



IPCC Emission Factor Database (EFDB)

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IPCC EFDB

- Launched in 2002
- Open library of emission factors (EFs) and other parameters with background information <https://www.ipcc-nggip.iges.or.jp/EFDB/main.php>
 - Default data from IPCC guidelines
 - Data from peer-reviewed scientific papers
 - Data from other publications (e.g., national reports)
- Communication platform to share data and information that can be used for estimation of national greenhouse gas (GHG) emissions/removals
- EFDB is recognized by Parties to the UNFCCC as a useful resource for inventory compilers (e.g., FCCC/SBI/2011/5/Rev.1 and Decision 24/CP.19)

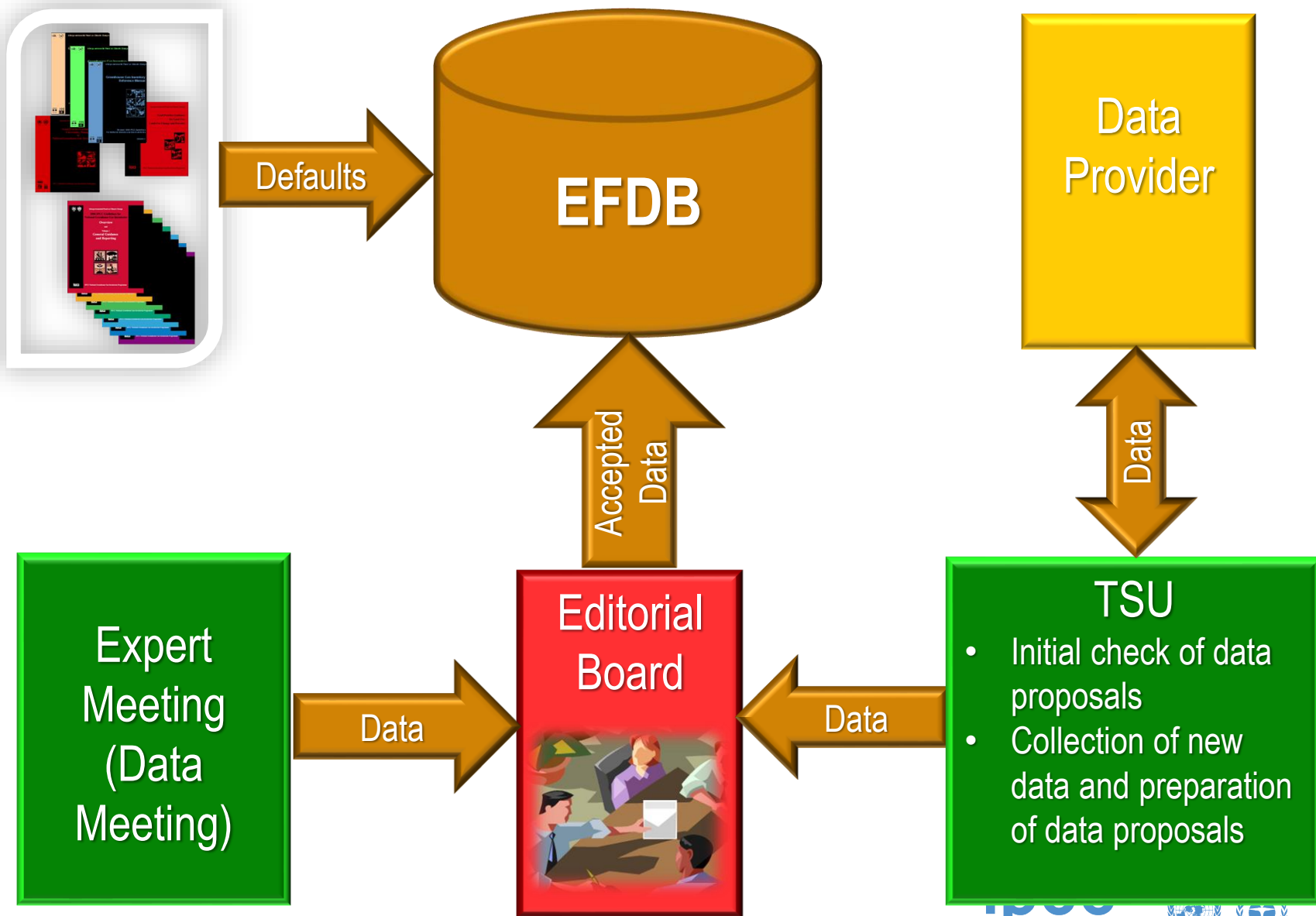
IPCC EFDB

- EFDB is an important resource for development of IPCC guidelines
 - **A source of data/information for consideration by authors.** Thus, populating the EFDB with new data supports the process of refinement of IPCC default EFs/parameters.
- Non-default EFs/parameters in the EFDB may be a useful source of information for users in applying higher tier methods.
- The responsibility of an appropriate use of EFDB data always will remain with the users.
- EFDB is a supporting tool for national GHG inventories and is not subject to formal IPCC review process.

IPCC EFDB

- Evolves dynamically: data proposals (e.g., submissions from inventory experts and researchers) and data collection activities (e.g., expert meetings, literature search)
- Open to any data proposals ipcc-efdb@iges.or.jp
 - Data proposals are considered by EFDB Editorial Board for inclusion into the EFDB
 - Criteria for inclusion of new data: **robustness, applicability and documentation**. The aim is not to undertake a full scientific assessment but to collect data that may be useful to users.
- Annual meeting of the Editorial Board to consider data proposals and discuss how to improve/enhance the EFDB
 - Summary of the meetings are published at IPCC TFI website <https://www.ipcc-nggip.iges.or.jp/meeting/meeting.html>
 - 21st Meeting of Editorial Board (EB21), 16-19 May 2023, Christchurch, New Zealand

Populating EFDB



Data collection activities

- Expert Meetings on Data for the EFDB (Data Meetings) have been organized since 2008
 - Attended by data providers (e.g., inventory experts, researchers) and Editorial Board members
 - 21st Data Meeting (DM21), 17-18 May 2023, Christchurch, New Zealand
- Literature/data search (e.g., peer-reviewed journal papers, national inventory reports)
- Total 2,445 data were accepted by the Editorial Board at the EFDB meetings (EB21/DM21) held on 16-19 May 2023 for inclusion into the EFDB.

How to access EFDB

- Two types of applications:
 - Web
 - Offline
- The offline application
 - Windows, Mac and Linux
 - Available for download at the EFDB website

<https://www.ipcc-nggip.iges.or.jp/EFDB/main.php>

EFDB search

EFDB emission factor database

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Basic search

Select Gases | IPCC Default Data | Other (non-default) Data

IPCC Guidelines: 2006

IPCC 2006 Categories

- 1 - Energy
- 2 - Industrial Processes and Product Use
- 3 - Agriculture, Forestry, and Other Land Use
 - 3.A - Livestock
 - 3.B - Land
 - 3.C - Aggregate sources and non-CO2 emissions sources on land
 - 3.D - Other
- 4 - Waste
- 5 - Other

Status

- IPCC 2006 Source/Sink Category: Agriculture, Forestry, and Other Land Use (3)
- Gases: (All)
- Type of parameter: (All)

Displayed records: 1 - 20 / 8857. Export to XLS

| Filter | Active Filters | EF ID | IPCC 1996 | IPCC 2006 | Gas | Description | Technologies / Practices | Parameters / Conditions | Region | Unit | Source of data | Action |
|--------|----------------|-------|---------------|-------------------|--------|--------------------------------------|--------------------------|-------------------------|-------------------------------|---------------|---|--------|
| | | 43088 | 4A2 - Buffalo | 3.A.1.b - Buffalo | METHAN | Enteric Fermentation Emission Factor | | | Country: Developed Countries | 55 kg/head/yr | Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories (Table 4-3 on Page 4.10 of the Reference Manual) | Detail |
| | | 43089 | 4A2 - Buffalo | 3.A.1.b - Buffalo | | | | | Country: Developing Countries | 55 kg/head/yr | Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories (Table 4-3 on Page 4.10 of the Reference Manual) | Detail |

Search options (e.g., Basic search)

Search criteria e.g., specify gas, type of parameters etc.

Status of search

To narrow down search results

Details of data

Results can be exported in Excel file

EFDB data output

| A | B | C | D | E | F | G | H |
|--------|--------------------------------|--------------------------------|---------|-----------|-----------------------------|---|---------------------------------|
| EF ID | IPCC 1996 Source/Sink Category | IPCC 2006 Source/Sink Category | Gas | Type of | Description | Technologies / Practices | Parameters / Conditions |
| 415943 | 4A - Enteric Fermentation | 3.A.1 - Enteric Fermentation | METHANE | 2006 IPCC | Tier 1 enteric fermentation | Commercialised dairy sector based on grazing. Separate beef cow herd grazing pastures and rangelands. | Animal category: Cattle (Dairy) |

EFDB emission factor database

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Emission Factor Data (ID: 415943)

| Administrative information | |
|--|----------------------|
| Data Provider: | IPCC |
| Data Provider Country: | (Not applicable) |
| Data Provider Contact: | ipcc-efdb@iges.or.jp |
| Date calculated: | |
| Date submitted to EFDB by Data Provider: | |
| Date posted to EFDB by IPCC: | |

| Technical information | |
|--|--|
| Gas: | METHANE |
| IPCC 1996 Source/Sink Category: | Agriculture (4) -> Enteric Fermentation (4A) |
| IPCC 2006 Source/Sink Category: | Agriculture, Forestry, and Other Land Use (3) -> Livestock (3.A) -> Enteric Fermentation (3.A.1) |
| Properties | |
| Technologies/Practices: | Commercialised dairy sector based on grazing. Separate beef cow herd grazing pastures and rangelands. Minor amount of feedlot feeding with grains. Growing non-dairy cattle comprise a large portion of the population. |
| Parameters/Conditions: | Animal category: Cattle (Dairy) |
| Region/Regional Conditions: | Region: Latin America |
| Abatement/Control Technologies: | |
| Others: | Average milk production of 800 kg head-1 yr-1 |
| Description: | Tier 1 enteric fermentation emission factors for Cattle |
| Value: | 72 kg CH4/head/yr |
| Value in common units: | |
| Equation: | Equation 10.19 in Volume 4 of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories |
| IPCC Worksheet: | Sheet 1 of 1, Category Code 3A.1, Page A1.7 of Volume 4 of the 2006 IPCC Guidelines |
| Source of data: | 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4, Table 10.11 - Tier 1 enteric fermentation emission factors for Cattle, on page 10.29 |
| Technical Reference: | |
| Reference language: | English |
| Abstract in English: | |
| Uncertainties expressed as 95% confidence limit: | Upper: Unknown Lower: Unknown |
| Data quality: | |
| Distribution shape: | |
| Data quality reference: | |
| Other info on data quality: | IPCC Expert Group, values represent averages within region, where applicable the use of more specific regional milk production data is encouraged. Existing values were derived using Tier 2 method and the data in Tables 10.A.1 and 10A. 2 of the 2006 Guidelines. |

| Usage/Review information | |
|----------------------------------|---|
| Type of parameter: | 2006 IPCC default |
| Comments from the data provider: | Emission factors should be derived on the basis of the characteristics of the cattle and feed of interest and need not be restricted solely to within regional characteristics. |
| Comments from others: | |
| Link: | |

Enhancement and improvement of EFDB

- Regularly updated with new data
- New upgraded version of the EFDB to be released in 2023 includes e.g.,
 - 2019 Refinement categories
 - Enhanced search/filter functions (e.g., Select C pool, Regions, Countries criteria are added for Basic search; static drop-down list in Source of data column)
 - Data statistics tables

The screenshot displays the EFDB (Emission Factor Database) interface. The header includes the logo for the IPCC (Intergovernmental Panel on Climate Change) and the text "ipcc emission factor database". The navigation bar contains links for Home, Basic search, Fulltext search, Search by ID, Statistics, Documents, Off-line version of EFDB, and Help. The main content area is titled "Basic search" and features several filter tabs: "Select Gases", "Select Fuels", "Select C pools", "IPCC Default Data", "Other (non-default) Data", "Regions", and "Countries". The "Select C pools" tab is active, showing a list of categories with checkboxes: Above-ground biomass (AGB), Below-ground biomass (BGB), Litter (L), Dead wood (DW), Soil organic matter - mineral soils (SOM mineral), Soil organic matter - organic soils (SOM organic), Harvested wood products (HWP), and Classified otherwise. Below this list is an "Apply" button. The "Regions" tab is also active, showing a list of regions with checkboxes: Asia, Africa, Latin America and Caribbean, North America, Oceania, and Europe. Below this list is another "Apply" button. The "Countries" tab is active, showing a list of countries with checkboxes: Afghanistan, Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, China Hong Kong Special Administrative Region, China Macao Special Administrative Region, Christmas Island, Democratic People's Republic of Korea, Georgia, India, Indonesia, Iran, Iraq, and Israel. The "IPCC Guidelines" dropdown is set to "2006". At the bottom, there is a summary of the current search criteria: "IPCC 2006 Source/Sink Category: (All)", "Gases: (All)", "Fuels: (All + NA)", "C pools: (All + NA)", "Type of parameter: 2019 Refinement default", "Regions: (All + NA)", and "Countries: (All + NA)".

Enhancement and improvement of EFDB

EFDB
emission factor database

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Basic search

[Select Gases](#) | [IPCC Default Data](#) | [Other \(non-default\) Data](#) | [Regions](#) | [Countries](#)

[Choose table columns](#) | [Hide IPCC Category tree](#) | [Hide status](#)

IPCC Guidelines: 2006

IPCC 2006 Categories

- 1 - Energy
- 2 - Industrial
- 3 - Agriculture
- 4 - Waste
- 5 - Other

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Statistics

Table 1

| Sector | Total number of data | Source of data | | | | | | | Default | Other |
|--------------|----------------------|-----------------|-----------------------|-------------------------------------|-------------------------|------------------------|-------------|------------|------------|-------|
| | | IPCC Guidelines | Peer-reviewed journal | National Inventory Report (Annex I) | National Communications | Biennial Update Report | Other | | | |
| Energy | 6353 | 5545 | 134 | 230 | 19 | 0 | 425 | 87% | 13% | |
| IPPU | 1912 | 624 | 60 | 94 | 0 | 0 | 214 | 62% | 38% | |
| AFOLU | 8857 | 6402 | 1909 | 59 | 0 | 0 | 427 | 72% | 28% | |
| Waste | 2077 | 787 | 745 | 229 | 9 | 0 | 306 | 38% | 62% | |
| Total | 19299 | 13358 | 2929 | 612 | 28 | 0 | 1372 | 73% | 27% | |

Filter

Active Filters

Table 2

Please note, that one Emission Factor or Other Parameter that has multiple IPCC Source/Sink Categories assigned, will be accounted for in all of those categories. This will result in totals being higher than in Table 1.

| Sector | Category | Total number of data | Source of data | | | | | | |
|---|----------|----------------------|-----------------|-----------------------|-------------------------------------|-------------------------|------------------------|-------|-----|
| | | | IPCC Guidelines | Peer-reviewed journal | National Inventory Report (Annex I) | National Communications | Biennial Update Report | Other | |
| 1 - Energy | | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 1.A - Fuel Combustion Activities | | 1323 | 1102 | 35 | 79 | 6 | 0 | 0 | 101 |
| 1.A.1 - Energy Industries | | 473 | 263 | 28 | 80 | 1 | 0 | 0 | 101 |
| 1.A.2 - Manufacturing Industries and Construction | | 445 | 247 | 0 | 80 | 0 | 0 | 0 | 118 |
| 1.A.3 - Transport | | 2741 | 2599 | 26 | 28 | 4 | 0 | 0 | 84 |
| 1.A.4 - Other Sectors | | 684 | 642 | 4 | 3 | 0 | 0 | 0 | 35 |
| 1.A.5 - Non Specified | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Energy | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1.B - Fugitive emissions from fuels | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1.B.1 - Solid Fuels | | 182 | 148 | 11 | 0 | 8 | 0 | 0 | 15 |
| 1.B.2 - Oil and Natural Gas | | 375 | 344 | 30 | 0 | 0 | 0 | 0 | 1 |
| 1.B.3 - Other emissions from Energy Production | | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |

| EF ID | IPCC 2006 Category | Sector | Category | Total number of data | IPCC Guidelines | Peer-reviewed journal | National Inventory Report (Annex I) | National Communications | Biennial Update Report | Other |
|--------|--|---|----------|----------------------|-----------------|-----------------------|-------------------------------------|-------------------------|------------------------|-------|
| 62948 | 4.C - Incineration and Open Burning of Waste | 1 - Energy | | 16 | 0 | 0 | 0 | 0 | 0 | 16 |
| | | 1.A - Fuel Combustion Activities | | 1323 | 1102 | 35 | 79 | 6 | 0 | 101 |
| | | 1.A.1 - Energy Industries | | 473 | 263 | 28 | 80 | 1 | 0 | 101 |
| | | 1.A.2 - Manufacturing Industries and Construction | | 445 | 247 | 0 | 80 | 0 | 0 | 118 |
| | | 1.A.3 - Transport | | 2741 | 2599 | 26 | 28 | 4 | 0 | 84 |
| 614476 | 4.A - Solid Waste Disposal | 1.A.4 - Other Sectors | | 684 | 642 | 4 | 3 | 0 | 0 | 35 |
| | | 1.A.5 - Non Specified | | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | Energy | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 614476 | 4.B - Biological Treatment of Solid Waste | 1.B - Fugitive emissions from fuels | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 1.B.1 - Solid Fuels | | 182 | 148 | 11 | 0 | 8 | 0 | 15 |
| | | 1.B.2 - Oil and Natural Gas | | 375 | 344 | 30 | 0 | 0 | 0 | 1 |
| 614476 | 4.C - Other | 1.B.3 - Other emissions from Energy Production | | 3 | 0 | 0 | 3 | 0 | 0 | 0 |
| | | 1.B.3 - Other emissions from Energy Production | | 3 | 0 | 0 | 3 | 0 | 0 | 0 |

| | | | | | | |
|--|----------------|-------------------|---------------------|-----------|--------------|------|
| METHANE | CARBON DIOXIDE | 2006 IPCC default | MSW Generation Rate | Wet waste | Eastern Asia | 0.37 |
| tonnes/cap/yr Table 2.1, p.2.3 in 2006 IPCC Guidelines | | | | | | |

(All)

| Unit | Source of data | Action |
|------|--|---------------------------------------|
| % | <div style="background-color: #ccc; padding: 2px; border: 1px solid #ccc;"> (All) </div> <ul style="list-style-type: none"> IPCC Guidelines Peer-reviewed journal National Inventory Report (Annex I) National Communications Biennial update report Other | <input type="button" value="Detail"/> |

Thank you

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

<https://www.ipcc-nggip.iges.or.jp/EFDB/main.php>