# **WDI Indicator Inclusion Proposal**

# **New Greenhouse Gas Emissions indicators from EDGAR and Grassi**

## Proposed indicators

Proposal to replace the current 37 GHG emissions indicators in WDI by a set of 32 indicators using a different data source aligning with the CSC GHG indicators.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Proposed indicator code** | **Proposed indicator name** | **Gas** | **Sector** | **Type** |
| 1 | EN.GHG.TOTL.KT.CE | Greenhouse gas emissions: All Kyoto Gases (Total excluding LULUCF) | KYOTOGHG (**AR5GWP100**) | National Total excluding LULUCF | absolute emissions |
| 2 | EN.GHG.CO2E.KT | Greenhouse gas emissions: Carbon Dioxide (CO2) (Total excluding LULUCF) | CO2 | National Total excluding LULUCF | absolute emissions |
| 3 | EN.GHG.METH.KT.CE | Greenhouse gas emissions: Methane (CH4) (Total excluding LULUCF) | CH4 | National Total excluding LULUCF | absolute emissions |
| 4 | EN.GHG.NOXE.KT.CE | Greenhouse gas emissions: Nitrous Oxide (N2O) (Total excluding LULUCF) | N2O | National Total excluding LULUCF | absolute emissions |
| 5 | EN.GHG.FGAS.KT.CE | Greenhouse gas emissions: Fluorinated Gases (Total excluding LULUCF) | FGASES (AR5GWP100) | National Total excluding LULUCF | absolute emissions |
| 6 | EN.GHG.TOTL.AG.KT.CE | Greenhouse gas emissions: All Kyoto Gases (Sector = Agriculture) | KYOTOGHG (**AR5GWP100**) | Agriculture | absolute emissions |
| 7 | EN.GHG.TOTL.EG.KT.CE | Greenhouse gas emissions: All Kyoto Gases (Sector = Energy) | KYOTOGHG (**AR5GWP100**) | Energy | absolute emissions |
| 8 | EN.GHG.TOTL.IN.KT.CE | Greenhouse gas emissions: All Kyoto Gases (Sector = Industrial Processes and Product Use) | KYOTOGHG (**AR5GWP100**) | Industrial Processes and Product Use | absolute emissions |
| 9 | EN.GHG.TOTL.WA.KT.CE | Greenhouse gas emissions: All Kyoto Gases (Sector = Waste) | KYOTOGHG (**AR5GWP100**) | Waste | absolute emissions |
|  | ~~EN.GHG.TOTL.OT.KT.CE~~ | ~~Greenhouse gas emissions: All Kyoto Gases (Sector = Other)~~ | ~~KYOTOGHG (AR5GWP100)~~ | ~~Other~~ | ~~absolute emissions~~ |
| 10 | EN.GHG.CO2E.AG.KT | Greenhouse gas emissions: Carbon Dioxide (CO2) (Sector = Agriculture) | CO2 | Agriculture | absolute emissions |
| 11 | EN.GHG.CO2E.EG.KT | Greenhouse gas emissions: Carbon Dioxide (CO2) (Sector = Energy) | CO2 | Energy | absolute emissions |
| 12 | EN.GHG.CO2E.IN.KT | Greenhouse gas emissions: Carbon Dioxide (CO2) (Sector = Industrial Processes and Product Use) | CO2 | Industrial Processes and Product Use | absolute emissions |
| 13 | EN.GHG.CO2E.WA.KT | Greenhouse gas emissions: Carbon Dioxide (CO2) (Sector = Waste) | CO2 | Waste | absolute emissions |
|  | ~~EN.GHG.CO2E.OT.KT~~ | ~~Greenhouse gas emissions: Carbon Dioxide (CO2) (Sector = Other)~~ | ~~CO2~~ | ~~Other~~ | ~~absolute emissions~~ |
| 14 | EN.GHG.METH.AG.KT.CE | Greenhouse gas emissions: Methane (CH4) (Sector = Agriculture) | CH4 | Agriculture | absolute emissions |
| 15 | EN.GHG.METH.EG.KT.CE | Greenhouse gas emissions: Methane (CH4) (Sector = Energy) | CH4 | Energy | absolute emissions |
| 16 | EN.GHG.METH.IN.KT.CE | Greenhouse gas emissions: Methane (CH4) (Sector = Industrial Processes and Product Use) | CH4 | Industrial Processes and Product Use | absolute emissions |
| 17 | EN.GHG.METH.WA.KT.CE | Greenhouse gas emissions: Methane (CH4) (Sector = Waste) | CH4 | Waste | absolute emissions |
|  | ~~EN.GHG.METH.OT.KT.CE~~ | ~~Greenhouse gas emissions: Methane (CH4) (Sector = Other)~~ | ~~CH4~~ | ~~Other~~ | ~~absolute emissions~~ |
| 18 | EN.GHG.NOXE.AG.KT.CE | Greenhouse gas emissions: Nitrous Oxide (N2O) (Sector = Agriculture) | N2O (**AR5GWP100**) | Agriculture | absolute emissions |
| 19 | EN.GHG.NOXE.EG.KT.CE | Greenhouse gas emissions: Nitrous Oxide (N2O) (Sector = Energy) | N2O (**AR5GWP100**) | Energy | absolute emissions |
| 20 | EN.GHG.NOXE.IN.KT.CE | Greenhouse gas emissions: Nitrous Oxide (N2O) (Sector = Industrial Processes and Product Use) | N2O (**AR5GWP100**) | Industrial Processes and Product Use | absolute emissions |
| 21 | EN.GHG.NOXE.WA.KT.CE | Greenhouse gas emissions: Nitrous Oxide (N2O) (Sector = Waste) | N2O (**AR5GWP100**) | Waste | absolute emissions |
|  | ~~EN.GHG.NOXE.OT.KT.CE~~ | ~~Greenhouse gas emissions: Nitrous Oxide (N2O) (Sector = Other)~~ | ~~N2O~~ | ~~Other~~ | ~~absolute emissions~~ |
| 22 | EN.GHG.FGAS.IN.KT.CE | Greenhouse gas emissions: Fluorinated Gases (Sector = Industrial Processes and Product Use) | FGASES (**AR5GWP100**) | Industrial Processes and Product Use | absolute emission |
| 23 | EN.GHG.CO2E.LU.KT.CE | Greenhouse gas emissions: Carbon Dioxide (CO2) (Sector = LULUCF) | CO2 | Land Use, Land Use Change, and Forestry | absolute emissions |
|  | ~~EN.GHG.METH.LU.KT.CE~~ | ~~Greenhouse gas emissions: Methane (CH4) (Sector = LULUCF)~~ | ~~CH4~~ | ~~Land Use, Land Use Change, and Forestry~~ | ~~absolute emissions~~ |
|  | ~~EN.GHG.NOXE.LU.KT.CE~~ | ~~Greenhouse gas emissions: Nitrous Oxide (N2O) (Sector = LULUCF)~~ | ~~N2O~~ | ~~Land Use, Land Use Change, and Forestry~~ | ~~absolute emissions~~ |
| 24 | EN.GHG.TOTL.PC | Greenhouse gas emissions: All Kyoto Gases (Total excluding LULUCF) per capita | KYOTOGHG (**AR5GWP100**) | National Total excluding LULUCF | per capita |
| 25 | EN.GHG.CO2E.PC | Greenhouse gas emissions: Carbon Dioxide (CO2) (Total excluding LULUCF) per capita | CO2 | National Total excluding LULUCF | per capita |
| 26 | EN.GHG.TOTL.PP.GD | Greenhouse gas emissions: All Kyoto Gases (Total excluding LULUCF) per 2021 PPP $ of GDP | KYOTOGHG (**AR5GWP100**) | National Total excluding LULUCF | per GDP |
| 27 | EN.GHG.CO2E.PP.GD | Greenhouse gas emissions: Carbon Dioxide (CO2) (Total excluding LULUCF) per 2021 PPP $ of GDP | CO2 | National Total excluding LULUCF | per GDP |
| 28 | EN.GHG.TOTL.ZG | Greenhouse gas emissions: All Kyoto Gases (Total excluding LULUCF) % change from 1990 | KYOTOGHG (**AR5GWP100**) | National Total excluding LULUCF | % change |
| 29 | EN.GHG.CO2E.ZG | Greenhouse gas emissions: Carbon Dioxide (CO2) (Total excluding LULUCF) % change from 1990 | CO2 | National Total excluding LULUCF | % change |
| 30 | EN.GHG.METH.ZG | Greenhouse gas emissions: Methane (CH4) (Total excluding LULUCF) % change from 1990 | CH4 (**AR5GWP100**) | National Total excluding LULUCF | % change |
| 31 | EN.GHG.N2OX.ZG | Greenhouse gas emissions: Nitrous Oxide (N2O) (Total excluding LULUCF) % change from 1990 | N2O (**AR5GWP100**) | National Total excluding LULUCF | % change |
| 32 | EN.GHG.CO2E.ZS | Greenhouse gas emissions: Carbon Dioxide (CO2) (Total excluding LULUCF) share of total GHG emissions | CO2 | National Total excluding LULUCF | share of total |
| 33 | EN.GHG.METH.ZS | Greenhouse gas emissions: Methane (CH4) (Total excluding LULUCF) share of total GHG emissions | CH4 (**AR5GWP100**) | National Total excluding LULUCF | share of total |
| 34 | EN.GHG.N2OX.ZS | Greenhouse gas emissions: Nitrous Oxide (N2O) (Total excluding LULUCF) share of total GHG emissions | N2O (**AR5GWP100**) | National Total excluding LULUCF | share of total |
| 35 | EN.GHG.FGAS.ZS | Greenhouse gas emissions: Fluorinated Gases (Total excluding LULUCF) share of total GHG emissions | FGASES (**AR5GWP100**) | National Total excluding LULUCF | share of total |

## Easy and Safe to Use

1. **Definition and Concepts**

Measures of annual global emissions of the six greenhouse gases covered by the Kyoto Protocol (carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphurhexafluoride (SF6)) from the energy, industry, waste, agriculture, and land use, land use changes, and forestry (LULUCF) sectors, **standardized to carbon dioxide equivalent values**.

**Emissions are also provided per capita, per GDP, as % change from 1990 and share of total for each greenhouse gas.**

1. **Statistical Concept and Methodology**

The greenhouse gas emissions indicator is based on two data sources. EDGAR v8.0, augmented with LULUCF estimates from Grassi et al. (2023), is used for the global and regional emissions for all sectors. EDGAR provides internally consistent data with a one-year time lag. For country-level results, data for non-LULUCF sectors are based on the same EDGAR v8.0 dataset. For LULUCF emissions, however, we use the more country-informed dataset from Grassi et al. (2023). These data, which are based on national emissions inventories, are more compatible with a country’s own emissions estimates, but they are less comparable across countries due to different levels of data availability, capacity, and specific methodology. We believe that despite their lack of inter-country comparability these data are appropriate for country-level analyses.

EDGAR v8.0's GHG estimates for combustion and industrial processes are based on the application of IPCC GHG accounting methodology across all countries. EDGAR uses data from the IEA and Energy Institute to derive GHG emissions at subnational and subsectoral level based on activity and emission factors. Emissions estimates are provided for the following subsectors: power industry, industrial combustion, buildings, transport, agriculture (including livestock), fuel exploitation, and waste. These data are available at the national, regional, and global level.

For LULUCF at the regional and global level, EDGAR applies a methodology described in Grassi et al. (2022) to combine data from a variety of sources. Specifically, the method uses forestry emissions estimated using the IPCC tier 1 methodology, which relies on coarse, non-country specific emissions factors. These data are combined with Grassi et al. (2022) country-level estimates of deforestation (including tropical forest fires), organic soils, other fluxes, and non-tropical forest fires. This methodology is consistent across all countries but may not be well matched to country-specific estimates, specifically non-Annex 1 countries.

**To provide the most recent estimates for combustion and industrial processes, EDGAR uses a “Fast-Track” approach to extrapolate emissions to the most recent year.** As such, the most recent GHG estimates are usually subject to adjustment, but year-to-year variations have historically been only to within +/- 2 percent. The Fast-Track approach, explained in detail in Crippa et al. (2023), uses emissions data by fuel type from Energy Institute to extrapolate GHG estimates, assuming the same sectoral composition from two years’ prior observed in the last year of IEA’s energy balance statistics. For agriculture emissions, USGS data are used to extend the FAOSTAT statistics. For sectors with lower contributions to GHG, extrapolation is based on relative trends of proxy data. The indicated level of accuracy for Fast-Tracked data is lower than that derived from more robust activity data (such as IEA or FAO), which is within +/- 0.5 percent.

For national-level emissions, the same EDGAR non-LULUCF emissions method described above is used. **However, to provide better consistency with national circumstances, LULUCF estimates from Grassi et al. (2023) are used.** These estimates are based on country reported information on forestry management and emissions. **Presently these data are available only through 2020 and do not include the fires subcategory of emissions. As a result of this current omission of fire emissions estimates, the summation of emissions across all countries using the country-level data will be modestly lower than the global emissions from the regional and global dataset—about 4 percent for 2020.** Note that there is an estimated data update for later in 2024 to bring all data up to 2022 and keep them updated at the same schedule as the main EDGAR data.

1. **License:**

**- EDGAR data:** All material owned by the European Union is licensed under the [Creative Commons Attribution 4.0 International (CC BY 4.0) license](https://creativecommons.org/licenses/by/4.0).

**- EDGAR-IEA CO2 data:** IEA-EDGAR CO2 data are based on data from IEA (2022) Greenhouse Gas Emissions from Energy, www.iea.org/data-and-statistics, as modified by the Joint Research Centre, licensed under CC BY-NC-ND 4.0. Users of the IEA-EDGAR CO2 data should contact the IEA at [compliance@iea.org](mailto:compliance@iea.org) if they wish to use such data outside the terms of the CC-BY-NC-ND 4.0 license. **ND means NoDerivates, i.e. If you**[**remix, transform, or build upon**](https://creativecommons.org/licenses/by-nc-nd/4.0/deed.en#ref-some-kinds-of-mods)**the material, you may not distribute the modified material. This may be a problem when calculating per capita or per GDP indicators. Need to contact IEA/interpret https://creativecommons.org/faq/#when-is-my-use-considered-an-adaptation[[1]](#footnote-2)**

**- Grassi LULUCF data:** Creative Commons Attribution 4.0 International (https://zenodo.org/records/7650360)

## Development Relevance

Global greenhouse gas (GHG) emissions is a relevant indicator because of the impact on climate and thus thus development. Human-induced GHG emissions are driving atmospheric concentration increases and atmospheric warming, which is leading to a myriad of climatic changes. Climate change is already causing more frequent and extreme weather events and higher temperatures globally, leading to large impacts across the globe and particularly in developing countries that often have a limited means to adapt and build resilience. The international scientific community has warned that emissions need to decline to net zero by the middle of the 21st century to limit global warming to well below a 2deg C increase and help avoid the most consequential climate change impacts.

Climate change is having a disproportionate impact on developing countries and if unabated will not only reverse past development progress and hinder poverty reduction but will also make future development more costly. Country level assessments of the potential climate change impacts on specific developing countries, performed as part of the World Bank’s Country Climate and Development Reports (CCDRs), show that climate change will have a significant impact on developing countries’ economies, ranging from about 0.5% of GDP for higher income developing countries to over 13% for the lowest income developing countries. The costs of partial adaptation to these changes will be significant as well -- ranging between 1 and 10% of developing countries’ GDP.

WBG-supported development must be aligned to the necessary low-emissions development transition. The World Bank has committed to aligning its activities to the goals of the Paris Agreement, including limiting average global warming to 1.5 deg C. As such, the global, regional, and country level emissions levels provide relevant context for the design and tracking of WBG compliance with this requirement.

Different data sources for this metric have different strengths and limitations. To be consistent with the urgency of emissions reduction and to best reflect global progress on emissions reduction, this indicator is based on data that are as up to date as possible and permit meaningful, annual updates. Additionally, this indicator is based on sources that estimate emissions at the subnational and sub sectoral level and thus can be aggregated to and reported by sector at the country, region, and global level. This will permit a granular understanding of the key drivers of emissions and opportunities for mitigation.

## Adequate coverage

1. **Number of economies**: This metric measures the total number of economies for which data is available for the indicator.

Following 14 WDI countries not in EDGAR data:

1: Andorra AND

2: Channel Islands CHI

3: Curacao CUW

4: Isle of Man IMN

5: Kosovo XKX

6: Liechtenstein LIE

7: Monaco MCO

8: Montenegro MNE

9: San Marino SMR

10: Serbia SRB

11: Sint Maarten (Dutch part) SXM

12: South Sudan SSD

13: St. Martin (French part) MAF

14: West Bank and Gaza PSE

These countries are partly contained in other aggregates, e.g., Serbia and Montenegro, Sint Maarten in Netherlands, St. Martin in France.

Following 24 countries not in Grassi LULUCF data:

1: American Samoa ASM

2: Aruba ABW

3: Bermuda BMU

4: British Virgin Islands VGB

5: Cayman Islands CYM

6: Channel Islands CHI

7: Curacao CUW

8: Faroe Islands FRO

9: French Polynesia PYF

10: Gibraltar GIB

11: Greenland GRL

12: Guam GUM

13: Hong Kong SAR, China HKG

14: Isle of Man IMN

15: Kosovo XKX

16: Macao SAR, China MAC

17: New Caledonia NCL

18: Northern Mariana Islands MNP

19: Puerto Rico PRI

20: Sint Maarten (Dutch part) SXM

21: St. Martin (French part) MAF

22: Turks and Caicos Islands TCA

23: Virgin Islands (U.S.) VIR

24: West Bank and Gaza PSE

1. **Share of low- and middle-income economies**: This metric measures the percent of low- and middle-income economies for which data is available. We use the total number of LMICs as of today as the denominator.
2. **Absolute latest year**: This metric measures the most recent year of data available for an indicator.

EDGAR data spans 1970-2022 and Grassi et al. LULUCF data spans 2000-2022. As the data is modelled, there are no missing values.

1. **Median latest year**: This metric takes the most recent year of data available for each country for the indicator and then calculate the median.

There is no variation in the latest year as the data is modelled.

1. **Span of years**: This metric measures the total number of years for which data is available for this indicator. We take the first year data and latest year for which any data is available and calculating the span between these years.

Span of years is the same for all countries. For EDGAR data the span is 53 years, for Grassi data the span is 21 years.

1. **Non-missing data:** This metric measures the share of non-missing data within its availability. The span is restricted to the indicator span and country coverage previously calculated, and not the span and coverage of the WDI.

For some countries, the is no data for *Greenhouse gas emissions: Carbon Dioxide (CO2) (Sector = Waste)* and *Greenhouse gas emissions: Methane (CH4) (Sector = Industrial Processes and Product Use)*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Indicator name | hybrid\_score\_wgtd2 | n\_country | p\_lmic | yearlatest | span\_years | nonmiss\_tot |
| Greenhouse gas emissions: All Kyoto Gases (Total excluding LULUCF) | 4 | 203 | 96.27 | 2022 | 53 | 100 |
| Greenhouse gas emissions: Carbon Dioxide (CO2) (Total excluding LULUCF) | 4 | 203 | 96.27 | 2022 | 53 | 100 |
| Greenhouse gas emissions: Methane (CH4) (Total excluding LULUCF) | 4 | 203 | 96.27 | 2022 | 53 | 100 |
| Greenhouse gas emissions: Nitrous Oxide (N2O) (Total excluding LULUCF) | 4 | 201 | 95.52 | 2022 | 53 | 99.01 |
| Greenhouse gas emissions: All Kyoto Gases (Sector = Agriculture) | 4 | 193 | 94.78 | 2022 | 53 | 95.07 |
| Greenhouse gas emissions: All Kyoto Gases (Sector = Energy) | 4 | 197 | 94.03 | 2022 | 53 | 97.04 |
| Greenhouse gas emissions: All Kyoto Gases (Sector = Industrial Processes and Product Use) | 4 | 203 | 96.27 | 2022 | 53 | 100 |
| Greenhouse gas emissions: All Kyoto Gases (Sector = Waste) | 4 | 203 | 96.27 | 2022 | 53 | 100 |
| Greenhouse gas emissions: Carbon Dioxide (CO2) (Sector = Energy) | 4 | 194 | 94.03 | 2022 | 53 | 95.57 |
| Greenhouse gas emissions: Carbon Dioxide (CO2) (Sector = Industrial Processes and Product Use) | 4 | 203 | 96.27 | 2022 | 53 | 100 |
| Greenhouse gas emissions: Carbon Dioxide (CO2) (Sector = Waste) | 3.18 | 97 | 38.81 | 2022 | 53 | **47.78** |
| Greenhouse gas emissions: Methane (CH4)  (Sector = Agriculture) | 4 | 193 | 94.78 | 2022 | 53 | 95.07 |
| Greenhouse gas emissions: Methane (CH4)  (Sector = Energy) | 4 | 197 | 94.03 | 2022 | 53 | 97.04 |
| Greenhouse gas emissions: Methane (CH4)  (Sector = Industrial Processes and Product Use) | 3.07 | 94 | 35.82 | 2022 | 53 | **46.31** |
| Greenhouse gas emissions: Methane (CH4) (Sector = Waste) | 4 | 203 | 96.27 | 2022 | 53 | 100 |
| Greenhouse gas emissions: Nitrous Oxide (N2O) (Sector = Agriculture) | 4 | 193 | 94.78 | 2022 | 53 | 95.07 |
| Greenhouse gas emissions: Nitrous Oxide (N2O) (Sector = Energy) | 4 | 197 | 94.03 | 2022 | 53 | 97.04 |
| Greenhouse gas emissions: Nitrous Oxide (N2O) (Sector = Industrial Processes and Product Use) | 4 | 200 | 94.78 | 2022 | 53 | 98.52 |
| Greenhouse gas emissions: Nitrous Oxide (N2O) (Sector = Waste) | 4 | 198 | 94.78 | 2022 | 53 | 97.54 |
| Greenhouse gas emissions: Carbon Dioxide (CO2) (Sector = LULUCF) | 3.86 | 185 | 93.28 | 2020 | **21** | **36.11** |
| Greenhouse gas emissions: All Kyoto Gases (Total excluding LULUCF) per capita | 4 | 203 | 96.27 | 2022 | 53 | 100 |
| Greenhouse gas emissions: Carbon Dioxide (CO2) (Total excluding LULUCF) per capita | 4 | 203 | 96.27 | 2022 | 53 | 100 |
| Greenhouse gas emissions: All Kyoto Gases (Total excluding LULUCF) per 2021 PPP $ of GDP | 4 | 203 | 96.27 | 2022 | 53 | 100 |
| Greenhouse gas emissions: Carbon Dioxide (CO2) (Total excluding LULUCF) per 2021 PPP $ of GDP | 4 | 203 | 96.27 | 2022 | 53 | 100 |

1. High Quality:
2. **Source:**

These indicators at the global and regional level are based directly on the Joint Research Center’s Emissions Database for Global Atmospheric Research (EDGAR), augmented by preliminary estimates for the land use, land use change and forestry (LULUCF) that were developed for the Research Center’s annual report, GHG Emissions of all World Countries, 2023. EDGAR includes GHG emissions based on international statistics from the IEA, FAO, USGS and other reputable sources, which are harmonized via a consistent Intergovernmental Panel on Climate Change (IPCC) methodology. This harmonization permits an unbiased cross-country and sector-by-sector comparison, as countries’ own self-reported data may use different methodologies and exclude different types of data, depending on the country capacity and particularly for the LULUCF sectors. These data are currently available through 2022 and are updated annually. For this indicator the data can be obtained from two locations. For the non-LULUCF data, the EDGAR data are presented at two levels of sectoral disaggregation. For all indicators the dataset provided as part of the annual report was used.

The country-level data for LULUCF, however, are based on a hybrid dataset produced by Grassi et al., (2023) which is more reflective of country-submitted estimates for these sectors.[[2]](#footnote-3) This method draws data from submissions and briefs to the UNFCCC and REDD+, independent reports, satellite data, and wildfire data to report emissions and removals under four primary categories (managed forest land, deforestation, organic soils, other land uses) at the regional level. These data are currently only available until 2020, although there are plans to update these data in 2024 and annually thereafter.

The emissions estimates from EDGAR are used in numerous reputable publications. The European Commission produces an annual report, GHG Emissions of All World Countries, which summarizes these data and describes notable updates from prior years. The United Nations Environment Program (UNEP)’s Emissions Gap Report, also uses EDGAR data to both describe emissions trends and relate them to global progress towards the Paris Agreement’s GHG emissions reductions targets and countries’ Nationally Determined Contributions (NDCs) and Long-term Strategies (LTS). Additionally, EDGAR data are used in the IPCC’s 6th Assessment Report, Working Group 3, Mitigation of Climate Change, serving as the definitive scientific assessment of the state of global GHG emissions.

EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO2, EDGAR CH4, EDGAR N2O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). The complete citation of the EDGAR Community GHG Database is available in the 'Sources and References' section.

IEA-EDGAR CO2, a component of the EDGAR (Emissions Database for Global Atmospheric Research) Community GHG database version 8.0 (2023) including or based on data from IEA (2022) Greenhouse Gas Emissions from Energy, [www.iea.org/data-and-statistics](https://www.iea.org/data-and-statistics), as modified by the Joint Research Centre.

Users of the data are obliged to acknowledge the source of the data also with reference to the EDGARv8.0 website ([link](https://edgar.jrc.ec.europa.eu/report_2023)) and/or relevant reports.

**Unique visitors (if available):** Not available

1. Additional information
2. **External and internal contacts** (e.g., source agencies, counterpart GPs) for follow-ups and levels of the World Bank engagement:

* David Groves, Lead Climate Change Specialist, SCCFE, World Bank, dgroves@worldbank.org
* Jichong Wu, Climate Change Specialist, SCCFE, World Bank, jwu18@worldbank.org

1. **Concerns**:

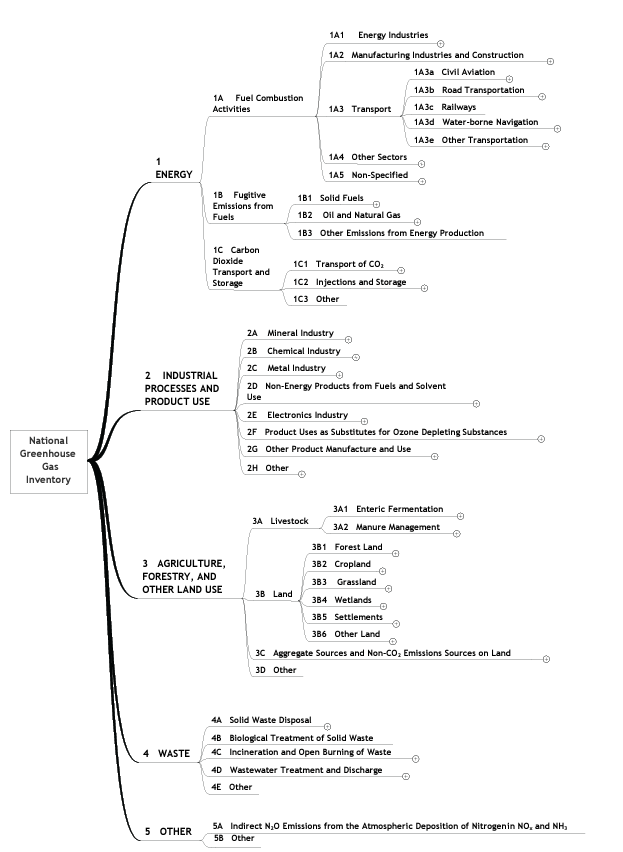
* EDGAR has only published a comprehensive dataset for the first time in November 2023
* EDGAR does not include LULUCF data at country-level. The alternative source Grassi only provides data for 2000-2020, which will de soon updated to include 2021 and 2022 to align with EDGAR. No data before 2000.
* LULUCF data are largely modelled.
* License of IEA CO2 data may not allow to calculate derived indicators, such as per capita emissions and emission intensity
* GHG emissions aren’t directly measurable, but estimations/models are used

1. **Expected workload in every update (labor intensiveness):** Medium: Data are published in Excel spreadsheets and need to be extracted by indicating sheets/rows. File names and structure may change over time.

Next steps: After a proposal for indicator inclusion (according to this template) gets submitted, the core criteria team, consisting of DECIS colleagues with different domain knowledge and skills, reviews the proposal monthly and suggests the next steps (e.g., resubmission with further clarification, consultation with thematic specialists).

**Questions**

* Do we need to change the indicator codes reflecting the change of source and change from AR4 to AR5 (change of GWP factors, CH4 (25->28), N20 (298->265))
* Do we need to include all the CSC/Climate group indicators? For the CSC more subsectors are used (Energy is split out into building, fugitive emissions, industrial combustion, transport)
* Do we need to include the 5 subcategories for LULUCF (deforestation, fires, forest land, organic soil, other land)?



1. Generally, a modification rises to the level of an adaptation under copyright law when the modified work is based on the prior work but manifests sufficient new creativity to be copyrightable, such as a translation of a novel from one language to another, or the creation of a screenplay based on a novel. [↑](#footnote-ref-2)
2. National level LULUCF emissions estimates were obtained from the *National inventories LULUCF data 2000-2020 (Dec 2022).xlsx* file available at https://zenodo.org/records/7650360. [↑](#footnote-ref-3)