NATIONAL GHG INVENTORIES: OVERVIEW AND METHODOLOGIES

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OUTLINE

- Definition, content, qualities of an GHGI
  - Definition and purposes
  - TCCCA principles
- Development, and reporting emissions
  - Terms of Reference
  - Compiling an inventory
  - Methodologies: types and hierarchy
- Institutional organization
  - Possible structures
  - France's example

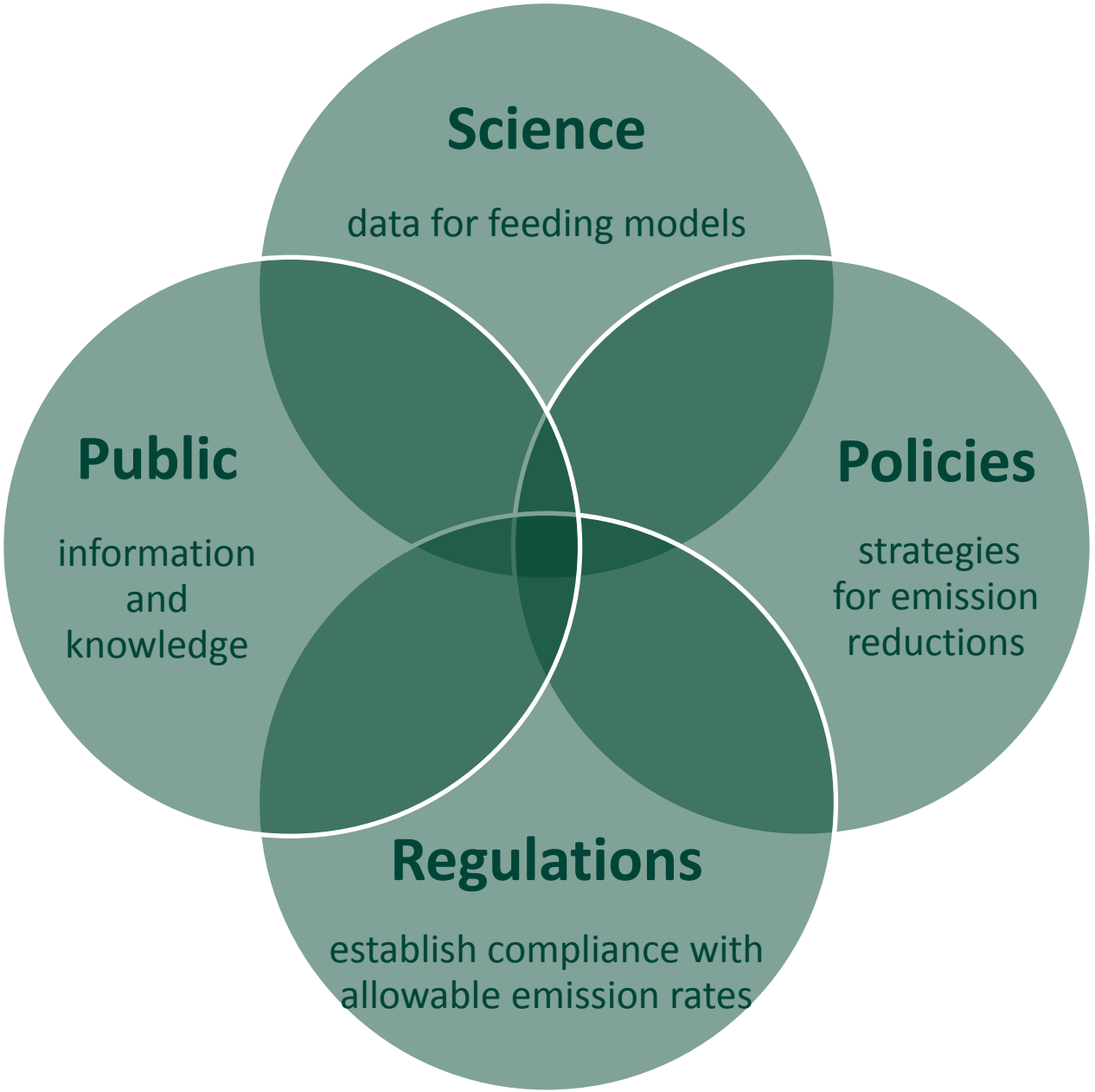
Inventory vs. Registry

Inventory of emissions: qualitative and quantitative representation of emissions of one or more substances from a set of anthropogenic or natural emitters that meet specific criteria.

Registry: this term is particularly used when the census counts for items on an individual basis such as specific industrial facilities. Examples: EPRTR, ETS registry, taxed facilities, etc.

Some registries are however referred to as inventories (eg inventory of Large Combustion Plant which is established on an individual basis - cf Directive 2001/80 / EC)

Different purposes



TACCC Principles

The choice of methodology and the way of documenting estimates depend highly on the national circumstances. Nevertheless, estimates should comply with "healthy" characteristics. Therefore the UNFCCC has defined the TACCC basic principles.

Transparency

assumptions and methodologies should be clearly explained

Accuracy

inventory contains neither over- nor under-estimates as far as can be judged, uncertainties are reduced as far as practicable

Completeness

estimates are reported for all relevant categories of sources and sink and gases

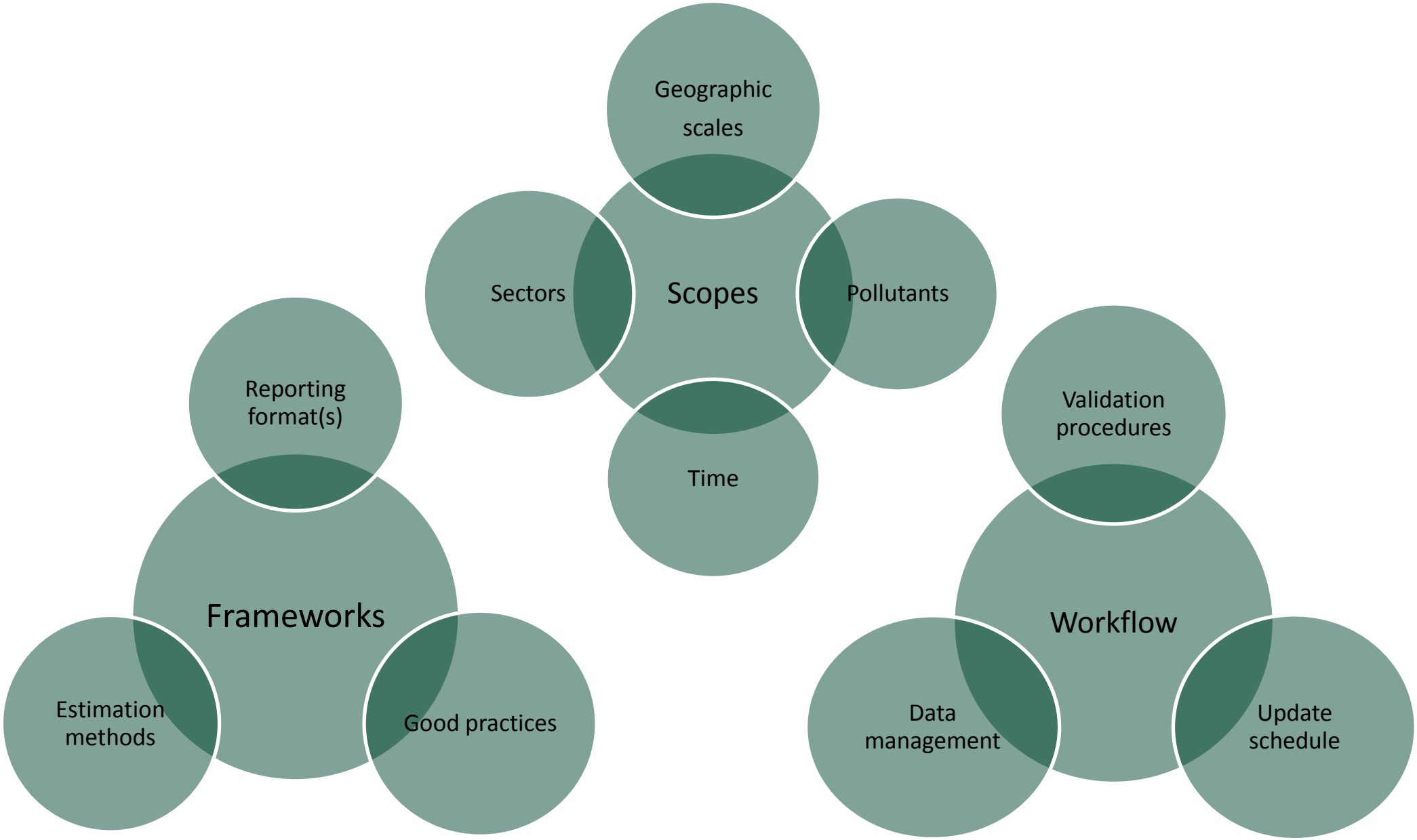
Consistency

differences in the results for different years or categories must reflect real differences in emissions (not methodological changes)

Comparability

methodologies applied and reporting of emissions allows to compare the inventory with those of others countries

Terms of Reference



Compiling an inventory

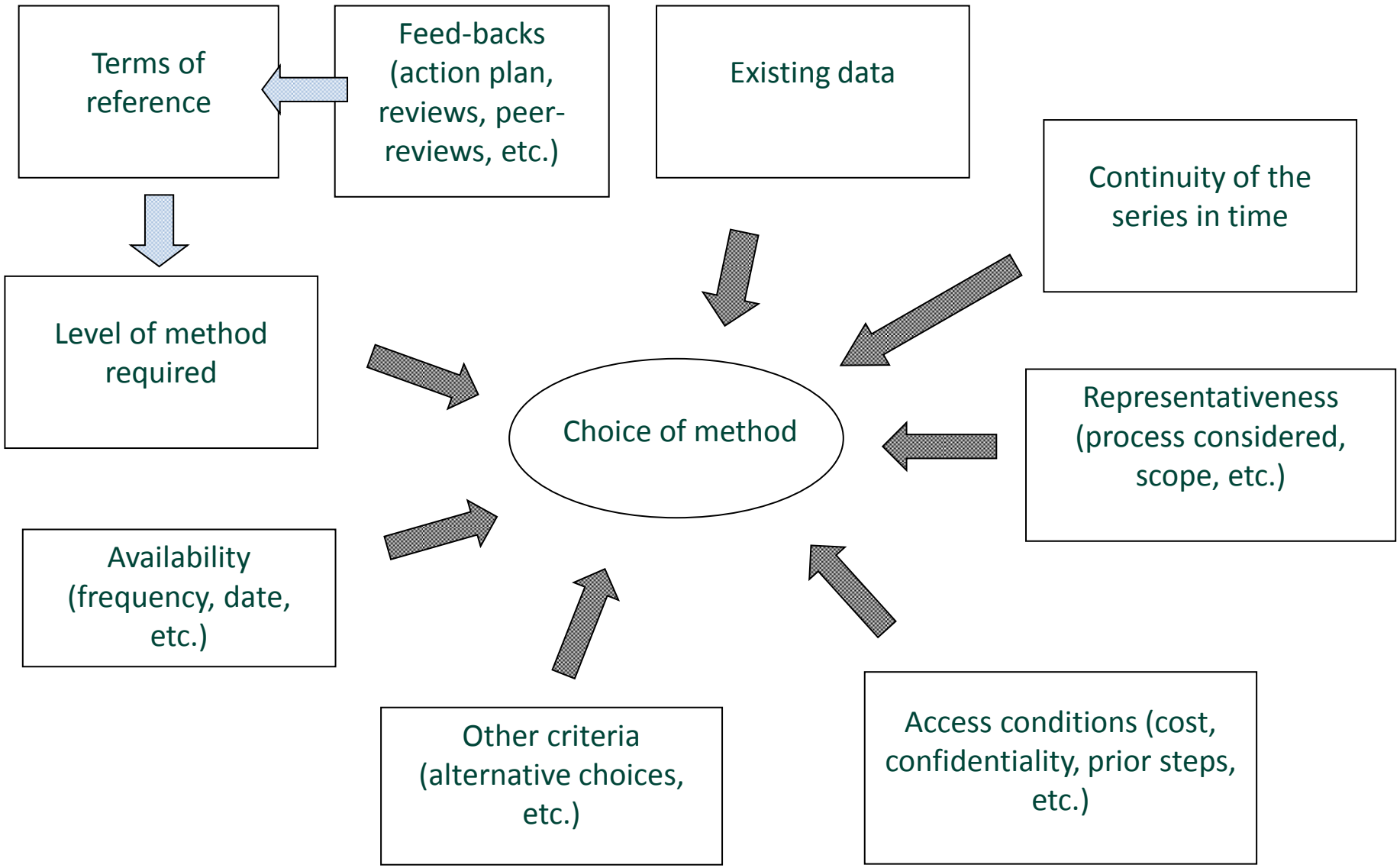
1. **Identify appropriate methods** for estimation, according to ToR and available resources
2. **Collect data**, considering time series consistency, uncertainties, and QA/QC procedures
3. **Estimate emissions and removals**, using the chosen appropriate methodologies
4. *Perform **uncertainty and key-categories analysis**, to identify categories where possible revisions or improvements should be made*
5. Complete final **QA / QC checks**
6. **Report inventory,** with information aggregated according to categories in limited numbers and allowing a synthetic view of the results
7. Arrange for **mandatory or voluntary reviews**

Choice of methods

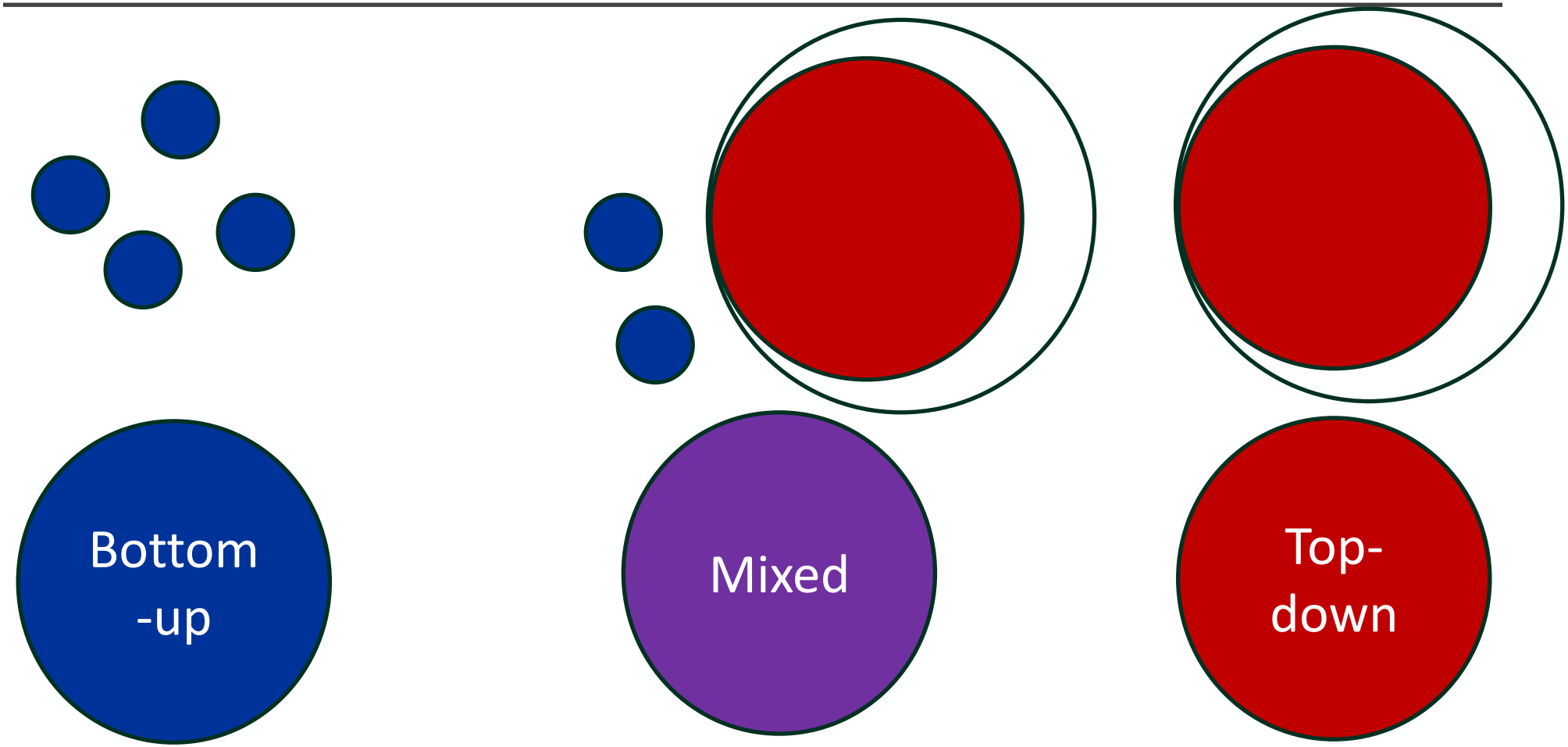
In practice, the aim is to reach optimization in order to take into account:

- **requirement**s contained in the ToR and guidelines regarding the levels of methods applicable to the key source categories
- **data availability**, which is a prerequisite for concrete application of a method
- the **cost of acquiring the data** which can prove to be high in relation to the expected accuracy. This aspect could lead to seek alternative data, which are sometimes less accurate and/or more dispersed, but likely to meet the inventory needs
- **the fact that the data are permanently available** which enables consistent time-series to be produced, and ensures the quality required by the ToR. If gaps in statistics cannot be avoided, the highest consistency must be sought, either by recalculating the entire series with the new data source (if possible), or by applying alternative methods (extrapolation, interpolation, overlap, etc.)
- **confidentiality of information :** on this point, it is worth noticing that a large amount of information could sometimes be defined as confidential (in the legal, contractual or professional sense) during the data collection phase, but once aggregated at the reporting level, there often remain only a few cases of confidential data to be dealt with.

Choice of methods



Types of methodologies



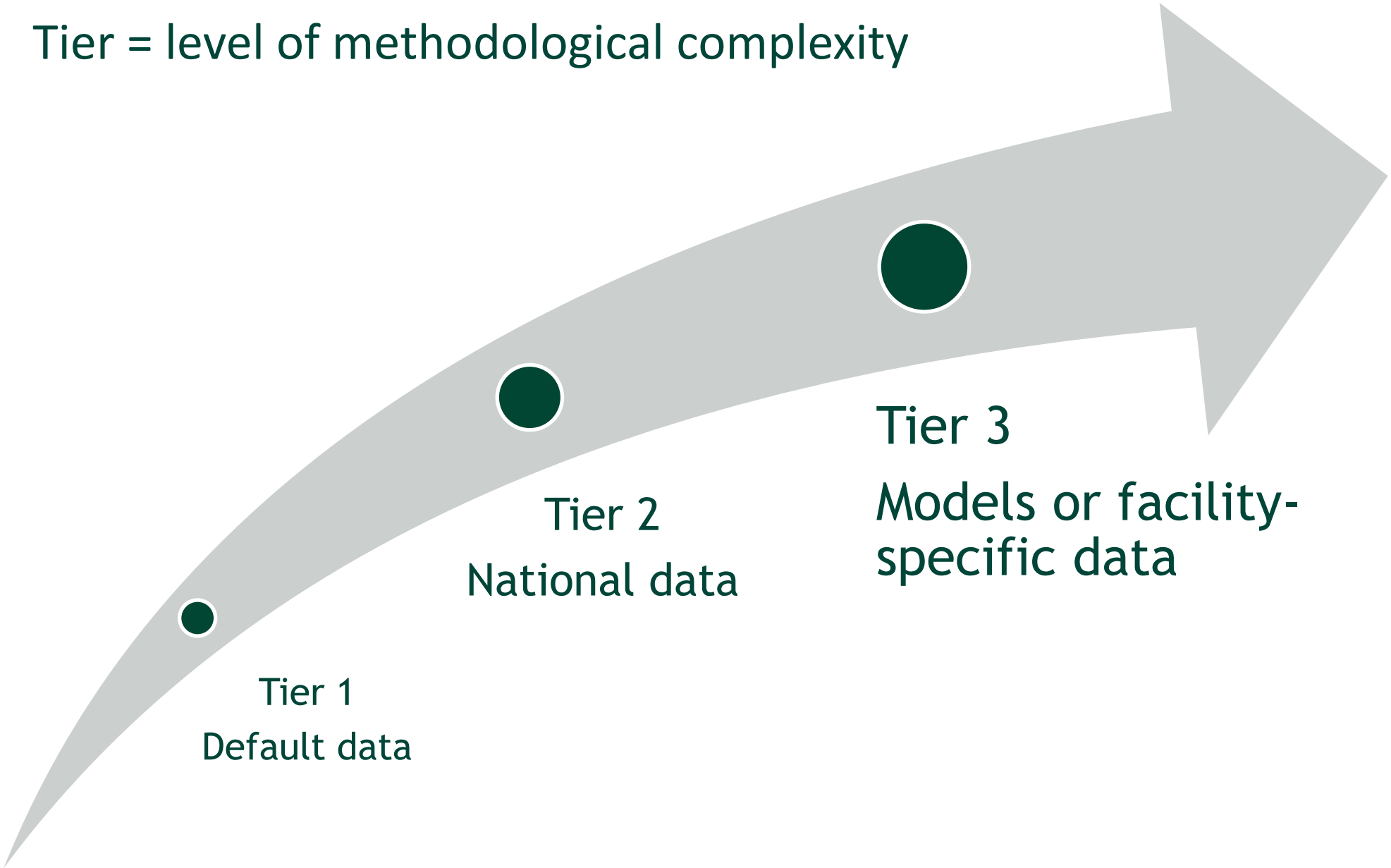
Total emissions of a given sector are a sum of emissions of individual sources

Total emissions of a given sector are estimated partly from individual sources and partly from global data

Total emissions of a given sector are a part of emissions of a broader sector

Methods hierarchy

Tier = level of methodological complexity

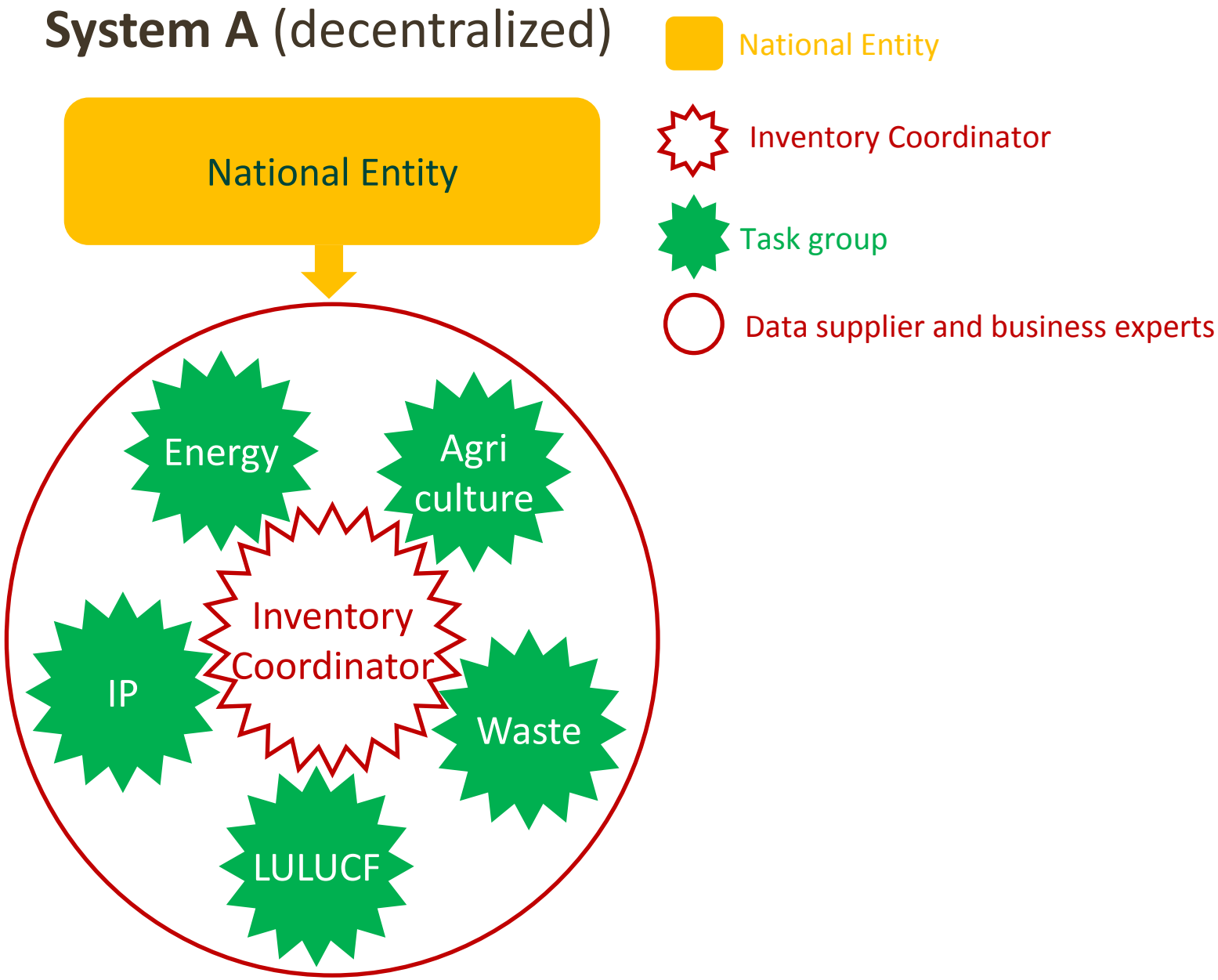


Institutional arrangements and objectives

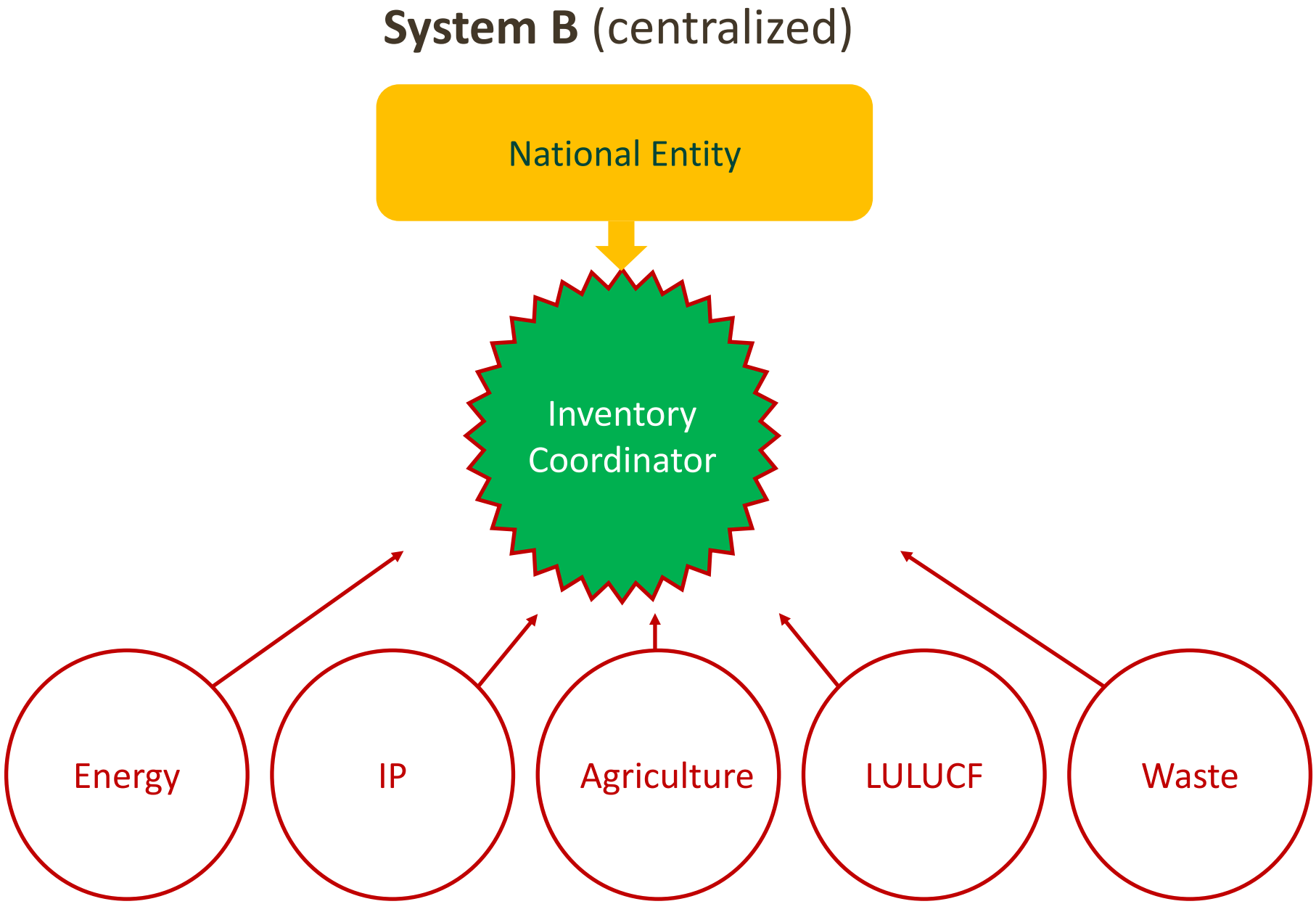
A national inventory system must be developed and managed in order to:

- guaranty TCCCA and provide validated results for submission to international bodies in due time,
- provide additional information such as uncertainty estimation, recalculation where necessary, analysis of key source categories, etc.,
- prepare relevant and complete documentation especially on methodologies applied and their rationale,
- make available all supports for reporting (tables, reports, files, etc.),
- facilitate reviews of inventories,
- implement QA & QC procedures,
- register comments and mistakes, plan and implement corrections and improvements.

Possible structures



Possible structures



Possible structures

National Entity

- Typically a government ministry, department or agency
- Main tasks: Planning - Supervision - Validation

Inventory Coordinator

- Administrative entity, consulting firm, other
- Link between the administration and the various sectoral groups
- Main task : validation and integration of the calculations made

Task group

- Administrative entity, consulting firm, other
- Main task : calculate emissions, to be approved by the coordinator.

Data supplier and business experts

- Ministries, agencies, experts from industry, academics, etc.
- Main task : collect the necessary data to establish inventories

Pros and cons

System A (decentralized)

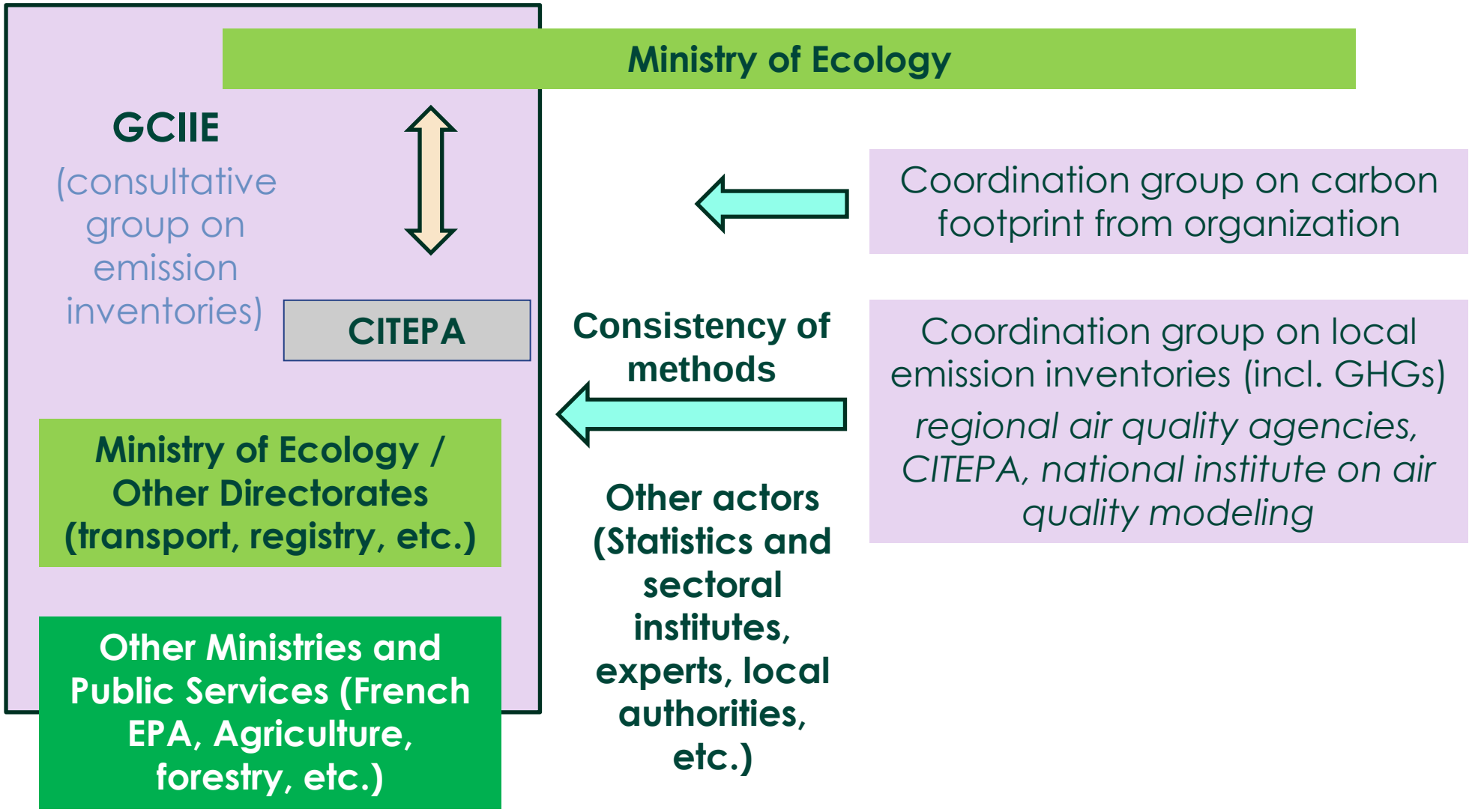
Pros	Cons
• Appropriation of inventories by the departments concerned • Proximity to the source data • Presence of a strong expertise • Links between inventory and other projects (NAMAs, etc.)	• Difficulty in training many people • Difficulty of maintaining a quality system • Need for a strong coordination to ensure consistency and overall homogeneity

System B (centralized)

Pros	Cons
• People very well trained and involved on inventory methods • Quality system is easier to manage • Consistency in the methods and products • A single representative for inventory	• Sometimes difficult to access data • Less business expertise • Less links with other programs

Institutional arrangements and responsibilities

France's example



Thank You

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