Building National Inventory Capacity: U.S. Government and UNFCCC Efforts

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Characterizing US Government Efforts on GHG Inventory Capacity Building

- Collaborative effort: US EPA, US AID, UNFCCC
- Technical expertise for GHG inventories already exists in developing countries
  - Small teams with multiple responsibilities and limited resources;
  - Incomplete or non-existent data;
  - Lack of country-specific emission factors;
  - Insufficient documentation of methods and data sources used in previous inventories; and
  - Difficulties retaining capacity and expertise developed during the preparation of the first National Communications
- Priorities should be determined by developing countries rather than donors

U.S. EPA Approach to building GHG Inventory Management Capacity

- **Component I: Build sustainable national inventory systems within each country**

- **Activities:**
  - Key source analyses
  - Description of institutional arrangements
  - Source-by-source background document
  - Inventory improvement plan
  - QA/QC & archiving system

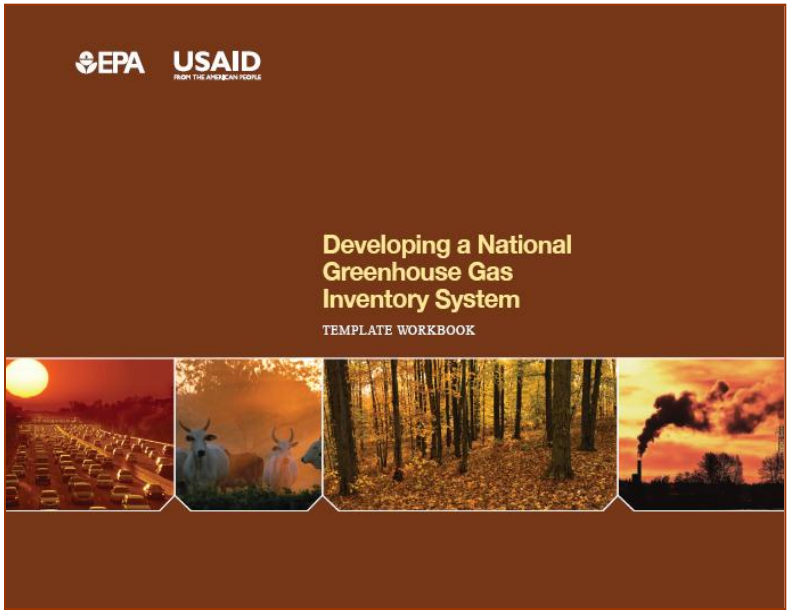
- **Component II: Improve GHG estimates**
- Source/sink categories (examples):
  - Forest C
  - Soil C
  - Soil N_2O
  - Landfills
- Evaluate current methods and activity data
- Assist in applying the chosen methods

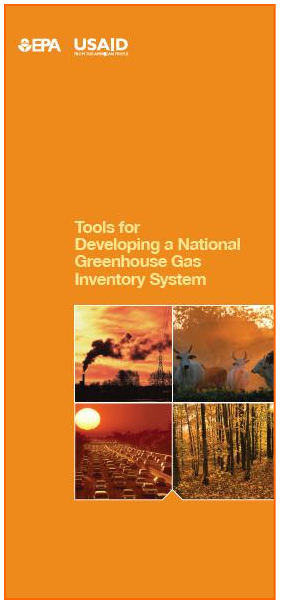
Tools for GHG Inventory Development

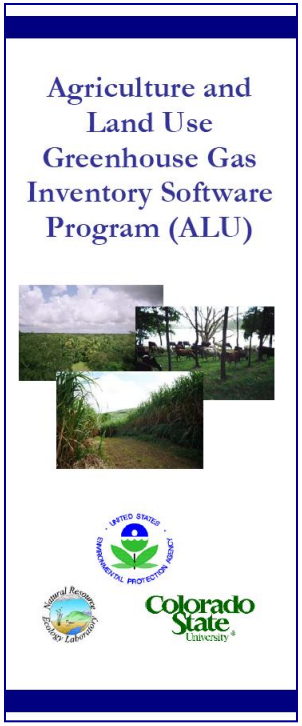
Two complementary sets of tools for National GHG inventories:

- **National System Templates** to document and institutionalize the inventory management process.
  - Establishing institutional arrangements, QA/QC, archiving, etc.
- **Targeted data collection strategies and software tools** to assist developing countries application of higher tier IPCC methods in key sectors

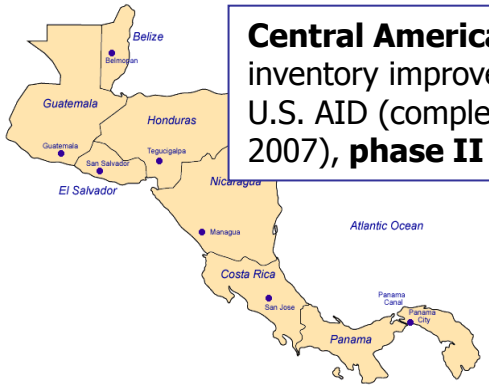
EPA Tools for GHG Inventory Development







Past and Current GHG Inventory Improvement Projects



Central America: Regional GHG inventory improvement project with U.S. AID (completed phase I, 2004-2007), **phase II (2007-2009)**

South East Asia: Regional GHG inventory improvement project in collaboration with UNFCCC, Japan and other regional experts

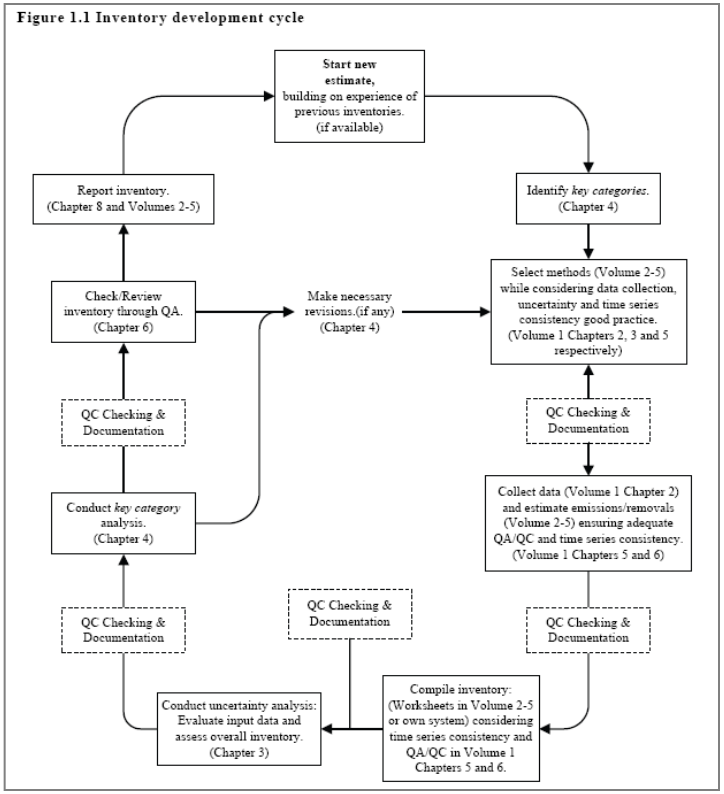
China: Initiated cooperative activities with NDRC, Step 1 translation of existing tools

Component I:
Inventory Management Systems

Inventory Preparation Process

Step-by-step process, ideally becomes a cyclical process:

- Inventory Planning
  - Assign roles/responsibilities
  - Review of methodologies
    (read, become familiar with IPCC Guidance)
  - Data assessment
- Inventory Compilation
  - Data collection
  - Uncertainty assessment
  - Estimation of GHG emissions
  - Key source category analysis
  - Documentation and reporting
- Review, QA/QC
- Archiving of calculations and report

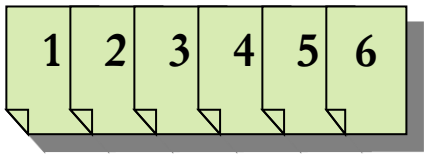


Process establishes National GHG Inventory system

Template Approach to Building Inventory Management Capacity

Introduction	
Chapter 1 - Identification of Key Sources	1
Chapter 2 - Documentation of Institutional Arrangements	2
Chapter 3 - Source-by-Source background document (methods and data)	3
Chapter 4 - Description of Archiving system	4
Chapter 5 - Description of QA/QC procedures	5
Chapter 6 - National Inventory Improvement plan	6

The preparation of the report will be as useful as the report itself:



- **Preparation of National Communication**
- **Background for future GHG inventories**
- **Priorities for future capacity building projects**

Why use templates?

- Focus on documenting essential information in a concise format and avoids unnecessarily long written reports;
- Standardize tasks, allowing countries within regions to compare and contrast results;
- Accommodate varying levels of national capacity;
- Provide an objective and efficient system for identifying priorities for future improvements;
- Serve as instruction manuals for future inventory teams
- Create transparency in a country's national system
- Adapt to regional, national circumstances

Goal: Build sustainable National GHG Inventory Management systems

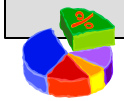
LOW TECH!

IMPORTANT!

- **A country can prepare a GHG inventory at regular intervals (annually, every 2 years etc.)**
- **All information used to prepare the inventory is archived**
- **Roles and responsibilities are understood**
- **Experts can come and go but the inventory does not suffer**
- **Inventory quality improves over time**
- **The GHG inventory meets the needs of policy-makers, researchers, and the public**

Inventory Coordinators use EPA Templates and Tools

1. Key Source Analysis Report



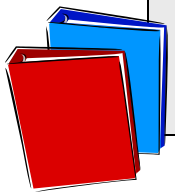
2. Description of Institutional Arrangements

3. Source by Source Documentation of Data and Methods for Key Sources

4. & 5. Description of Archiving Systems and QA/QC

6. National Inventory Improvement Plan …Priorities and Projects for Improvements

Country Preliminary GHG Inventory System Report 2009



Component II: GHG Estimation

Technical Challenges for Inventory Compilers

- Difficulty applying IPCC methods
  - Particularly in Agriculture and LULUCF sectors
- Using higher tier methods for key sources
- Limited activity data and data management capability
  - Complete representation of land
  - Developing enhanced characterizations for livestock
- Recalculating time series
- Conducting quality assurance/quality control steps
- Lack of institutional memory and inventory archives

Central America Phase II

- Improve land-use/cover maps in Central America
  - Collect ground - reference data to improve GIS maps for Nicaragua, Honduras, Costa Rica, El Salvador and Guatemala
  - Designate IPCC Land-Use Categories: Forest land, Cropland, Grassland, Wetlands, Settlements, and Other Land

Completed Activities: August 2009 to December 2009

- Finalized approach to utilizing ground-based reference data to improve existing maps
- Updated existing maps
- Assessed accuracy of "improved" maps
- Ensured compatibility of "improved" maps with ALU tool
- Finalized collection of available forest C factors and incorporate into ALU tool

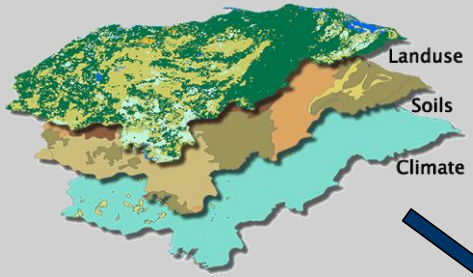
Completed/Ongoing Activities: August 2009 to December 2009

- Conducted workshop at CATIE in October 2009 with country focal points and other key contacts
  - Reviewed process by which the maps were created
  - Provided overview of how to import maps into ALU and utilize to develop GHG Inventory
  - Discussed outreach options to make "improved" maps, forest C factors, and ALU tool available and accessible to target audience (Central American GHG inventory compilers)
- Continue outreach to increase awareness of "improved" maps and forest C factors (e.g., CATHALAC/SERVIR, CCAD, Environment Ministries)

Expected results by 2010

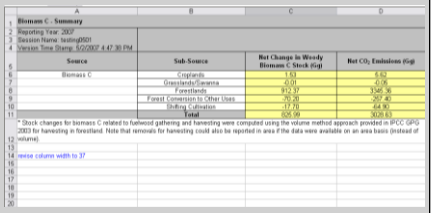
- Improved map for 2000 and a change detection product for 2009 for each country
  - Maps to be made available electronically and/or housed on server
- Central American GHG Inventory experts trained on use of maps with ALU Tool
  - Improvements to GHG estimates for Agriculture and LULUCF for their National Communications
- Report on updated forest C factors
  - Data to be incorporated into ALU

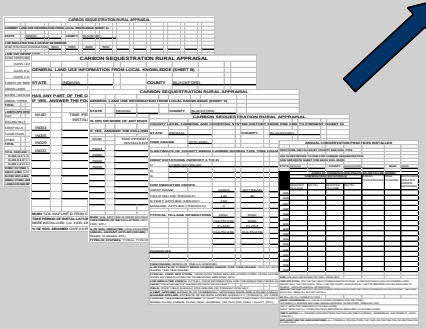
Inventory Framework: ALU Tool



GIS Spatial Data:
Land Use/Cover, Soils and Climate

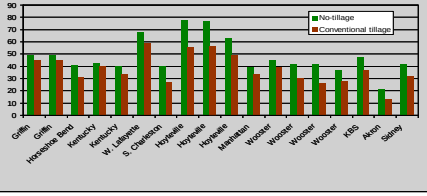
ALU Inventory Software Tool





Management Activity Data:
National Agriculture and Forestry Statistics

Emission Factors:
IPCC Defaults or Country-Specific



Implementing Lessons

- Targeted efforts to improving inventory inputs should be complemented with parallel focus on building sustainable National Systems and institutional arrangements
- Informing countries of expected end-of-project situation and products to be delivered
- Consultations are important before even organizing scoping efforts
  - Important to have commitment and interest from countries

Implementing Lessons (cont.)

- Important to have Regional and bilateral assistance in projects
  - Regional meetings facilitate exchange of expertise, inventory management strategies
  - Bilateral assistance important as each countries circumstances and priorities are unique
- Direct assistance/resources to countries to complement GEF resources is important
  - Should have at least 1 in-country staff member with 50-100% time dedicated to project
- Tools developed by EPA do not solve the problem of resources but can help address lack of staff continuity

Looking Forward

- ALU software enhancements
  - Mitigation module
  - Uncertainty analysis
- Guidance manual on enhancing quality of land use maps
- Scoping to extend program into new geographic area
- Eastern Himalayas REDD+ capacity building initiative

Thank you!