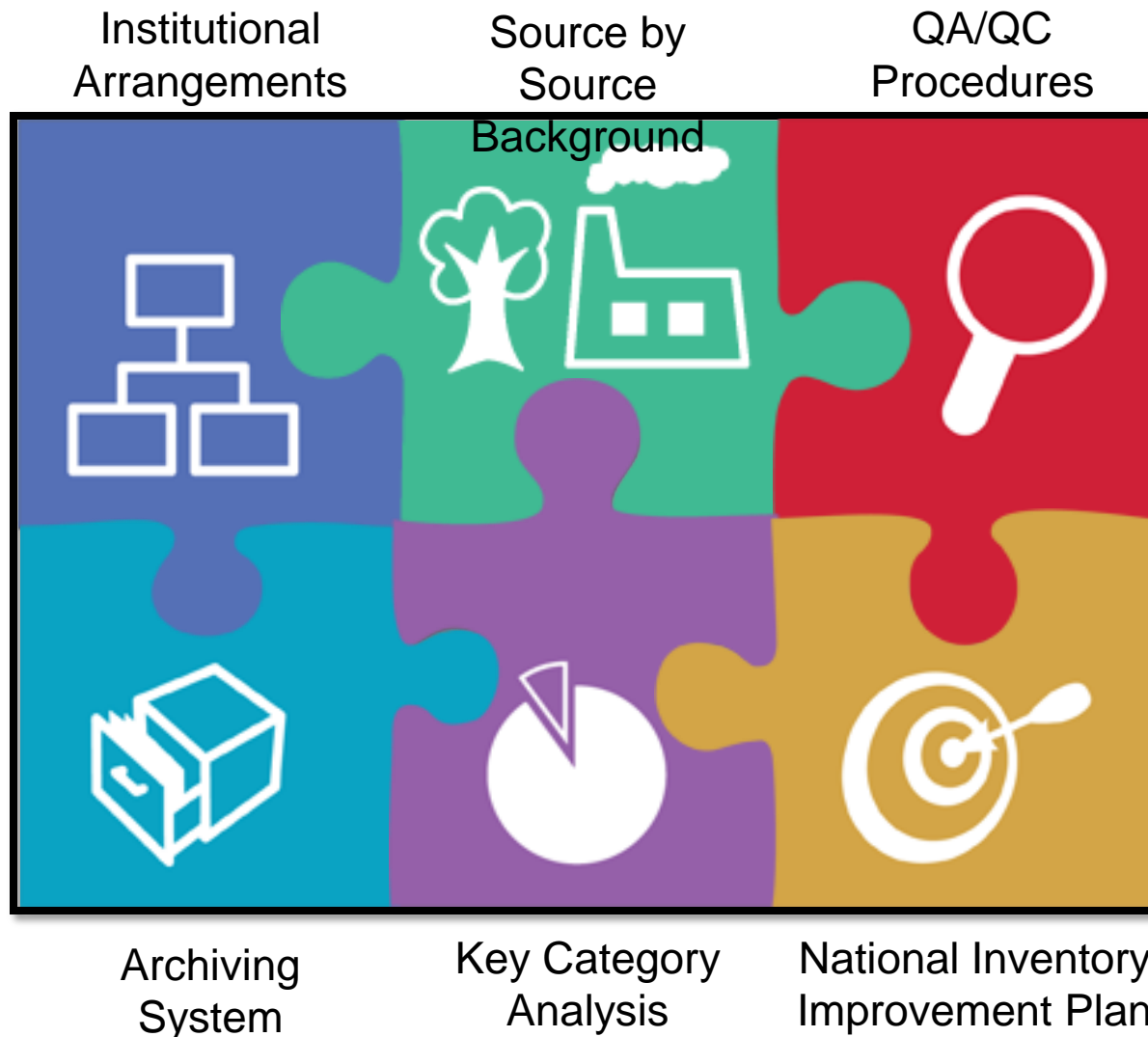
Institutional Arrangements

How this Template Will Help!

This template will give inventory teams a place to:

- Identify all parties, roles and arrangements by sector
- Document contacts and sources of activity data
- Evaluate arrangements and propose improvements
- Plan the inventory schedule

These steps will help current and future inventory teams:

- Know who is responsible for each sector/source
- Know key contacts for data
- Identify where coordination gaps exist
- Assess how existing arrangements can be improved
- Communicate arrangements to UN
- Get new team members "up-to-speed"
- Make coordinating future inventories easier!
- Ensure long-term continuity
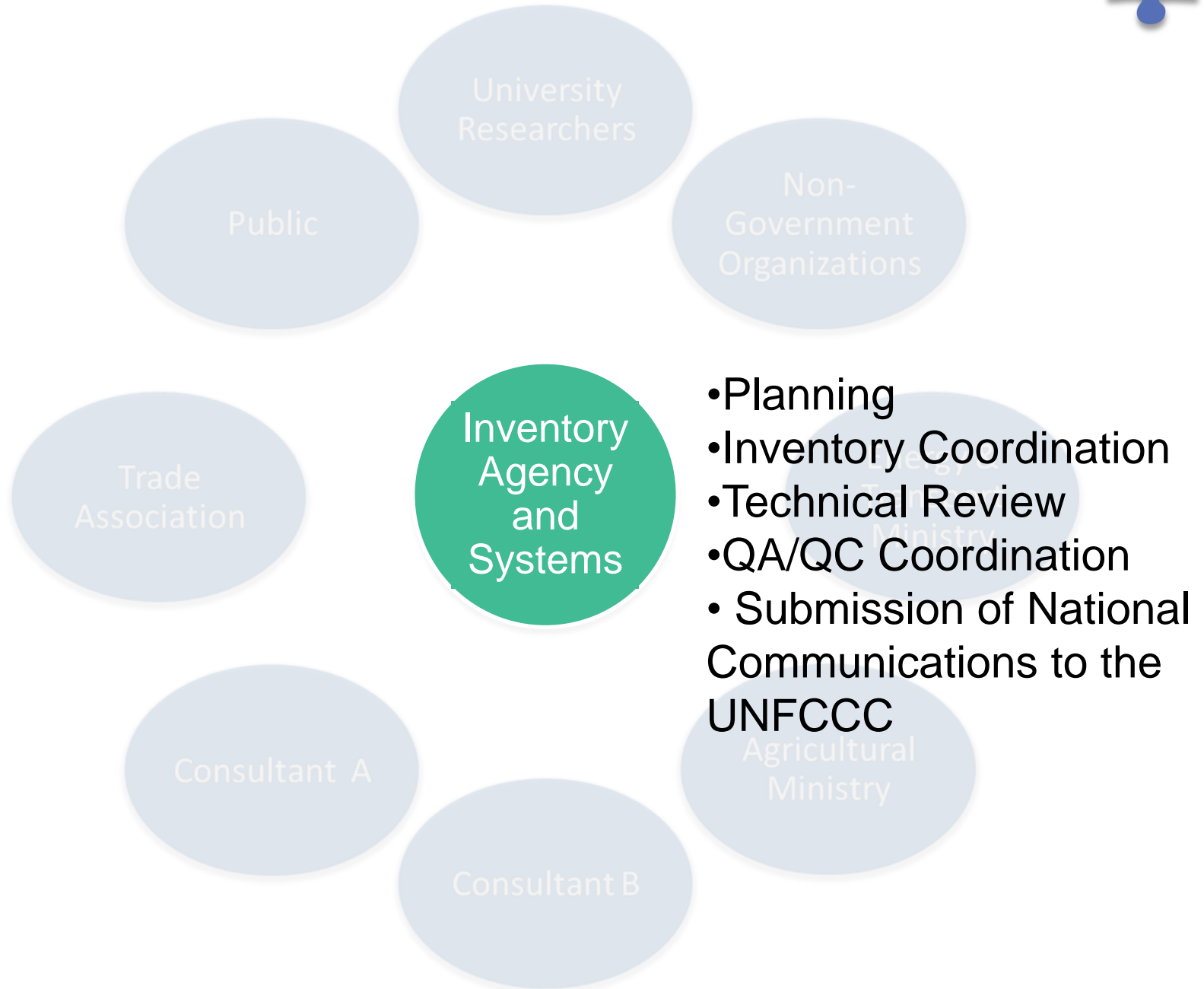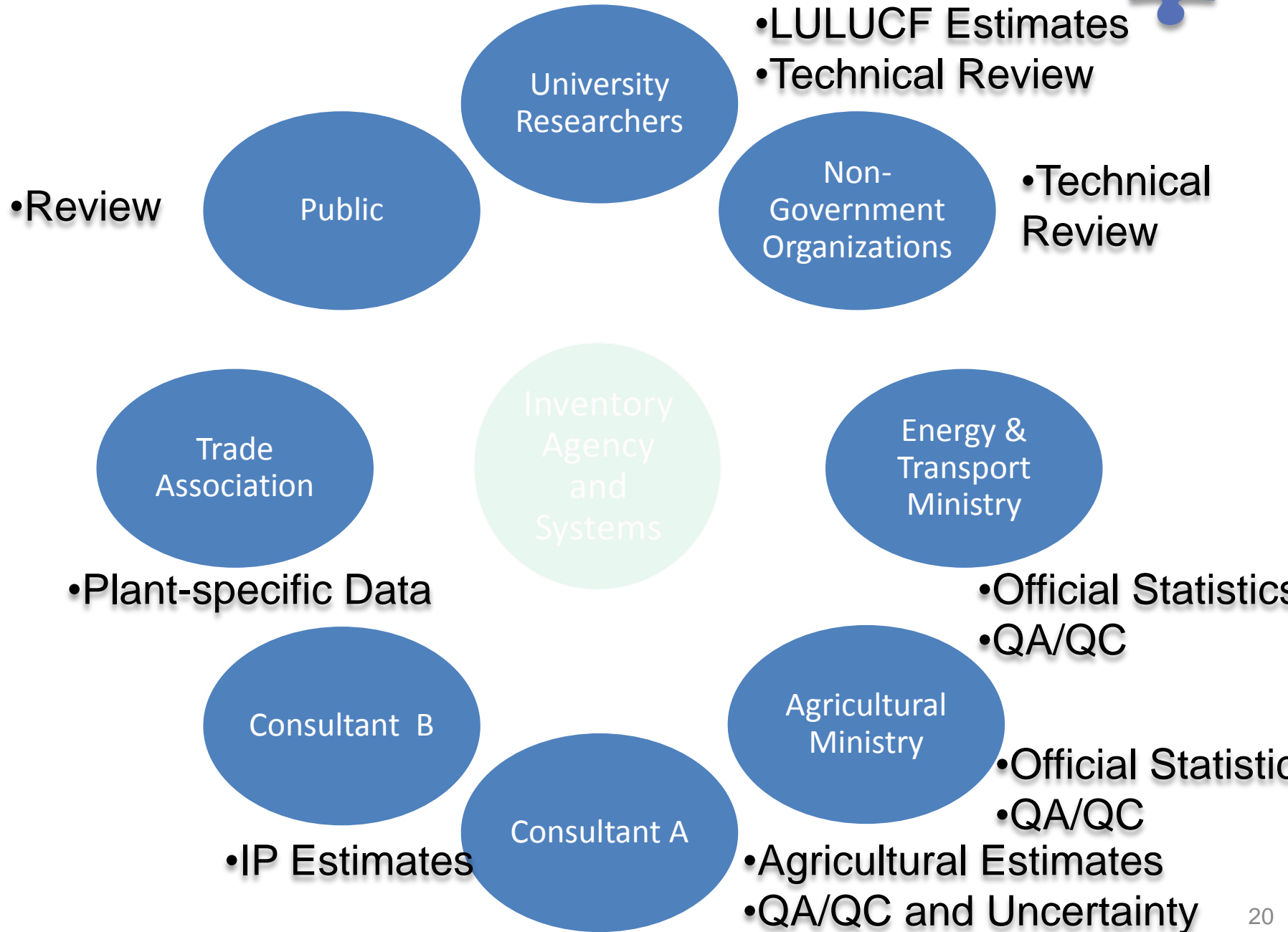
University Researchers

Non-Government Organizations

Public

Inventory Agency and Systems

Trade Association

Energy or Transport Ministry

Consultant A

Agricultural Ministry

Consultant B

- Planning
- Inventory Coordination
- Technical Review
- QA/QC Coordination
- Submission of National Communications to the UNFCCC

•LULUCF Estimates
•Technical Review

•Technical Review

University Researchers

Public

Non-Government Organizations

•Review

Inventory Agency and Systems

Trade Association

Energy & Transport Ministry

•Plant-specific Data

•Official Statistics
•QA/QC

Consultant B

Agricultural Ministry

Consultant A

•Official Statistics
•QA/QC

•IP Estimates

•Agricultural Estimates
•QA/QC and Uncertainty

Institutional Arrangements for National Inventory Systems

II.1 Overview of Current Inventory Management Team

[INSTRUCTIONS: The inventory management team coordinates the development of the national GHG inventory. In this step, list the lead agency and identify inventory management team members. In the next step, list more specific information about contacts for data.]

Table II.1: Designated Inventory Agency

Agency	Address
Ministry of Environment (MoE)	5555 Green Blvd. City, Country

Table II.2: National Inventory Management Team

Role	Name	Organization	Contact Information	Comments
Inventory Director/Coordinator	Maria CarBòn	MoE		On short term contract; will be leaving in Dec. 2005
Energy Sector Lead				
Industrial Processes Lead				
Agriculture Sector Lead				
Waste Sector Lead				
LUCF Sector Specialist				
International GHG Policy Specialist: tracks capacity building efforts and IPCC process				
Data and Document (Archives) Manager Coordinator	Stu Dent			

- Identify the inventory agency and management team
- Describe the roles and arrangements for each sector

Institutional Arrangements for National Inventory Systems

II.1 Overview of Current Inventory Management Team

[INSTRUCTIONS: The inventory management team coordinates the development of the national GHG inventory. In this step, list the lead agency and identify inventory management team members. In the next step, list more specific information about contacts for data.]

Table II.1: Designated Inventory Agency

Agency	Address

Table II.2: National Inventory Management Team

Role	Name	Organization	Contact Information	Comments

National Inventory Schedule

Submit to UN, Prepare National Inventory Improvement Plan

Inventory Kick-off Meeting

Gather inventory team, define roles, establish schedule and process, identify priorities

Finalize Inventory Draft, Key Category Analysis and Prepare Archives

Choose Methods and Identify Activity Data Availability

Method depends on data

Address Errors and Comments from Review

Collect Data and Emissions Factors

Gather and incorporate into inventory tools

Inventory team, outside experts

QA/QC of Draft Report

Prepare Initial Estimates

Use tools to estimate emissions

Prepare Draft Report

Describes sources, data and emissions factors used, methods

Prepare Key Source Analysis

Key Category tool can help determine most important sources of emissions

- Schedules and Deadlines
- Roles and Responsibilities
- Priorities and Changes
- Procedures and Guidance

MEMORANDUM

DATE: August 4, 2010

TO: Barbora Master, Brian Cook, Dave Godwin, Debbie Ottinger (Uncertainty Coordinator), Ed Coe, Andrew Prugar, Jennifer Jenkins, Kitty Sibold, Lisa Hanle, Mausami Desai, Melissa Weitz (QA/QC Coordinator), Rachel Schmeltz, Tom Wirth, William Van Houten (DOD)

          (*Note: Please circulate to other relevant staff and contractors*)

FROM: Leif Hockstad (EPA), Inventory Coordinator
          Marian Martin Van Pelt and Chris Steuer (ICF)

SUBJECT: 1990-2009 U.S. Greenhouse Gas Inventory Preparation Guidelines

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The purpose of this memorandum is to provide guidelines for those responsible for preparing source category estimates and associated text for the new 1990-2009 U.S. GHG Inventory. The issues addressed below relate to the documentation procedures, data management practices, and to the structure of this year's National Inventory Report (NIR) write-up, as well as new procedures for providing data for the Common Reporting Format (CRF) Reporter. Please read this entire memo, even if it looks familiar – **there are continuing changes** that will be made in this inventory year. If anything is unclear from this memo, please contact the Inventory Coordinator as early as possible to avoid any misinterpretations or misunderstandings.

What requires close attention this year?
- CRF Reporter tabs in all source category spreadsheets include **linked forms that automatically populate data inputs provided by source leads in the main spreadsheet tabs, but also require some additional input from the source lead.** Information collected in these CRF Reporter tabs will be used to populate the CRF Reporter. Be sure to begin the Inventory cycle with the final source category spreadsheets from last year. **If you make significant changes** to the structure of your source category spreadsheet, please be prepared to discuss changes in detail with the Inventory Coordinator for the purposes of populating the CRF Reporter.
- Please remember to **provide docket material** with your initial submission in September, or upon completion of your source category estimates.
- As with last year, use of the **2006 IPCC Guidelines** continues to be left to the discretion of the source lead for the development of the 1990-2009 U.S. GHG Inventory; keep in mind that we will continue to use the reporting tables from the previous IPCC Guidelines (which may not fully accommodate some of the data and methods developed for the 2006 IPCC Guidelines). Please contact the Inventory Coordinator regarding any expected impacts across source categories/sectors when implementing the 2006 IPCC Guidelines.
- The NIR tables cannot include all Inventory years due to lack of space. For the 1990-2009 Inventory, please simply **add another column to the tables** created for the 1990-2008 Inventory, without removing any years that are currently shown. We will format the tables once the compilation of the full report begins.

Source-by-Source Background Document

How this Template Will Help!

This template will give inventory teams a place to:

• Document what activity data and emission factors were obtained, and how the data were obtained

• Document what methods were used for estimating emissions

These steps will help current and future inventory teams:

• Resource for the key information to help communicate your inventory to the UNFCCC.

• Understand how estimates were developed

• Most importantly, it will make it much easier to do this again!
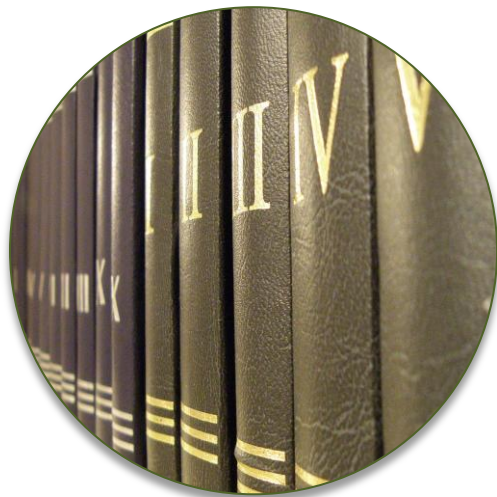
III.5 Comments

[INSTRUCTIONS: Provide any other relevant information for this source category that would increase transparency of the emission estimates from this source. Examples include QA/QC activities performed, notes on reporting and documentation, and data quality.]

Comments

Source Description • Methodological Choice • Activity Data
Emission Factor • Additional Comments

III.2 Method Choice and Description

[INSTRUCTIONS: Provide information about the method used to estimate emissions from the source. List the equation used and the citation for the equation. Describe the reason(s) that this methodology was chosen, particularly if other methodologies are available (e.g., Tier 1, Tier 2). If completing this template for key sources in the current inventory cycle, describe the methods likely to be used.]

Equation (If new method used, describe variables.)	
Reference	
Describe How and Why this Method Was Chosen	

Can be imported directly into the National Communication Report

QA/QC Procedures

How this Template Will Help!

This template will help inventory teams develop a QA/QC system:

- Identify existing procedures
- Establish QC procedures
- Establish QA procedures
- Define responsibilities
- Develop schedule for QA/QC plan

These steps will help the inventory team:
- Understand QA/QC roles and responsibilities
- Uncover calculation errors
- Be confident that they have a reliable, defensible, and accurate inventory.
- QA/QC procedures can be referenced in your National Communication or other reports
- Establish a cost-effective QA/QC program that they can build upon

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Examples of QC Procedures

IV.3.3 Minimum QC Procedures

The Inventory Coordinator should:

- Ensure total GHG emissions equal the sum of the individual sectors, sources, and gases.

- Compare data in tables to calculation spreadsheets and to text to ensure that all report the same estimates.

- Ensure that the emissions data is reported in a manner consistent with the calculation tables in the Non-Annex 1 National Communications Reporting Guidelines.

- Ensure that estimation methods comport with IPCC guidelines.

Each source lead should:

- Check to make sure all activity data and emission factors are clearly documented.
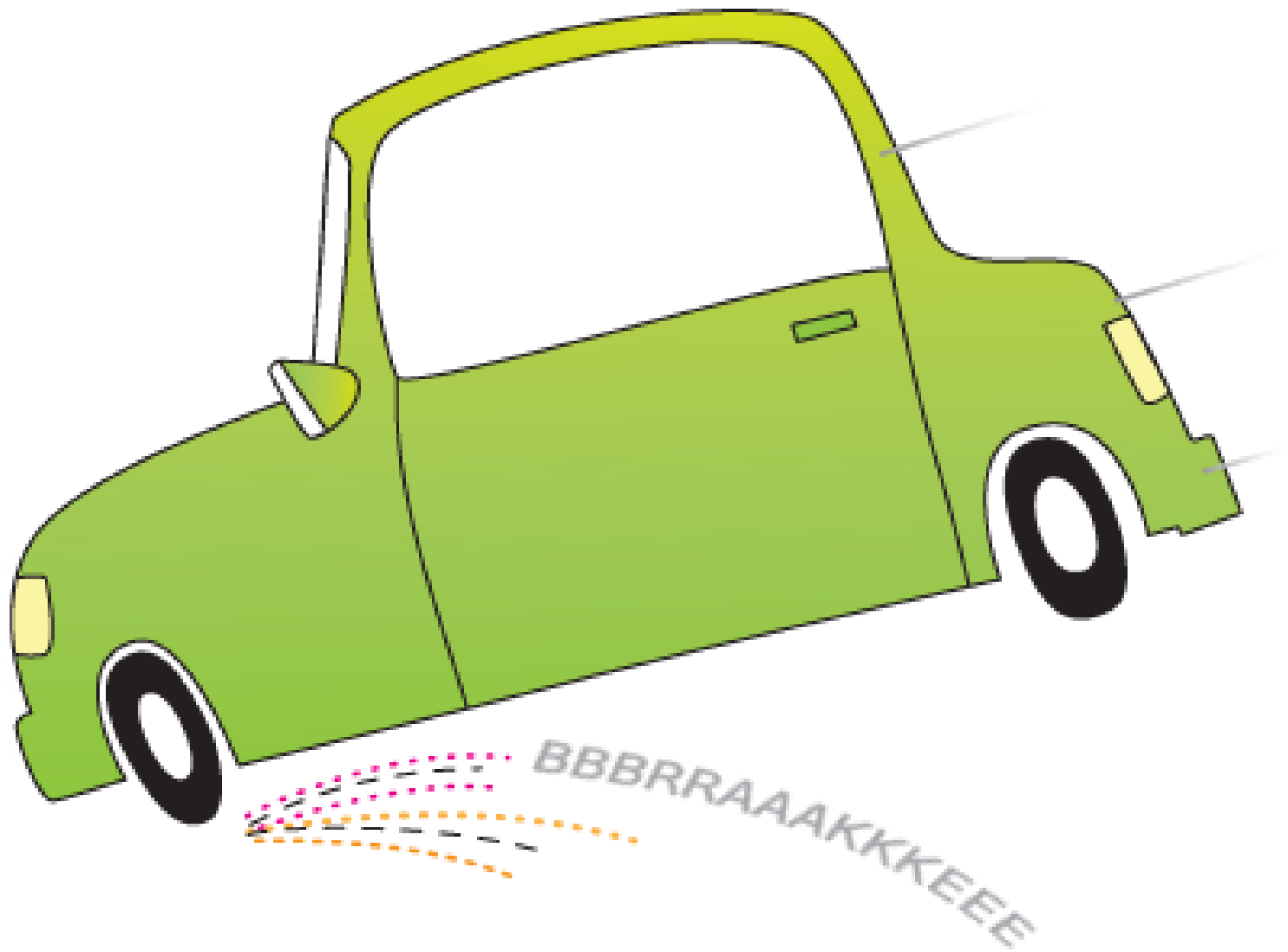
Archiving System

How this Template Will Help!

This template helps guide teams in developing and implementing a strong archive:

- Document past and current archiving systems
- Identify what is needed to improve the existing system

These steps will help the inventory team:

- Access previous records
- Easily reproduce estimates
- Builds credibility
- Respond to government, expert, or public inquiry
- More easily review estimates
- Safeguard against loss

Archives are About the Next Time

The archive you create is the starting point for future inventories! It may be a simple concept, but it has **huge** implications!

Guidelines for An Effective Archiving System

- Information should be stored in a single location.

- Both electronic and paper storage.

- Include all emission factors, activity data, and documentation of how these factors and data have been generated and used (such as Source-by-Source).

- Documentation of QA/QC procedures, reviews, key categories, and planned inventory imp

- Multiple copies, just in case!

Table V.1: Archive Tasks, Responsibilities, and Schedule for [Country]

| Subtask	Date Due	Task Completed (Yes or No)
Archiving Coordinator		
Create official archive by placing all paper copies with index in centrally located filing cabinet.		
Communicate archiving plan with all those working on inventory, and set deadlines.		
Collect copies of all source references.		
Collect copies of draft and final versions of inventory document.		
Collect copies of comment response documents from each source lead.		
Catalogue all documents (references and comments) using a unique tracking number and table of contents or index.		
Request from those working on inventory any references missing from archive. Send reminders as needed.		
Compile electronic versions of spreadsheets used to estimate emissions by sector (create draft estimates, under review, and final versions folders to track progress and changes).		
Compile electronic versions of draft and final versions of inventory document. Create draft version and final version folders to track versions by date.		
Compile electronic versions of Key Source Category analyses. (Some files will be duplicated from the previous subtask.)		
Compile electronic copies of QA/QC checks.		
Save all electronic files on CD or DVD-ROM.		
Ensure all paper materials are present in official archive by reviewing contents against table of contents in file drawer.		
Ensure all electronic files listed in table of contents are saved on the media storage CD or DVD-ROM with archive materials.		
Distribute electronic archive to relevant parties.		
[List additional tasks]		
Source Lead		
Send electronic versions of spreadsheets used to estimate emissions to Inventory Coordinator (using naming convention).		
Send final text for sector or source category versions of inventory document to Inventory Coordinator.		
Create index of documents and files for electronic and hardcopy storage (have draft and final versions folders).		
Compile and send electronic versions of any Key Source Category analyses and documents to Inventory Coordinator (add "key"		

Compile electronic versions of spreadsheets used to estimate emissions by sector (create draft estimates, under review, and final versions folders to track progress and changes).

Key Category Analysis
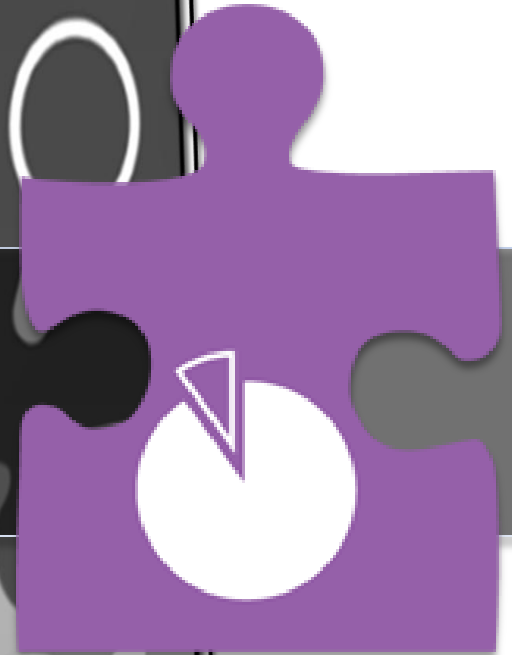
How this Tool and Template Will Help!

This tool and template gives an inventory team a place to:

- Identify all key source categories of GHG emissions
- Rank emissions sources
- Describe how they completed the key category analysis (KCA)

These steps will help the inventory team:

- Conduct a KCA
- Identify the most important sources of GHG emissions
- Communicate key sources to the UN
- Identify areas that should be focused on for improving estimates

Key Category Analysis Tool

All you need to do is enter CO$_2$ equivalents for each source category estimated.

Source Categories to be Assessed in Key Source Category Analysis	Applicable Greenhouse Gas	ENTER HERE in CO$_2$ equivalents Base Year Estimate (Gg CO2 eq.)	ENTER HERE in CO$_2$ equivalents Absolute Value of Base Year Estimate (LULUCF) (Gg CO2 eq.)	ENTER HERE in CO$_2$ equivalents Current Year Estimate (Gg CO2 eq.)
CO2 Emissions from Stationary Combustion (Solid-A)	CO2	9,000	9,000	7,500
CO2 Emissions from Stationary Combustion (Solid-B)	CO2	0	0	0
CO2 Emissions from Stationary Combustion (Solid-C)	CO2	0	0	0
CO2 Emissions from Stationary Combustion (Liquid-A)	CO2	0	0	0
CO2 Emissions from Stationary Combustion (Liquid-B)	CO2	0	0	0
CO2 Emissions from Stationary Combustion (Liquid-C)	CO2	0	0	0
CO2 Emissions from Stationary Combustion (Gas-A)	CO2	0	0	0
CO2 Emissions from Stationary Combustion (Gas-B)	CO2	0	0	0
CO2 Emissions from Stationary Combustion (Gas-C)	CO2	200	200	300
CH4 (Non-CO2) Emissions from Stationary Combustion	CH4	50	50	34
N2O (Non-CO2) Emissions from Stationary Combustion	N2O	0	0	2
CO2 Emissions from Manufacturing Industries and Construction	CO2	0	0	0
CH4 Emissions from Manufacturing Industries and Construction	CH4	0	0	0
N2O Emissions from Manufacturing Industries and Construction	N2O	0	0	0
CO2 Mobile Combustion: Road Vehicles	CO2	808	808	700
CH4 Mobile Combustion: Road Vehicles	CH4	3,500	3,500	5,000
N2O Mobile Combustion: Road Vehicles	N2O	20	20	10
CO2 Mobile Combustion Water Borne Navigation	CO2	10	10	10
CH4 Mobile Combustion Water Borne Navigation	CH4	30	30	24
N2O Mobile Combustion Water Borne Navigation	N2O	10	10	4
CO2 Mobile Combustion: Aircraft	CO2	80	80	100

Key Category Analysis Tool

The tool automatically runs the analysis for you!

Inventory Categories	Current Year Estimate (Gg CO2 eq.)	Total	Cumulative Sum	Status
⊟CO2 Emissions from Stationary Combustion (Solid-A)	7500	29.7%	29.70%	key source
⊟CH4 Mobile Combustion: Road Vehicles	5000	19.8%	49.50%	key source
⊟PFC Emissions from Aluminum Production	4800	19.0%	68.51%	key source
⊟N2O Mobile Combustion: Aircraft	1000	4.0%	72.47%	key source
⊟CO2 Mobile Combustion: Road Vehicles	700	2.8%	75.24%	key source
⊟N2O (Direct and Indirect) Emissions from Agriculutural Soils	674	2.7%	77.91%	key source
⊟CH4 and N2O Emissions from Savanna Burning	434	1.7%	79.63%	key source
⊟CH4 Emissions from Solid Waste Disposal Sites	433	1.7%	81.34%	key source
⊟CH4 Emissions from Manure Management	400	1.6%	82.92%	key source
⊟PFC Emissions from Semiconductor Manufacturing	343	1.4%	84.28%	key source
⊟HFC Emissions from Semiconductor Manufacturing	342	1.4%	85.64%	key source
⊟SF6 Emissions from Other Sources of SF6	325	1.3%	86.92%	key source
⊟CH4 Emissions from Rice Production	324	1.3%	88.21%	key source
⊟CO2 Emissions from Stationary Combustion (Gas-C)	300	1.2%	89.40%	key source
⊟Other Sectors: Commercial N2O	200	0.8%	90.19%	key source
⊟Other Sectors: Commercial CO2	200	0.8%	90.98%	key source
⊟Other Sectors: Commercial CH4	200	0.8%	91.77%	key source
⊟N2O Emissions from Waste Incineration	200	0.8%	92.56%	key source
⊟Other Sectors: Residential CO2	200	0.8%	93.36%	key source
⊟Other Sectors: Residential CH4	200	0.8%	94.15%	key source
⊟Other Sectors: Residential N2O	200	0.8%	94.94%	key source
⊟Other Sectors: Agriculture/Forestry/Fishing CO2	200	0.8%	95.73%	key source
⊟Other Sectors: Agriculture/Forestry/Fishing CH4	200	0.8%	96.52%	not key source
⊟Other Sectors: Agriculture/Forestry/Fishing N2O	200	0.8%	97.32%	not key source
⊟Other-F	155	0.6%	97.93%	not key source
⊟CO2 Mobile Combustion: Aircraft	100	0.4%	98.32%	not key source
⊟SF6 Emissions from Semiconductor Manufacturing	43	0.2%	98.50%	not key source
⊟SF6 from Magnesium Production	34	0.1%	98.63%	not key source

Table I.1: Key Source Categories Based on Contribution to Overall Level

Source Category	Gas	Inventory Sector	Emission Level (Gg CO_2 Equivalent)	Cumulative Total (Gg CO_2 Equivalent)	Cumulative Percent of National Emissions
CO_2 Emissions from Stationary Combustion (Solid-A)	CO_2	Energy	7,500	7,500	33%
CH_4 Mobile Combustion: Road Vehicles	CH_4	Energy	5,000	11,000	55%
PFC Emissions from Aluminum Production	PFC	Industrial Processes	4,800	15,500	76%
N_2O Mobile Combustion: Aircraft	N_2O	Energy	1,000	17,000	80%
CO_2 Mobile Combustion: Road Vehicles	CO_2	Energy	700	17,808	83%
N_2O (Direct and Indirect) Emissions from Agricultural Soils	N_2O	Agriculture	674	18,458	86%
CH_4 and N_2O Emissions from Savanna Burning	CH_4/ N_2O	Agriculture	434	18,858	88%
CH_4 Emissions from Solid Waste Disposal Sites	CH_4	Waste	433	19,258	90%
CH_4 Emissions from Manure Management	CH_4	Agriculture	400	19,284	92%
PFC Emissions from Semiconductor Manufacturing	PFC	Industrial Processes	343	19,534	93%
HFC Emissions from Semiconductor Manufacturing	HFC	Industrial Processes	342	19,834	95%
Total Emissions (All Source Categories)				22,764	**100%**

Perform Key Category Analysis
IPCC Good Practice (2000)

Provides priorities for inventory planning and National GHG inventory improvement plan

Focus Improvement/Research Effort on Key Categories
- Choose more advanced methods (Tier 2, 3)
- Improve activity data
- Improve, establish institutional arrangements
- Focus QA/QC, etc.

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

National Inventory Improvement Plan (NIIP)

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.]*

VI.2 Summary of Key Sources

[INSTRUCTIONS: Complete Table VI.1 using the information in Table I.1 of the completed Key Source Category Analysis template. Include a short paragraph summarizing the source categories listed in this table. See additional instructions below. Be certain to note whether a trend assessment was also conducted.]

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.[7]

To improve the national greenhouse gas inventory, it may be necessary to consider more accurate methodologies, to develop country-specific emission factors, or to collect more detailed activity data. These activities all require additional resources, and it is not possible to make improvements for every source category. Therefore, [Country] has identified the source categories listed in Table VI.1 as the most important source categories contributing to national emissions. Assessing the methods and data used to estimate emissions from these key source categories is integral to identifying priorities. These source categories were identified through they Key Source Category Analysis, using software provided by U.S. EPA. A level assessment was conducted, identifying the largest sources constituting more than 95% of total national emissions.

[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.]

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[7] The IPCC's *Good Practice Guidance* (IPCC 2000) defines a key source category as a "[source category] that is prioritized within the National Inventory System because its estimate has a significant influence on a country's total inventory of direct greenhouse gases in terms of the absolute level of emissions, the trend in emissions, or both. . ." See Chapter 7, "Methodological Choice and Recalculation," in IPCC 2000. < http://www.ipcc-nggip.iges.or.jp/public/gp/gpgaum.htm>

- Objectives
- Key Source Categories
- Source Category Improvements
- Institutional Arrangements
- Prioritize Improvements
- Communication, Outreach, Training
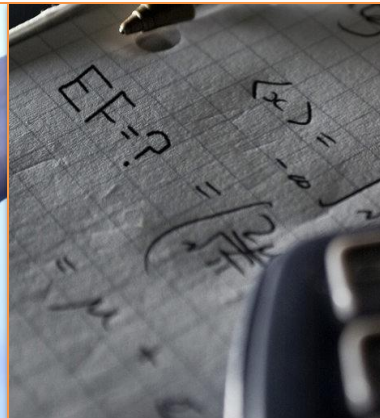- Potential Projects

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

VI.5 Prioritized List of Potential Improvements

[INSTRUCTIONS: List up to 10 of the most important improvements identified in Steps 3 and 4, above. Classify these improvements according to how critical they are: "High," "Medium," or "Low." For example, improvements to an agricultural source may be very important (High), while developing outreach materials may be a lower priority (Low). Insert a short paragraph discussing the highest priority items (see additional instructions below).]

This section prioritizes the most critical improvements needed, based on an assessment of the relative importance of improvements identified for key sources, additional sources, and institutional arrangements identified in Steps 3 and 4, above. By addressing these issues, [Country] can move toward producing a more complete and higher-quality inventory. Table VI.5 lists these potential improvements, and identifies the level of priority associated with each (High, Medium, or Low).

[Insert a paragraph describing the highest priority items and the areas of priority that are most applicable to your country (e.g., developing estimates for new sources, enhancing current methodologies, obtaining more reliable activity data, or developing closer relationships with other institutions.)]

Table VI.5: National Inventory Improvement Priorities

Priority Level	Improvement Needed

VI.6 Communication, Outreach, and Training

[INSTRUCTIONS: This is an optional section that should be included if there are current activities or future plans for raising awareness of inventory efforts or for training staff on the inventory system or practices. These plans and activities may include any of the following:

- *Scheduling stakeholder meetings*
- *Raising awareness with government, academia, and the public*
- *Providing feedback to government and associated institutions*
- *Training or hiring inventory staff*
- *Developing a transition plan to ensure a smooth transfer of inventory capacity when needed*

Completed templates can be compiled into a **National Inventory System Report**

[Country's] National Greenhouse Gas Inventory System Report

Final Thoughts

- **The inventory management template approach provides a foundation for establishing a national GHG inventory system**
  - Does not solve the problem of resources but can help address lack of staff continuity
  - Initial effort required, but helps systematize GHG inventory development tasks
  - Create transparency, consistency, and comparability
  - Compilation of templates and preparation of "National Systems Report" will help create "institutional memory" for future teams
  - Reduce future effort (and potentially costs) on inventory compilation, so greater resources can be directed to improvements
- Flexible for adapting application at sector, provincial or national level

Thanks for your attention!

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U.S. EPA Inventory Preparation Tools

www.epa.gov/climatechange/emissions/ghginventorycapacitybuilding