**Greenhouse Gas Emissions Indicators:** This WDI update includes 44 new greenhouse gas (GHG) emissions indicators. The new indicators cover the annual emissions of greenhouse gases included in the Kyoto protocol and are disaggregated by gas (carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O) and fluorinated gases) as well as by sector (agriculture, energy (building, fugitive emissions, industrial combustion, power industry), industrial processes, transport, and waste. The data for the new emissions indicators is sourced from the [EDGARv8.0](https://edgar.jrc.ec.europa.eu/dataset_ghg80) database, which is published by the European Commission’s Joint Research Center (JRC) and is estimated using data from several sources including the International Energy Agency (IEA). The data are harmonized using a consistent Intergovernmental Panel on Climate Change (IPCC) methodology, which allows for comparison across countries as well as sectors. The database covers annual emissions data until 2022 and has an annual update cycle (next update with 2023 data expected by the end of 2024). The data is standardized to carbon dioxide equivalent values using the latest global warming potential (GWP) values from the IPCC’s Fifth Assessment Report (AR5), which was published in 2013.

The new WDI GHG indicators also include data on carbon fluxes caused by land use, land-use change and forestry (LULUCF), which are disaggregated by four categories: deforestation, forest land, organic soil, and other land. The country-level data for the LULUCF indicators is sourced from a hybrid dataset produced by [Grassi et al., (2023)](https://zenodo.org/records/7650360), which is more reflective of country-submitted estimates and draws data from submissions and briefs to the UNFCCC and REDD+, independent reports, satellite data, and wildfire data to report emissions and removals. The Grassi database covers the years 2000-2020.

The new indicators also include the carbon intensity of power generation and of GDP, as well as the change of emissions with respect to 1990 for all gases. The year 1990 is used as reference year in the Kyoto protocol.

The 44 indicators replace the previous 37 GHG emissions indicators in WDI, which were from various data sources, limiting the comparability across indicators, and had limited time coverage, especially for more recent years. As the methodology differs between the new indicators and the previous indicators, e.g. using different GWP values (AR4 vs AR5), all indicators have new indicator codes and all values, also for previous years, were replaced.

* Added

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| Series Code | Indicator Name |
| EN.GHG.ALL.MT.CE.AR5 | Total greenhouse gas emissions excluding LULUCF (Mt CO2e) |
| EN.GHG.ALL.LU.MT.CE.AR5 | Total greenhouse gas emissions including LULUCF (Mt CO2e) |
| EN.GHG.CO2.MT.CE.AR5 | Carbon dioxide (CO2) emissions (total) excluding LULUCF (Mt CO2e) |
| EN.GHG.CO2.AG.MT.CE.AR5 | Carbon dioxide (CO2) emissions from Agriculture (Mt CO2e) |
| EN.GHG.CO2.BU.MT.CE.AR5 | Carbon dioxide (CO2) emissions from Building (Energy) (Mt CO2e) |
| EN.GHG.CO2.FE.MT.CE.AR5 | Carbon dioxide (CO2) emissions from Fugitive Emissions (Energy) (Mt CO2e) |
| EN.GHG.CO2.IC.MT.CE.AR5 | Carbon dioxide (CO2) emissions from Industrial Combustion (Energy) (Mt CO2e) |
| EN.GHG.CO2.PI.MT.CE.AR5 | Carbon dioxide (CO2) emissions from Power Industry (Energy) (Mt CO2e) |
| EN.GHG.CO2.IP.MT.CE.AR5 | Carbon dioxide (CO2) emissions from Industrial Processes (Mt CO2e) |
| EN.GHG.CO2.TR.MT.CE.AR5 | Carbon dioxide (CO2) emissions from Transport (Energy) (Mt CO2e) |
| EN.GHG.CO2.WA.MT.CE.AR5 | Carbon dioxide (CO2) emissions from Waste (Mt CO2e) |
| EN.GHG.CH4.MT.CE.AR5 | Methane (CH4) emissions (total) excluding LULUCF (Mt CO2e) |
| EN.GHG.CH4.AG.MT.CE.AR5 | Methane (CH4) emissions from Agriculture (Mt CO2e) |
| EN.GHG.CH4.BU.MT.CE.AR5 | Methane (CH4) emissions from Building (Energy) (Mt CO2e) |
| EN.GHG.CH4.FE.MT.CE.AR5 | Methane (CH4) emissions from Fugitive Emissions (Energy) (Mt CO2e) |
| EN.GHG.CH4.IC.MT.CE.AR5 | Methane (CH4) emissions from Industrial Combustion (Energy) (Mt CO2e) |
| EN.GHG.CH4.PI.MT.CE.AR5 | Methane (CH4) emissions from Power Industry (Energy) (Mt CO2e) |
| EN.GHG.CH4.IP.MT.CE.AR5 | Methane (CH4) emissions from Industrial Processes (Mt CO2e) |
| EN.GHG.CH4.TR.MT.CE.AR5 | Methane (CH4) emissions from Transport (Energy) (Mt CO2e) |
| EN.GHG.CH4.WA.MT.CE.AR5 | Methane (CH4) emissions from Waste (Mt CO2e) |
| EN.GHG.N2O.MT.CE.AR5 | Nitrous oxide (N2O) emissions (total) excluding LULUCF (Mt CO2e) |
| EN.GHG.N2O.AG.MT.CE.AR5 | Nitrous oxide (N2O) emissions from Agriculture (Mt CO2e) |
| EN.GHG.N2O.BU.MT.CE.AR5 | Nitrous oxide (N2O) emissions from Building (Energy) (Mt CO2e) |
| EN.GHG.N2O.FE.MT.CE.AR5 | Nitrous oxide (N2O) emissions from Fugitive Emissions (Energy) (Mt CO2e) |
| EN.GHG.N2O.IC.MT.CE.AR5 | Nitrous oxide (N2O) emissions from Industrial Combustion (Energy) (Mt CO2e) |
| EN.GHG.N2O.PI.MT.CE.AR5 | Nitrous oxide (N2O) emissions from Power Industry (Energy) (Mt CO2e) |
| EN.GHG.N2O.IP.MT.CE.AR5 | Nitrous oxide (N2O) emissions from Industrial Processes (Mt CO2e) |
| EN.GHG.N2O.TR.MT.CE.AR5 | Nitrous oxide (N2O) emissions from Transport (Energy) (Mt CO2e) |
| EN.GHG.N2O.WA.MT.CE.AR5 | Nitrous oxide (N2O) emissions from Waste (Mt CO2e) |
| EN.GHG.FGAS.IP.MT.CE.AR5 | F-gases emissions from Industrial Processes (Mt CO2e) |
| EN.GHG.CO2.LU.DF.MT.CE.AR5 | Carbon dioxide (CO2) net fluxes from LULUCF - Deforestation (Mt CO2e) |
| EN.GHG.CO2.LU.FL.MT.CE.AR5 | Carbon dioxide (CO2) net fluxes from LULUCF - Forest Land (Mt CO2e) |
| EN.GHG.CO2.LU.OS.MT.CE.AR5 | Carbon dioxide (CO2) net fluxes from LULUCF - Organic Soil (Mt CO2e) |
| EN.GHG.CO2.LU.OL.MT.CE.AR5 | Carbon dioxide (CO2) net fluxes from LULUCF - Other Land (Mt CO2e) |
| EN.GHG.CO2.LU.MT.CE.AR5 | Carbon dioxide (CO2) net fluxes from LULUCF - Total (Mt CO2e) |
| EN.GHG.ALL.PC.CE.AR5 | Total greenhouse gas emissions per capita excluding LULUCF (t CO2e/capita) |
| EN.GHG.CO2.PC.CE.AR5 | Total greenhouse gas emissions excluding LULUCF per capita (t CO2e/capita) |
| EN.GHG.CO2.RT.ELEC.KH | Carbon intensity of power generation (kg CO2e per kWh) |
| EN.GHG.CO2.RT.GDP.KD | Carbon intensity of GDP (kg CO2e per current US$ of GDP) |
| EN.GHG.CO2.RT.GDP.PP.KD | Carbon intensity of GDP (kg CO2e per 2021 PPP $) |
| EN.GHG.TOT.ZG.AR5 | Total greenhouse gas emissions excluding LULUCF (% change from 1990) |
| EN.GHG.CO2.ZG.AR5 | Carbon dioxide (CO2) emissions (total) excluding LULUCF (% change from 1990) |
| EN.GHG.CH4.ZG.AR5 | Methane (CH4) emissions (total) excluding LULUCF (% change from 1990) |
| EN.GHG.N2O.ZG.AR5 | Nitrous oxide (N2O) emissions (total) excluding LULUCF (% change from 1990) |

* Removed

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| Series Code | Indicator Name |
| EN.ATM.GHGT.KT.CE | Total greenhouse gas emissions (thousand metric tons of CO2 equivalent excluding Land-Use Change and Forestry) |
| EN.ATM.CO2E.KT | Total CO2 emissions (thousand metric tons of CO2 excluding Land-Use Change and Forestry) |
| EN.ATM.CO2E.GF.KT | CO2 emissions from gaseous fuel consumption (kt) |
| EN.ATM.CO2E.GF.ZS | CO2 emissions from gaseous fuel consumption (% of total) |
| EN.ATM.CO2E.LF.KT | CO2 emissions from liquid fuel consumption (kt) |
| EN.ATM.CO2E.LF.ZS | CO2 emissions from liquid fuel consumption (% of total) |
| EN.ATM.CO2E.SF.KT | CO2 emissions from solid fuel consumption (kt) |
| EN.ATM.CO2E.SF.ZS | CO2 emissions from solid fuel consumption (% of total) |
| EN.CO2.BLDG.ZS | CO2 emissions from residential buildings and commercial and public services (% of total fuel combustion) |
| EN.CO2.ETOT.ZS | CO2 emissions from electricity and heat production, total (% of total fuel combustion) |
| EN.CO2.MANF.ZS | CO2 emissions from manufacturing industries and construction (% of total fuel combustion) |
| EN.CO2.OTHX.ZS | CO2 emissions from other sectors, excluding residential buildings and commercial and public services (% of total fuel combustion) |
| EN.CO2.TRAN.ZS | CO2 emissions from transport (% of total fuel combustion) |
| EN.ATM.METH.KT.CE | Total methane emissions (thousand metric tons of CO2 equivalent excluding Land-Use Change and Forestry) |
| EN.ATM.METH.AG.KT.CE | Agricultural methane emissions (thousand metric tons of CO2 equivalent) |
| EN.ATM.METH.EG.KT.CE | Methane emissions in energy sector (thousand metric tons of CO2 equivalent) |
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| EN.ATM.NOXE.KT.CE | Total nitrous oxide emissions (thousand metric tons of CO2 equivalent excluding Land-Use Change and Forestry) |
| EN.ATM.NOXE.AG.KT.CE | Agricultural nitrous oxide emissions (thousand metric tons of CO2 equivalent) |
| EN.ATM.NOXE.EG.KT.CE | Nitrous oxide emissions in energy sector (thousand metric tons of CO2 equivalent) |
| EN.ATM.GHGO.KT.CE | Other greenhouse gas emissions, HFC, PFC and SF6 (thousand metric tons of CO2 equivalent) |
| EN.ATM.PFCG.KT.CE | PFC gas emissions (thousand metric tons of CO2 equivalent) |
| EN.ATM.SF6G.KT.CE | SF6 gas emissions (thousand metric tons of CO2 equivalent) |
| EN.ATM.HFCG.KT.CE | HFC gas emissions (thousand metric tons of CO2 equivalent) |
| EN.CLC.GHGR.MT.CE | GHG net emissions removals by LUCF (Mt of CO2 equivalent) |
| EN.ATM.CO2E.PC | CO2 emissions (metric tons per capita) |
| EN.ATM.CO2E.EG.ZS | CO2 intensity (kg per kg of oil equivalent energy use) |
| EN.ATM.CO2E.KD.GD | CO2 emissions (kg per 2017 US$ of GDP) |
| EN.ATM.CO2E.PP.GD | CO2 emissions (kg per PPP $ of GDP) |
| EN.ATM.CO2E.PP.GD.KD | CO2 emissions (kg per 2017 PPP $ of GDP) |
| EN.ATM.NOXE.AG.ZS | Agricultural nitrous oxide emissions (% of total) |
| EN.ATM.NOXE.EG.ZS | Nitrous oxide emissions in energy sector (% of total) |
| EN.ATM.METH.EG.ZS | Energy related methane emissions (% of total) |
| EN.ATM.METH.AG.ZS | Agricultural methane emissions (% of total) |
| EN.ATM.GHGT.ZG | Total greenhouse gas emissions (% change from 1990) |
| EN.ATM.METH.ZG | Methane emissions (% change from 1990) |
| EN.ATM.NOXE.ZG | Nitrous oxide emissions (% change from 1990) |
| EN.ATM.GHGO.ZG | Other greenhouse gas emissions (% change from 1990) |