IPCC’s Guidelines and Tools for the National GHG Inventory

Seventh meeting of the EGES
Virtual meeting
11 November 2020
IPCC TFI TSU
Develop and refine the internationally-agreed methodology to estimate GHG emissions and removals at national level. Encourage the widespread use of this
What are National GHG Inventories?

- **Time series of national Estimates** of all emissions and removals of greenhouse gases (GHG) from given sources and sinks (i.e. GHG Inventory categories) from a defined territory in a specific period of time associated with human activities.

- **National Estimates:**
  - Anthropogenic Greenhouse Gases fluxes,
  - Occurring within a year, in a series across years
  - Across the entire National Territory

**Note**
under the Paris Agreement, every country shall report NGHGIs
Why do we need inventory guidelines?

• Any international agreement to limit climate change must set emission limits/targets/goals and monitor progress in an open and transparent way.

• Currently, most emissions/removals can only be estimated at national scale, not measured, and so consensus on the best way of doing this is needed.

• To do this we need reliable, generally accepted methods and guidelines.
Infer emissions based on parameters (EF) associated with activities (AD). For example:

- Amount of fuel burnt (AD)
- Carbon content in fuel determines the amount of CO₂ emitted from a unit of fuel burnt (EF)
- CO₂ proportional to amount of fuel burnt (E)

Where:

\[ E_{GHG} = AD \times EF_{GHG} \]

Where: E = Emission; AD = Activity Data; EF = Emission Factor

95% CI of AD, EF, and Estimates is to be calculated
Data Collection

• In establishing routine, formalised, data collection use should be made of existing statistical organisations…
  (e.g., waste statistics for the estimation of methane emissions)

• It is **good practice to engage data suppliers** in the process of inventory compilation and improvement by involving them in activities such as:
  – ...
  – Scientific or statistical workshops on the inventory inputs and outputs

• **Census vs Survey/Sampling**

• **Accuracy & Precision**

• **Uncertainty Analysis**
  – Uncertainty in the mean vs Uncertainty in the individual
  – Standard error vs Standard deviation
IPCC Guidelines and Paris Agreement

• “Katowice Climate Package” to operationalize the PA. UNFCCC COP24/CMA.1, December 2018.

• Each Party shall use the 2006 IPCC Guidelines, and shall use any subsequent version or refinement of the IPCC guidelines agreed upon by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA).
IPCC Guidelines and supporting tools

- **1995 IPCC Guidelines**
- **1996 IPCC Guidelines**
- **Revised 1996 IPCC Guidelines**
- **GPG-LULUCF**
- **2006 IPCC Guidelines**
- **Wetlands Supplement**
- **FAQ website**
  - Launched in 2008
- **IPCC Inventory Software**
  - Launched in 2012
- **Emission Factor Database (EFDB)**
  - Launched in 2002
- **Expert Meetings (Meeting Reports)**
- **2019 Refinement**
- **KP Supplement**
- **GPG2000**
- **GPG-LULUCF**

**INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE**

**NATIONAL GREENHOUSE GAS INVENTORIES PROGRAMME**
Various Tools – Supporting Materials

• **Emission Factor Database (EFDB)**
  
  [https://www.ipcc-nggip.iges.or.jp/EFDB/](https://www.ipcc-nggip.iges.or.jp/EFDB/)

• **IPCC Inventory Software**
  
  [https://www.ipcc-nggip.iges.or.jp/software/index.html](https://www.ipcc-nggip.iges.or.jp/software/index.html)

• **Primer for 2006 IPCC Guidelines**
  
  [https://www.ipcc-nggip.iges.or.jp/support/support.html](https://www.ipcc-nggip.iges.or.jp/support/support.html)

• **Reports of Expert Meetings**
  
  [https://www.ipcc-nggip.iges.or.jp/meeting/meeting.html](https://www.ipcc-nggip.iges.or.jp/meeting/meeting.html)

• **Frequently Asked Questions**
  
  [https://www.ipcc-nggip.iges.or.jp/meeting/meeting.html](https://www.ipcc-nggip.iges.or.jp/meeting/meeting.html)
EFDB

- Library of emission factors and other parameters *(with background documentation and technical references)* that can be used for estimation of GHG emissions and removals in Inventories

- Data collected:
  - Default values from IPCC Guidelines
  - Data from peer-reviewed papers
  - Data from other publications (e.g., national reports)

- It evolves across time

The EFDB is not intended for authorization of use of specific EFs by countries.

It serves as a library where inventory compilers can find EFs suitable to their countries by their own judgement.
Data upload procedure

- **Data compiled in proposals** submitted to the Editorial Board of the EFDB for consideration, through the IPCC TFI Technical Support Unit (TSU)

- **Open to any data proposals** from any subject

- Criteria for inclusion of new data: *robustness, applicability and documentation*

- **Contact IPCC TFI-TSU at** [ipcc-efdb@iges.or.jp](mailto:ipcc-efdb@iges.or.jp)
Data Meeting - Data

Editorial Board (EB)

- Initial check of data proposals
- Collection of new data and data proposals

Data Provider - Data

 Defaults - EFDB
Web application

Search options (e.g. Basic search)
Specify gas, type of parameters etc.
Status of search
To narrow down search results
Details of data
Results can be exported in Excel

https://www.ipcc-nggip.iges.or.jp/EFDB/main.php
IPCC Inventory Software

- Administration functions: Country, Users, Years
- Contains default data
- Worksheets for data entry
- Data Managers: Land Types and Livestock
- Data Archive
- QA/QC: Uncertainty analysis, KCA, Reference Approach
- Data Export and Import

https://www.ipcc-nggip.iges.or.jp/software/index.html
Thank you

https://www.ipcc-nggip.iges.or.jp/index.html
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