



Institutional Arrangements for National Inventory Systems

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

John Watterson

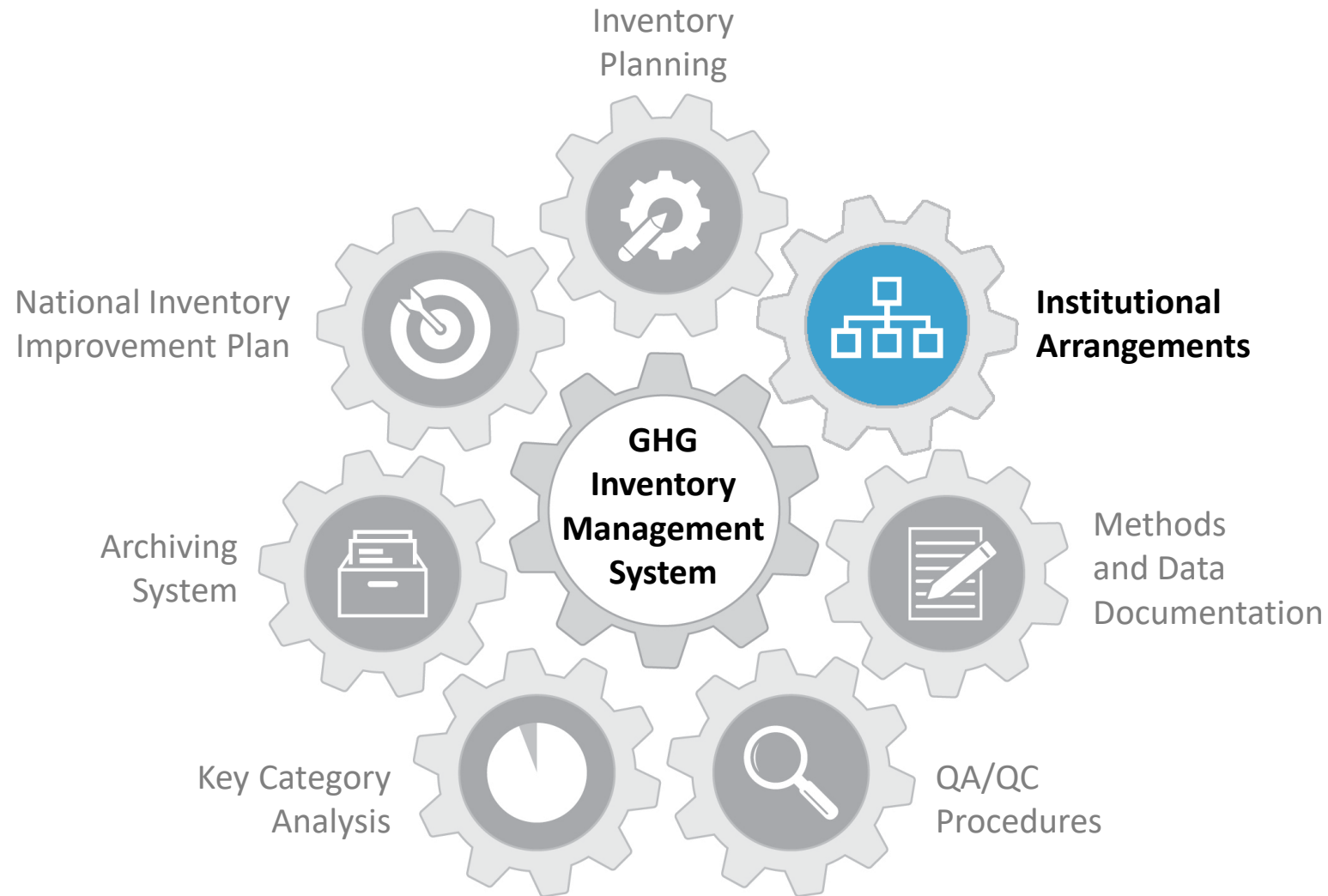
Ricardo Energy & Environment

October 5, 2022

Institutional Arrangements

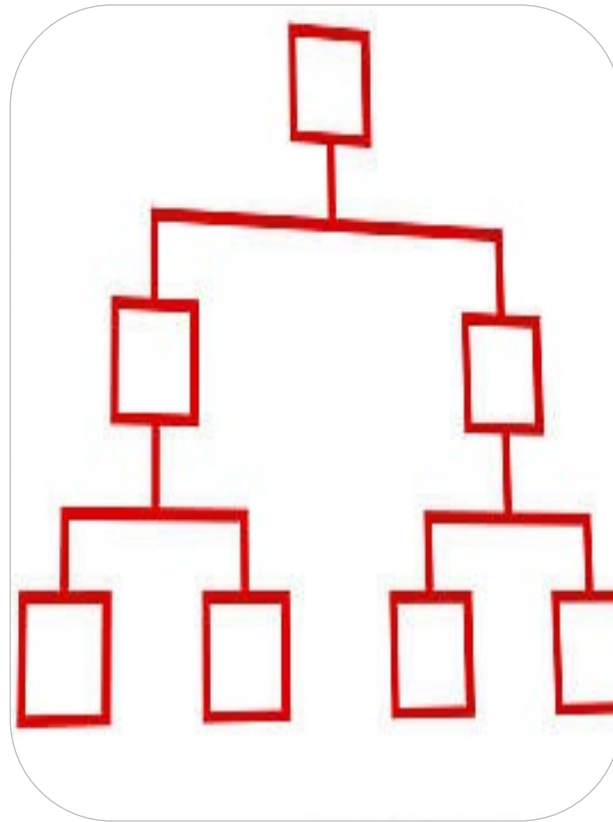


Institutional Arrangements





What are Institutional Arrangements (IA)?



Introduction to IAs



Review of the Template

What are Institutional Arrangements?



- They are formal or informal institutional and procedural agreements between the lead inventory agency, national inventory management team, and other institutions.
- They are specific to the circumstances of each nation.
- They **define the responsibilities associated with preparing the national inventory**, including which agencies and experts will provide data for the inventory.



What are the Major Benefits of Institutional Arrangements?



Provide structure and confidence in the inventory process.

Designate agency or person responsible, so inventory compilers can be confident that data is available.

Clarify roles and responsibilities early in the process. The Inventory team knows who will lead what.

What should you be aware of?



**Conflicts of
Responsibility**



**Unassigned
Responsibility**

Planning arrangements for inventory compilation



1. Determine central coordination

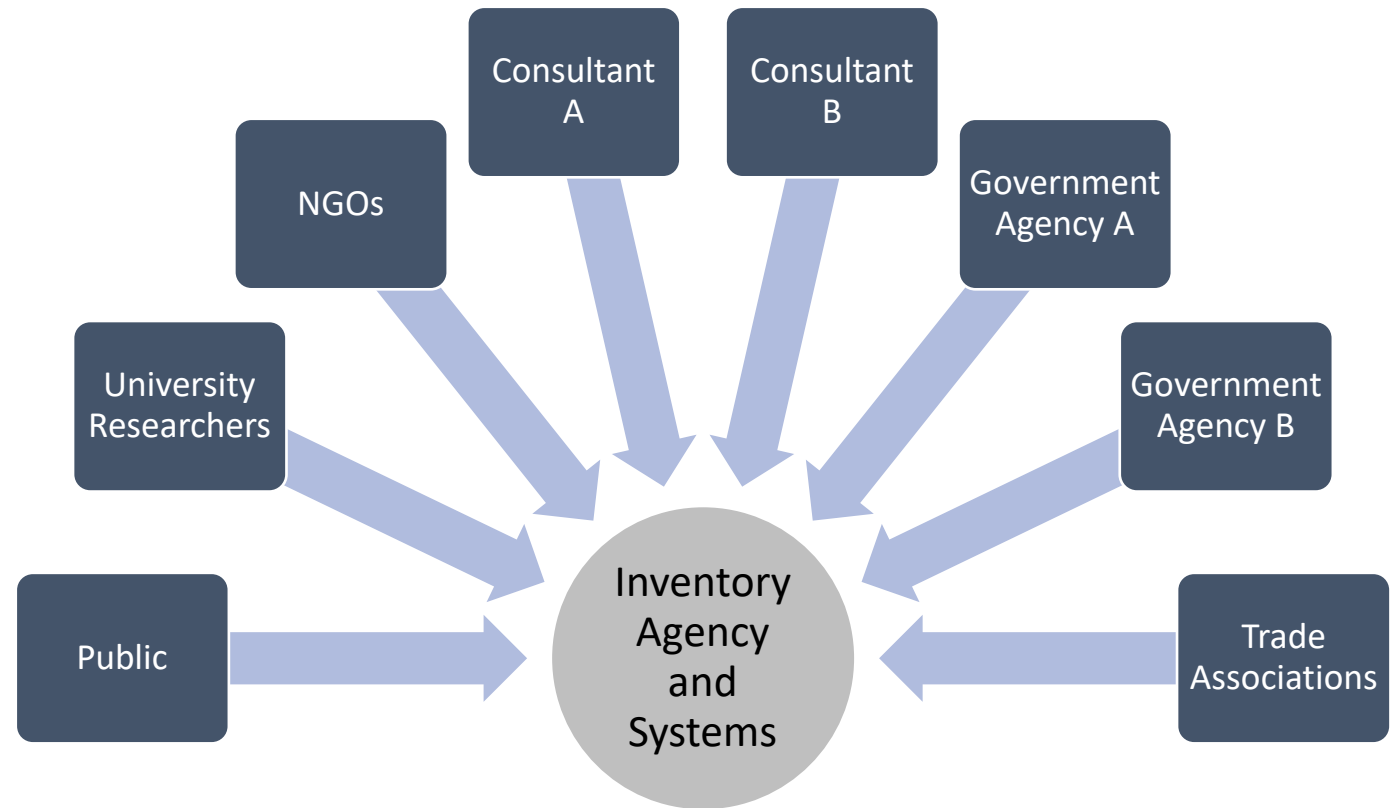
Agency: oversees planning, compilation of report, review, documentation.

2. Identify/Establish arrangements:

between coordination agency and data institutions, such as universities.

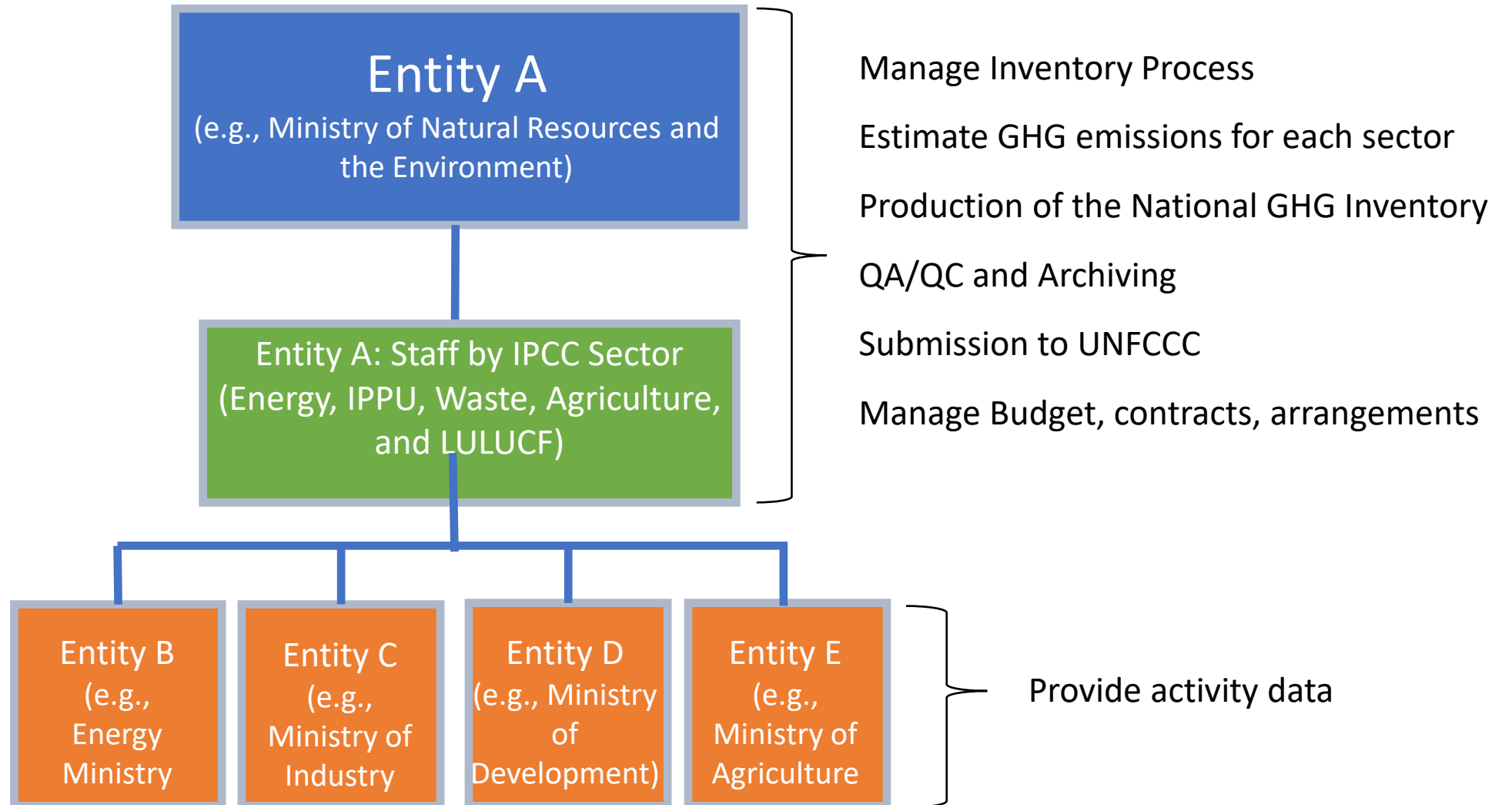
3. Gather Inventory compilers:

team of experts that are within a specific ministry, are consultants, etc.

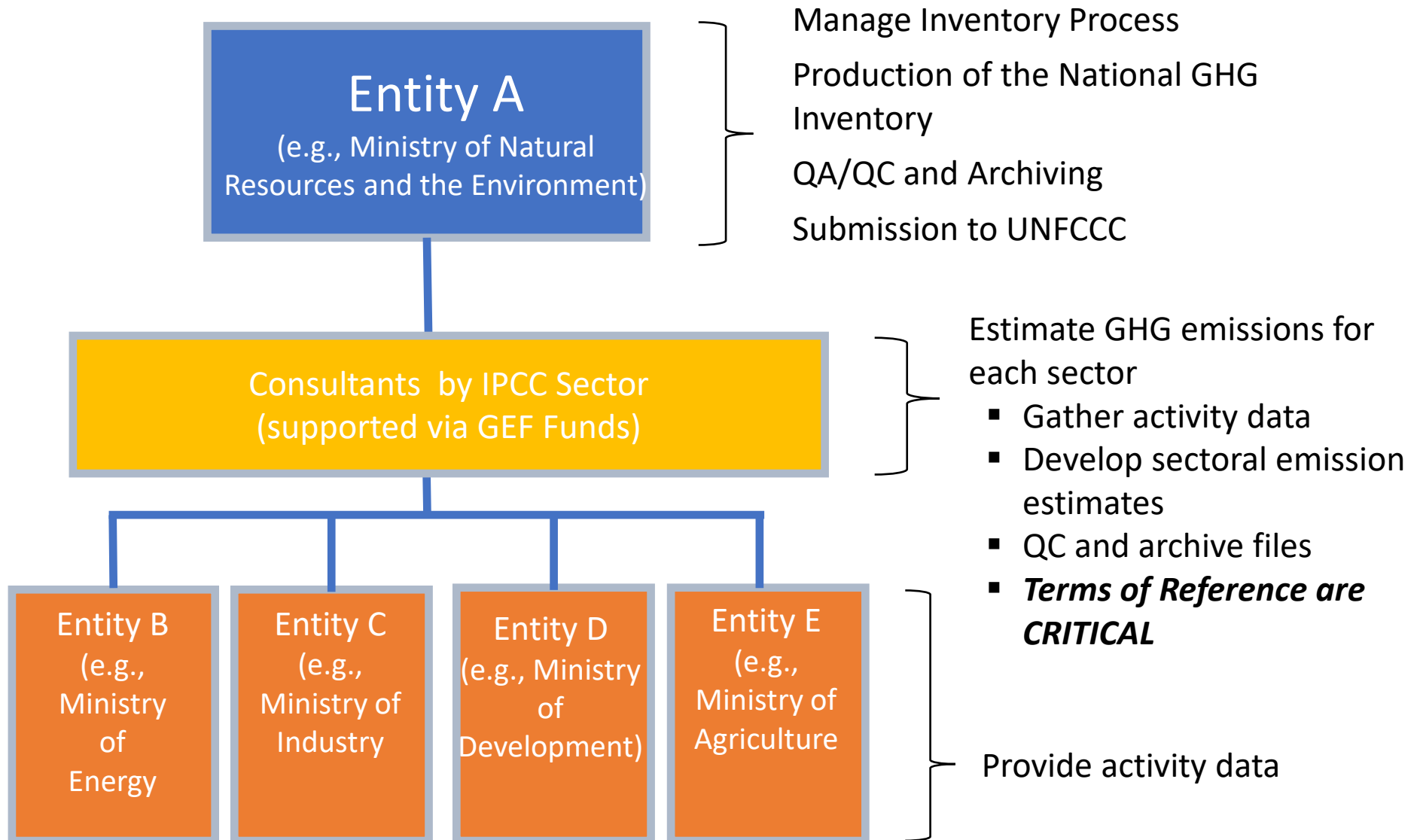


Planning should include identifying the arrangements (e.g. Memorandum of Understanding, letters, etc.) required to clearly articulate roles/responsibilities and the anticipated flow of information

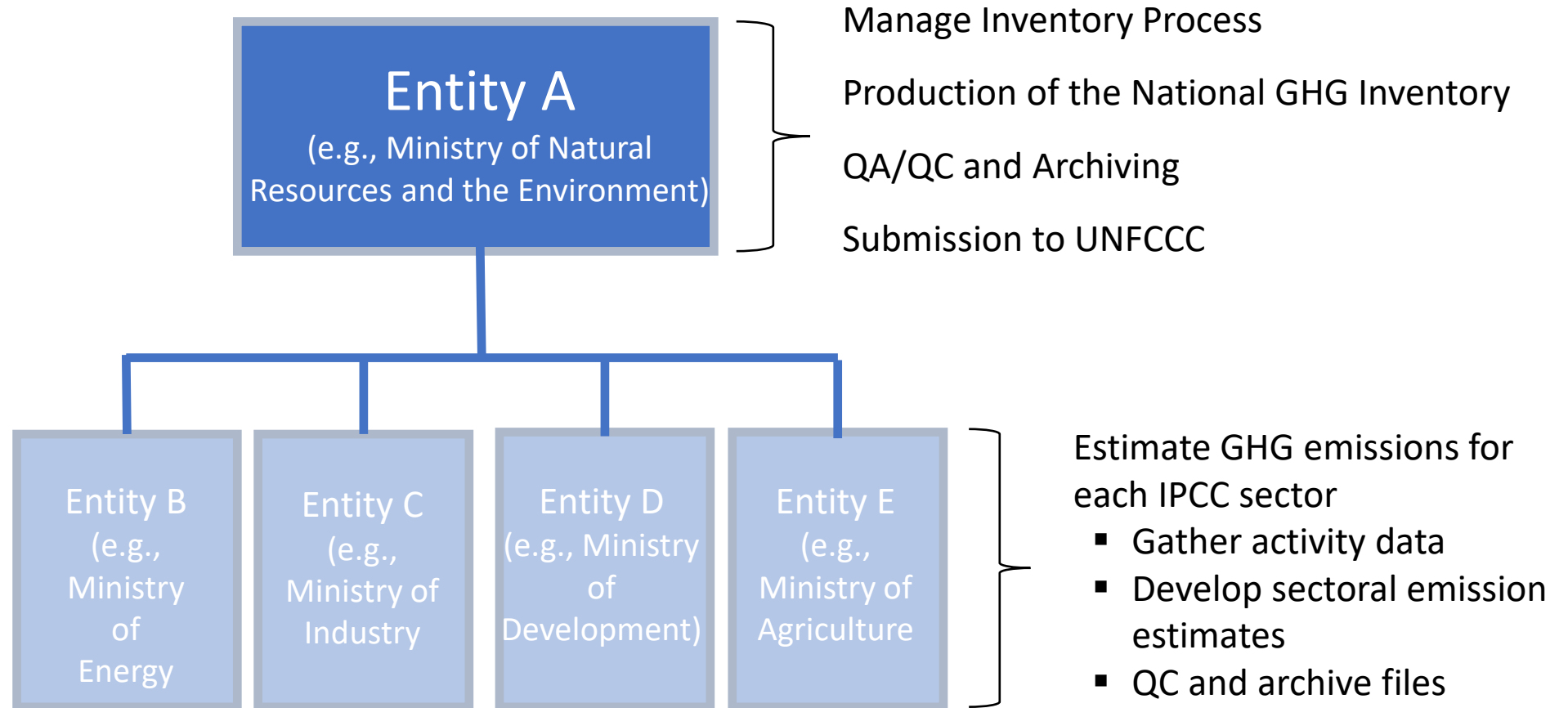
Institutional Arrangement Structures: Example A



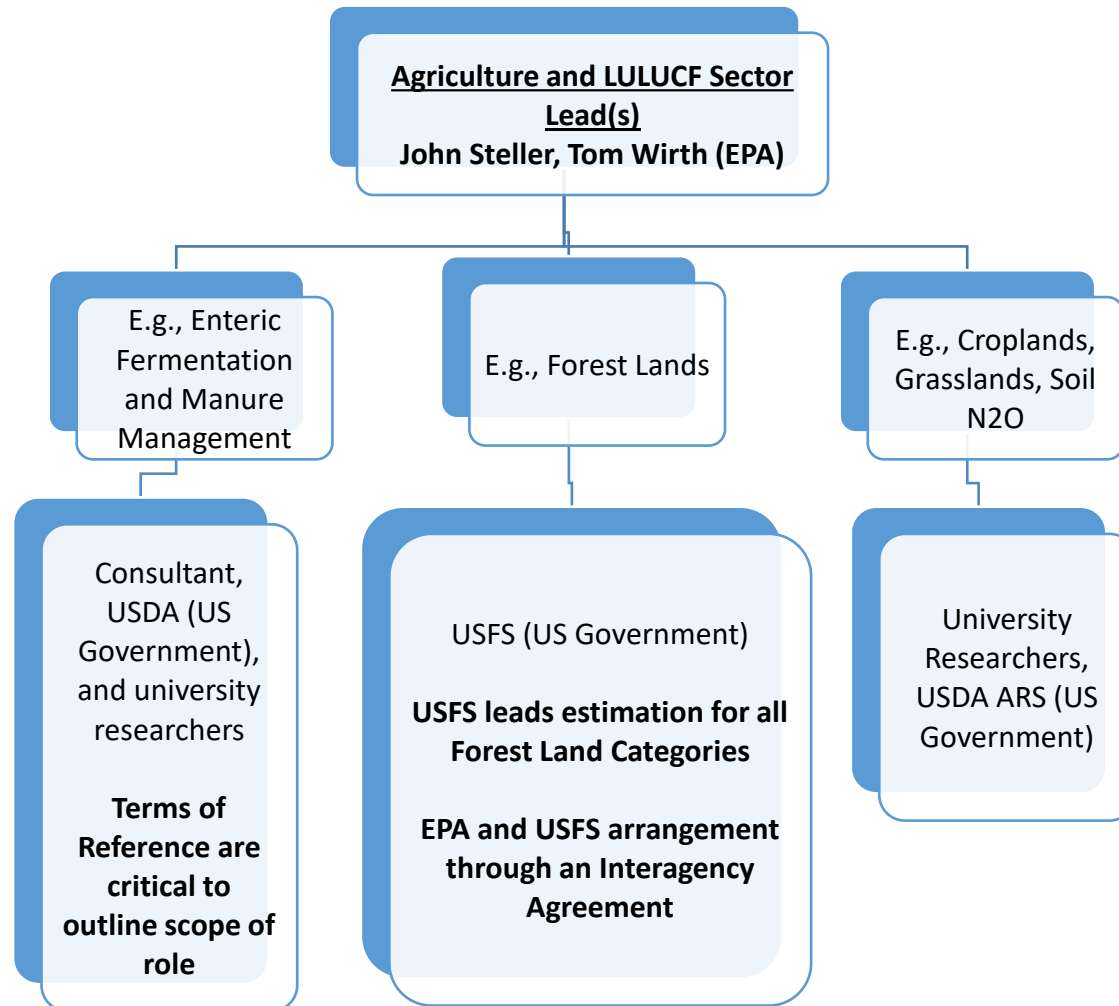
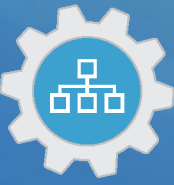
Institutional Arrangement Structures: Example B



Institutional Arrangement Structures: Example C



Institutional Arrangements: U.S. Agriculture and LULUCF Sector example



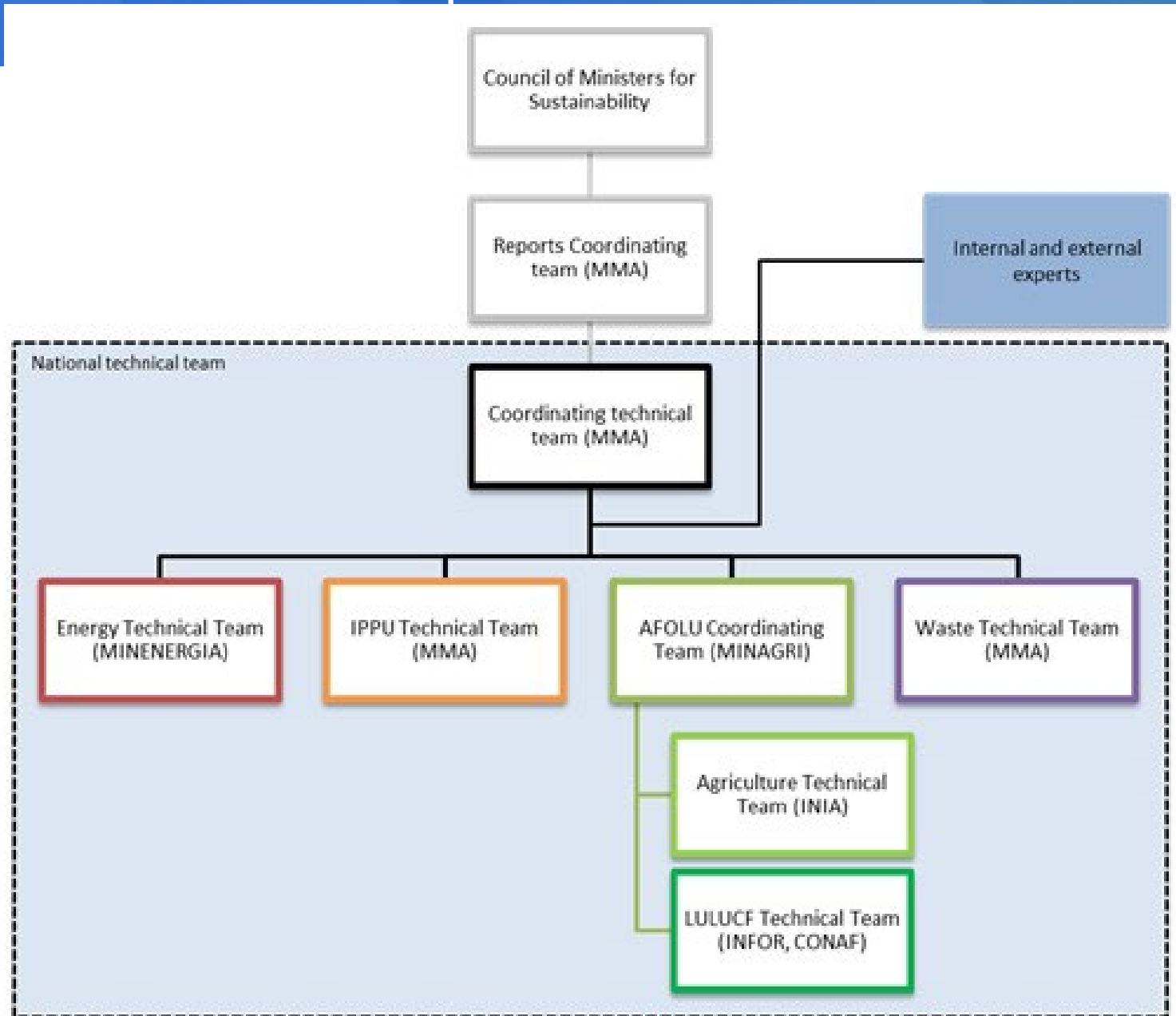
Source leads manage each source category's estimate development:

- Fully versed in IPCC Guidelines
- Determine methodology, coordinate data sources, manage improvements
- Manage arrangements, including interagency agreements, contracts w/ consultants and other arrangements (formal/informal as required) with data providers, manage sectoral budget

Includes compilation and QC support, engaging with data providers

Institutional Arrangements: Example Chile

- Sectoral GHG estimation resides with line ministries
- Ministry of the Environment (MMA) coordinates, compiles and finalises GHG inventory
- Additional „reports coordinating team“ ensures alignment with other UNFCCC reporting



Questions to Consider for Identifying Institutional Arrangements



1. What processes do you have already in place?
2. Have roles and responsibilities for each source/sector been defined and assigned?
3. How can existing arrangements be improved and what arrangements might work best for your country?
4. Do you have a central coordination agency?

Institutional Arrangements Workbook can help guide you through these questions and document your arrangements and national circumstances!



Institutional Arrangements Template

How this Template Will Help!



The *Institutional Arrangements* template will help the inventory team:



- Identify the current inventory management team and their respective roles and responsibilities,
- Establish and what formal or informal arrangements exist by each sector
- Document your institutional strengths
- Identify improvements to existing institutional arrangements or the need for new arrangements

Step 1: Identify current inventory management team

In **STEP 1**, identify the current inventory team members, per your national circumstances, and what roles need to be filled

Personnel
Inventory Director/ Coordinator
Subject Matter Experts (ex. compilers)
Additional Entities Involved in the Inventory
Personnel who can direct overall implementation of QA/QC and archiving system
Personnel who can conduct/ direct implementation of uncertainty analysis



Possible Roles
Inventory Coordinator or Lead
Sector or Category Leads
QA/QC and Archiving Coordinators
Uncertainty Analysis Coordinator

The same person can have multiple roles. Not all roles are full time!



Step 1: Identify current inventory management team



Table 2.1: Designated Inventory Agency

Designated National GHG Inventory Preparation Agency/Organization	UNFCCC Focal Point (Name) and UNFCCC Focal Point Agency	Arrangements/relationship between Inventory Agency/Organization and UNFCCC Focal Point Agency, if different

Who completes this table: National Inventory Coordinator (NIC)

Example of Table 2-1

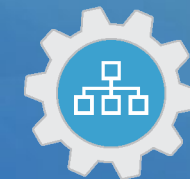


Table 2.1: Designated Inventory Agency

Designated National GHG Inventory Preparation Agency/Organization	UNFCCC Focal Point (Name) and UNFCCC Focal Point Agency	Arrangements/relationship between Inventory Agency/Organization and UNFCCC Focal Point Agency, if different
U.S. Environmental Protection Agency (EPA)	Jane Doe., U.S. Department of State (DOS)	Agreement between DOS and EPA for roles regarding the GHG Inventory. The U.S. Department of State serves as the overall focal point to the UNFCCC, and EPA's OAP serves as the National Inventory Focal Point for this report, including responding to technical questions and comments on the U.S. Inventory

Who completes this table: National Inventory Coordinator (NIC)

Step 1: Identify current inventory management team



Table 2.2: National Inventory Leads/Coordinators

Role	Name	Organization	Contact Information	Comments
National Inventory Coordinator				
Energy (Stationary sources) Sector Lead				
Energy (Mobile sources) Sector Lead				
Energy (Fugitive sources) Sector Lead				
Industrial Processes and Product Use (IPPU) Sector Lead				
Agriculture Sector Lead				
Land Use, Land Use Change, and Forestry (LULUCF) Sector Lead				
Waste Sector Lead				
Archiving Coordinator				
Etc.				

Who completes this table: National Inventory Coordinator (NIC)

Example of Table 2-2



Table 2.2: National Inventory Leads/Coordinators

Role	Name	Organization	Contact Information	Comments
National Inventory Coordinator	M. Dez	EPA	Email and phone #	
Energy (Stationary sources) Sector Lead	V. Camo	EPA – OAP	Email and phone #	MOU with EIA for data collection
Energy (Mobile sources) Sector Lead	S. Rob	EPA – OTAQ	Email and phone #	OTAQ leads GHG estimation
Energy (Fugitive sources) Sector Lead	M. Heinz	EPA	Email and phone #	
Industrial Processes and Product Use (IPPU) Sector Lead	A. Chuo	EPA – OAP	Email and phone #	Coordinate with USGS for data
Agriculture Sector Lead	J. Smith	EPA	Email and phone #	Coordinate with USDA
Land Use, Land Use Change, and Forestry (LULUCF) Sector Lead	T. Worth	EPA	Email and phone #	Interagency agreement between EPA and USFS
Waste Sector Lead	L. Apple	EPA	Email and phone #	
Archiving Coordinator	M. Dez	EPA	Email and phone #	
Etc.				

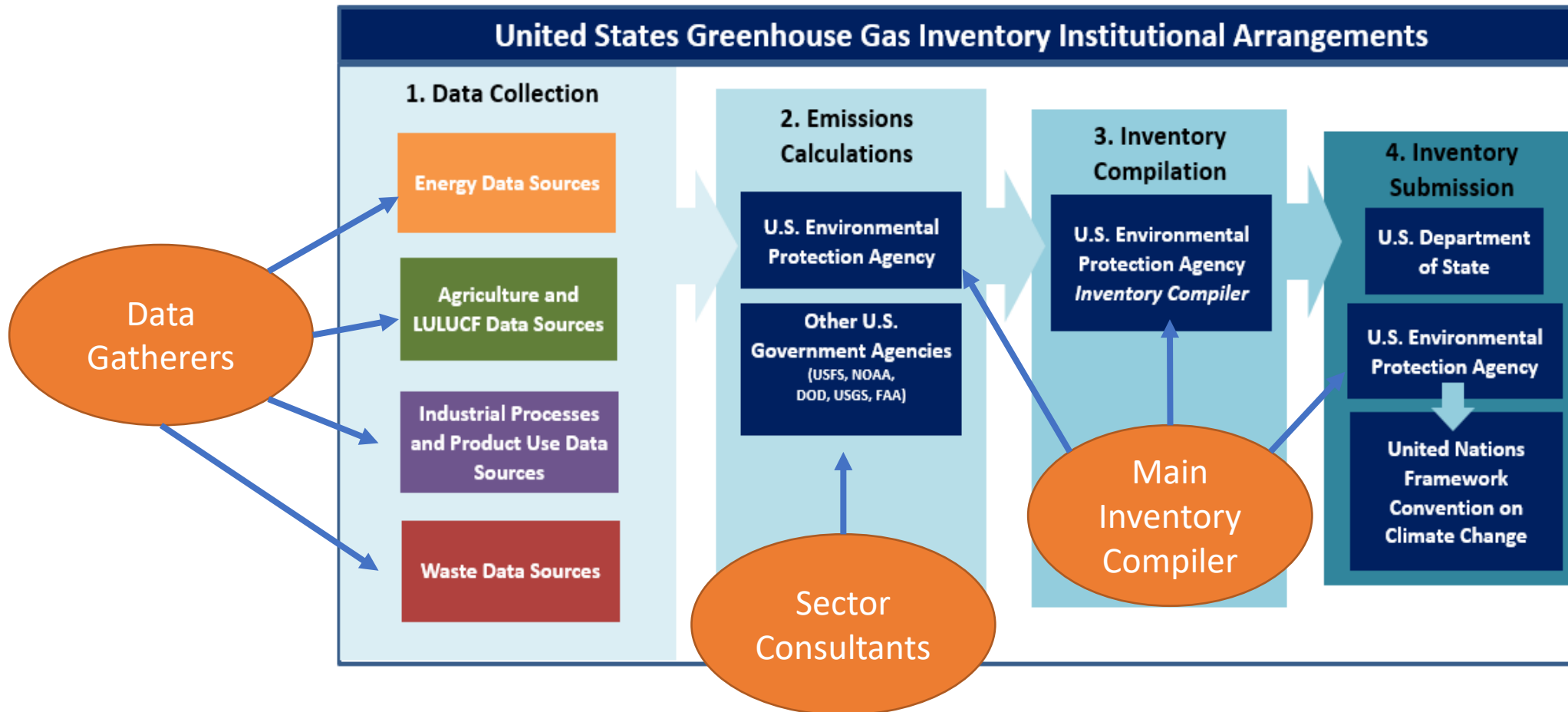
Who completes this table: National Inventory Coordinator (NIC)

Step 1: Identify current inventory management team



Step 1 also provides space for users to insert institutional arrangement diagrams which can be updated over time.

Figure 2.1: Institutional Arrangements of [insert country name]



Step 2: Provide Sectoral roles and arrangements

Complete one version of this table for each Inventory sector.

Table 2-3: Institutional arrangements for [sector, e.g., Energy (Stationary Sources)]

Role	Organization	Name	Contact Information	Comments
Technical coordinator				
Staff compiling estimates				
Expert reviewer(s)				
Institution(s) providing data				
Reporting manager(s)				
QA/QC Manager(s)				
Uncertainty Assessment Manager(s)				
Other				

Who completes this table: National Inventory Coordinator (NIC) and Sector Leads



Example of Table 2-3

Table 2-3: Institutional arrangements for Energy (Stationary Sources)

Role	Organization	Name	Contact Information	Comments
Technical coordinator	EPA	V. Camo	Phone number, email	
Staff compiling estimates	DOD, EPA-OTAQ, FHA	S. Rob, C. Baggio	Phone number(s), email(s)	
Expert reviewer(s)	University of DC	M. Johnson	Phone number, email	Identified by EPA Sectoral Leads
Institution(s) providing data	DOE, EIA, FHA, DOD	P. Lindstrom; T. Jones; R. Yates	Phone number(s), email(s)	Formal MOU set up between EPA and DOE
Reporting manager(s)	EPA	V. Camo	Phone number, email	
QA/QC Manager(s)	EPA	V. Camo	Phone number, email	Internal EPA role, formalized in kick-off memo
Uncertainty Assessment Manager(s)	Consultant XYZ	M. Zuma	Phone number, email	Formalized through contract
Other				

Who completes this table: National Inventory Coordinator (NIC) and Sector Leads



Step 2 – Questions Category Leads to ask for each sector:



- Is it an informal arrangement (e.g., written or verbal communication with staff)?
- How will the budget be allocated for each sector?
- How was the request for data made? Need to change approach?
 - What level of management should be sent the requests for compilation assistance/review? What is the appropriate level?
- Is there a formal legal contract between the organizations? Is it required?
- What communication is required? Was there a meeting with the experts, data providers, and other key contributors explaining the background and purpose of the inventory?
- How was/is the organization motivated to share its data and information with the inventory agency?



Step 3: Note your Institutional Strengths

Table 2.4: Strengths in management structure of national GHG inventory system

Sector	Strengths in management structure of National Inventory System	Key conditions for maintaining strengths	Staff in charge of managing arrangements
Energy (stationary sources)			
Energy (mobile sources)			
Energy (fugitive sources)			
IPPU			
Agriculture			
LULUCF			
Waste			
Other (Optional)			

⊕ **Strengths in management structure of national GHG inventory system**
Table 2.4 instructions: For each sector, describe in what way institutional arrangements that support inventory preparation are well established and likely do not require improvement. For example, communications between the institutions may be active and positive, the institutions may have worked together before and have a good working relationship, or data may be collected and managed adequately.

Who completes this table: National Inventory Coordinator (NIC) and Sector Leads

Step 3: Provide improvements to Institutional Arrangements



Table 2.5: Potential improvements in management structure of national GHG inventory system

Sector	Potential improvement	Staff in charge of leading this improvement	Priority of improvement (Low, Medium, High)
Energy (stationary sources)			
Energy (mobile sources)			
Energy (fugitive sources)			
IPPU			
Agriculture			
LULUCF			
Waste			
Other (Optional)			

⊕ **Potential improvement** Table 2.5 instructions: Taking key categories and existing institutional arrangements within each sector into account, describe potential ways to enhance those institutional arrangements. Consider whether any important tasks for inventory preparation have not been assigned or delegated, and determine whether they could be. Also consider whether the *Memorandum of Cooperation (MoC)* supporting template from EPA's [Toolkit](#) may help improve the institutional arrangements for each sector. Where you decide it may be helpful, record this decision as a needed step in this column.

Who completes this table: National Inventory Coordinator (NIC) and Sector Leads

Case Study: Agriculture Sector

- **Background:** Country X uses a combination of consultants, national agencies, and public institutions for data provision, QA/QC, and uncertainty analyses
- **Issue:** The consultant assisting to update data may have questions about the statistics in a report
- **Resolution:** The sector lead and the supporting consultant can use their relationships with the other national agencies and public institutions to get answers efficiently.

Case Study Cont.

Role	Name	Organization	Contact Information	Comments
Agriculture Sector Lead	S. Costa	Institute for Biotechnology	S.Costa@mail.gov	
Consultant responsible for categories 3D Agricultural Soils and 3H Urea Application	L. Taylor	Public Environmental Institute	L.Taylor@email.com	Personal contract for provision of consultancy services
Data Provider	Varies	National Bureau for Agriculture Statistics	agstats@mail.gov	The information is provided to the Environment Agency in accordance with stipulations of the memo on establishment of the National Monitoring and Reporting System of greenhouse gas
Consultant responsible for quality assurance	E. Barnes	Institute of Soil Science	E.Barnes@email.com	Personal contract for provision of consultancy services

Communicating inventory roles, milestones, etc.



- ✓ Identify inventory roles, responsibilities, and data needs
- ✓ Identify institutions and specify positions responsible for meeting those needs
- ✓ Establish necessary arrangements (e.g. Contracts for supporting consultants, arrangements with key stakeholders (data providers, reviewers, etc.))
- ✓ Communicate overall timeline, roles, outputs and specific interim deadlines
- ✓ Review and improve process

Inventory Inception Memorandum

To: Inventory compilers, QA/QC coordinator, etc.

Subject: Inventory Preparation Procedures for 2022-2024

-
1. Introduction
 2. Work Plan and Schedule
 3. Inventory Structure and Team Member Responsibilities
 4. Documentation Procedures
 5. Data Management
 6. Instructions for the Report Text
 7. QA/QC Requirements
 8. Uncertainty Analysis*
 - ...

Institutional Arrangements Supporting Templates



- ✓ **National GHG Inventory Coordinator: Responsibilities and Qualifications Guide:** Roles and key responsibilities for the National GHG Inventory Coordinator.
- ✓ **5 Sector Lead Roles and Responsibilities Guides:** Roles and key responsibilities for each Sector Lead (one guide for each IPCC Sector).
- ✓ **Memorandum of Cooperation Template:** Used for drafting an agreement between two entities.
- ✓ **Scope of Work Template:** Used by a lead inventory agency to develop a request for proposal or task order request for services.

FAO GHG Data Management Tool (GHG-DM Tool)

Excel spreadsheets containing a comprehensive list of activity data (AD) and parameters needed to complete Tier 1 (and some Tier 2) estimations of all categories within AFOLU, Energy, IPPU, and Waste.

- Helps GHG inventory compilers manage AD and parameters, and communicate data needs with data providers

File Home Insert Draw Page Layout Formulas Data Review View Help

B2 Table to collect information on Activity data needed for AFOLU GHG emissions estimates

Category	Category code	Activity data	Unit	Note/Definition	Period	Date of provision	Source of data	Contact details	Basis for data provision	Comment
Name of the category as indicated in the 2006 IPCC Guidelines	Code of the category as indicated in the 2006 IPCC Guidelines	Data on the magnitude of a human activity resulting in emissions or removals taking place during a given period of time	Unit in which the data are reported for estimating emissions/removals.	Any additional information and definition that would help data provider to deliver the correct data	Use the usual convention to define an interval 1990-1995; and separated with comma the single years 1998, 2000.	Record the date of receipt of the activity data (DD/MM/YYYY). Example: 29/08/2019.	Record the source of the activity data, e.g. the institution and department that provided it. Example: National Statistics Office.	Record the name, email address, and phone number of the contact person at the entity which provided the data.	State the basis upon which data are provided, e.g., voluntary provision, legal requirement, data sharing agreement, or a memorandum of cooperation or understanding.	Describe the activity data provided.
Enteric Fermentation (CH4) and Manure Management (CH4 and N2O)	3A1ai and 3A2ai	Dairy cows - annual average population	Head							
Enteric Fermentation (CH4) and Manure Management (CH4 and N2O)	3A1aii and 3A2aii	Other cattle - annual average population	Head							
Enteric Fermentation (CH4) and Manure Management (CH4 and N2O)	3A1b and 3A2b	Buffalo - annual average population	Head							
Enteric Fermentation (CH4) and Manure Management (CH4 and N2O)	3A1c and 3A2c	Sheep - annual average population	Head							
Enteric Fermentation (CH4) and Manure Management (CH4 and N2O)	3A1d and 3A2d	Goats - annual average population	Head							
Enteric Fermentation (CH4) and Manure Management (CH4 and N2O)	3A1e and 3A2e	Camels - annual average population	Head							
Enteric Fermentation (CH4) and Manure Management (CH4 and N2O)	3A1f and 3A2f	Horses - annual average population	Head							
Enteric Fermentation (CH4) and Manure Management (CH4 and N2O)	3A1g and 3A2g	Mules and Asses- annual average population	Head							
Enteric Fermentation (CH4) and Manure Management (CH4 and N2O)	3A1h and 3A2h	Swine - annual average population	Head	Further disaggregation is desirable in Market Swine and Breeding Swine. For livestock categories that live less than 1 year (e.g., piglets and some market swine), information could be reported on total animal slaughtered per year. In that case, annual average population could be estimated as number of						

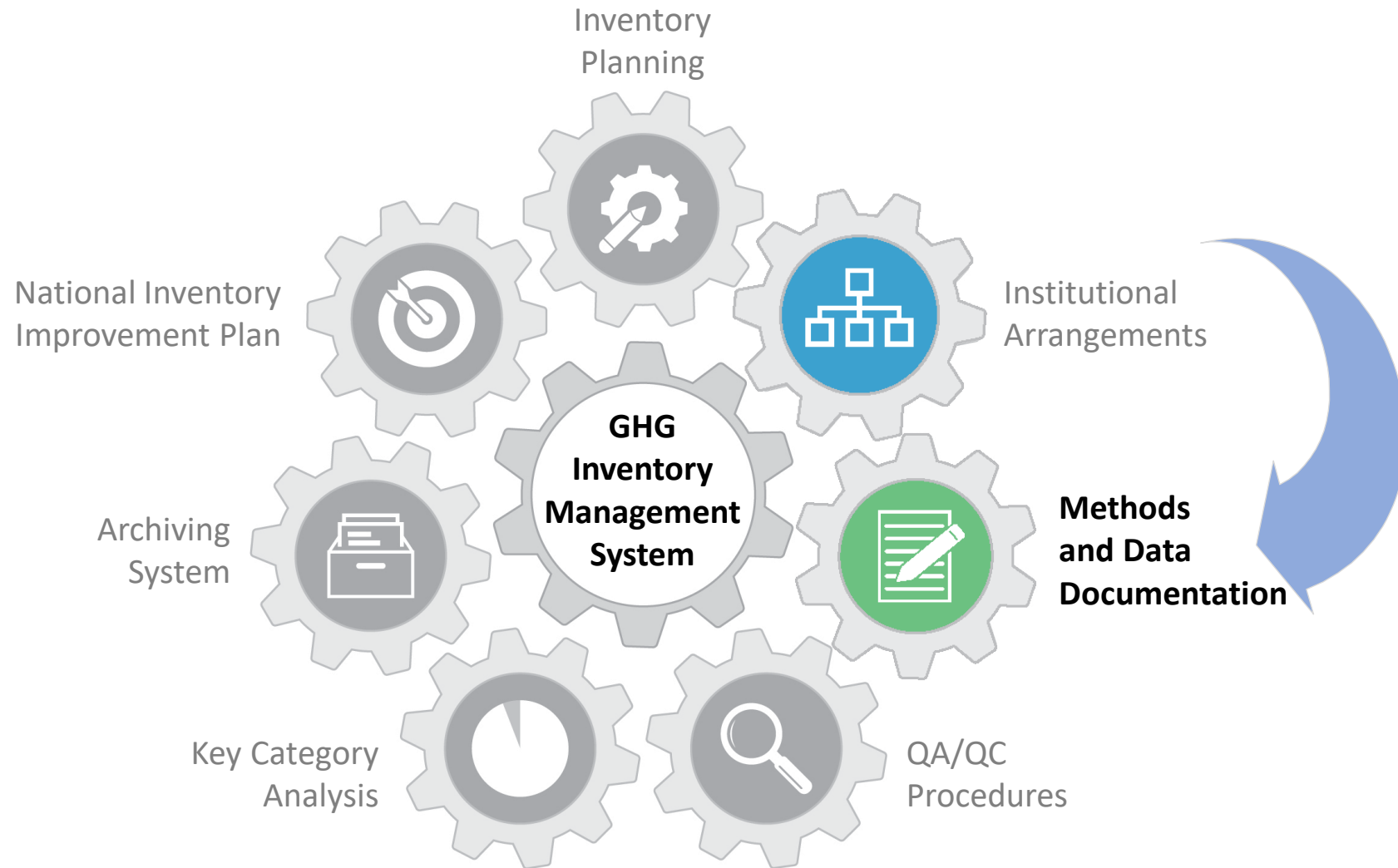
ABOUT 3A Livestock - Tier 1 3A Livestock - Tier 2 3B Land, 3D1 HWP - Tier 1 3C Aggregat ...

Action Items from Institutional Arrangements



1. Assign specific responsibilities for establishing Institutional Arrangements (IAs)
2. Identify all current and desired IAs
 - If working with outside contractors, the Memorandum of Cooperation and the Sample Scope of Work included in the template can be very helpful towards establishing relationships
3. Communicate arrangements with sector staff! If staff know the setup, they will be able to follow it more easily
4. Identify potential improvements to IAs
 - This will make the National Inventory Improvement Plan (Template 7) much easier

Next template...





Thank You For Your Attention!

For questions, contact
ghgi.transparency@epa.gov



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