Climate TRACE Inventory December, 2023
Data Licensing, Schema, and Citation Guide

Permissions and Use:	All Climate TRACE data is freely available under the Creative Commons Attribution 4.0 International Public License, unless otherwise noted below.
Suggested citation format:	For sources from different sectors or global data accessed and downloaded, please cite as: Climate TRACE - Tracking Real-time Atmospheric Carbon Emissions (2022), *Climate TRACE Emissions Inventory*, https://climatetrace.org [Date Accessed]. For sector-specific citations, see below.
Disclaimer:	The emissions models provide our current best estimates of emissions, and we are committed to continually increasing the accuracy of the models on all levels. Please review our terms of use (https://climatetrace.org/tos) and the sector-specific methodology documentation (https://climatetrace.org/downloads) before using the data. If you identify an error or would like to participate in our data validation process please contact us (coalition@climatetrace.org).

Files available:	**Description**
detailed_data_schema.csv	File with the mapping and explanation of what each data column means for all various sub-sectors.
data_transaction_log.csv	File with the recorded changes on emissions data from Climate TRACE 2022 and 2023 releases.
<sub-sector-name>**_emissions_sources**.csv	File containg the emissions data at the **emissions source level** across all sub-sectors monitored by Climate TRACE.
<sub-sector-name>**_country_emissions**.csv	File containing the emissions data at the **country level** across all sub-sectors monitored by Climate TRACE.
<sub-sector-name>_emissions_sources_**confidence**.csv	File specifying the confidence classification of the reported data from emissions sources present on the file <sub-sector-name>_emissions_sources.csv
<sub-sector-name>_emissions_sources_**ownership**.csv	File containing the ownership information of the emissions sources on the file <sub-sector-name>_emissions_sources.csv
<sub-sector-name>_emissions_sources_**ownership_data_source.**csv	File specifying the various bibliographical souces of where the ownership data was collected from. Related to the information available on <sub-sector-name>_emissions_sources_ownership.csv
_geometries.gpkg	File containing the various locations of the emissions sources. Each layer of this file contains the location of the emissions sources of its respective sub-sector.
A full list of emissions sectors that Climate TRACE provides data for, is available on the website at https://climatetrace.org/sectors. For some sectors, Climate TRACE has additional metadata or finer resolution data beyond what is included in this download package. If you require more data than is provided through these downloads, please contact us (coalition@climatetrace.org) .	

Metadata description for: <sub-sector-name>**_emissions_sources**.csv	
Data-attribute	**Definition**
source_id	The internal Climate TRACE identifier for each individual source of emissions. Every distinct emissions source is defined by a unique combination of facility name, country, source type, and subsector.
source_name	Name of the entity or source that produced the emissions. Where exact names were not available, Climate TRACE has created descriptive names based on source location.
source_type	Description of the emission source classification.
iso3_country	Corresponds to the ISO 3166-1 alpha-3 specification of the country where the entity is physically located.
original_inventory_sector	Intergovernmental Panel on Climate Change (IPCC) emissions sector to which the emissions source belongs.
start_time	The time using Coordinated Universal Time (UTC) of emissions, either as an instance of start time of observation.
end_time	The time using Coordinated Universal Time (UTC) of emissions, either as an instance of end time of observation.
lat	Approximate latitude location of the source. When source is an aggregation of smaller emissions sources (e.g county, urban area etc), the latitude centroid of the geometry is provided.
lon	Approximate longitude location of the source. When source is an aggregation of smaller emissions sources (e.g county, urban area etc), the latitude centroid of the geometry is provided.
geometry_ref	Corresponds to the reference id to the geopackage file present in the downloads. This id allows matching the emissions source location with the location of the emissions source.
gas	Greenhouse gases for which emissions are reported in metric tonnes. Climate TRACE reports emissions from Carbon Dioxide (CO2), Methane (CH4) and Nitrous oxide (N2O). Emissions in CO2-equivalents are available in the 100 year and 20 year time frame using IPCC Sixth Assessment Report (AR6) Global Warming Potentials.
emissions_quantity	Quantity of gas emitted in metric tonnes. If reported quantity is zero, it means that gas is not emitted. If reported quantity is empty/null/N-A, data is not yet available.
temporal_granularity	Resolution of the data available.
activity	Activity of the entity producing the emissions, not including units. See definition of "capacity". Activity data are not available for some subsectors due to licensing restrictions.
activity_units	Units of reported "activity". Climate TRACE used SI base units and standard abbreviations when possible. https://www.nist.gov/pml/owm/metric-si/si-units
emissions_factor	Emissions factor of reported activity. Emissions factors vary by sector, subsector, and source type. Emission factors data are not available for some subsectors due to licensing restrictions.
emissions_factor_units	Units of reported "emissions factor" field. Climate TRACE used SI base units and standard abbreviations when possible. https://www.nist.gov/pml/owm/metric-si/si-units
capacity	Capacity of the entity producing emissions, not including units. Because 'capacity' has different definitions in different sectors. Please see the capacity units column for detailed information.
capacity_units	Units of reported "capacity" field. Climate TRACE used SI base units and standard abbreviations when possible. https://www.nist.gov/pml/owm/metric-si/si-units
capacity_factor	Corresponds to the ratio of the actual source output (activity) to the source capacity. When data not availble, this is not relevant for the sector.
capacity_factor_units	Units of repored "capacity_factor" field. If units are not available, this is not relevant for the sub-sector field.
other1	Additional data field available for the sub-sector. For description of this field and its meaning, please reference to other1_def. When this field is null,blank or na, no additional data is provided to the sub-sector.
other1_def	Definition of reported data of Other1 field.
other2	Additional data field available for the sub-sector. For description of this field and its meaning, please reference to other2_def. When this field is null,blank or na, no additional data is provided to the sub-sector.
other2_def	Definition of reported data of Other2 field.
other3	Additional data field available for the sub-sector. For description of this field and its meaning, please reference to other3_def. When this field is null,blank or na, no additional data is provided to the sub-sector.
other3_def	Definition of reported data of Other3 field.
other4	Additional data field available for the sub-sector. For description of this field and its meaning, please reference to other4_def. When this field is null,blank or na, no additional data is provided to the sub-sector.
other4_def	Definition of reported data of Other4 field.
other5	Additional data field available for the sub-sector. For description of this field and its meaning, please reference to other5_def. When this field is null,blank or na, no additional data is provided to the sub-sector.
other5_def	Definition of reported data of Other5 field.
other6	Additional data field available for the sub-sector. For description of this field and its meaning, please reference to other6_def. When this field is null,blank or na, no additional data is provided to the sub-sector.
other6_def	Definition of reported data of Other6 field.
other7	Additional data field available for the sub-sector. For description of this field and its meaning, please reference to other7_def. When this field is null,blank or na, no additional data is provided to the sub-sector.
other7_def	Definition of reported data of Other7 field.
other8	Additional data field available for the sub-sector. For description of this field and its meaning, please reference to other8_def. When this field is null,blank or na, no additional data is provided to the sub-sector.
other8_def	Definition of reported data of Other8 field.
other9	Additional data field available for the sub-sector. For description of this field and its meaning, please reference to other9_def. When this field is null,blank or na, no additional data is provided to the sub-sector.
other9_def	Definition of reported data of Other9 field.
other10	Additional data field available for the sub-sector. For description of this field and its meaning, please reference to other10_def. When this field is null,blank or na, no additional data is provided to the sub-sector.
other10_def	Definition of reported data of Other10 field.
created_date	Date emissions source was added to the Climate TRACE database.
modified_date	Last date on which any updates were made to the dataset for the specific source.

Metadata description for: <sub-sector-name>**_country_emissions**.csv	
Data-attribute	**Definition**
iso3_country	Corresponds to the ISO 3166-1 alpha-3 code for the country.
start_time	The time using Coordinated Universal Time (UTC) of emissions, either as an instance of start time of observation.
end_time	The time using Coordinated Universal Time (UTC) of emissions, either as an instance of end time of observation.
original_inventory_sector	Intergovernmental Panel on Climate Change (IPCC) emissions sector to which the source belongs.
gas	Greenhouse gases for which emissions are reported in metric tonnes. Climate TRACE reports emissions from Carbon Dioxide (CO2), Methane (CH4) and Nitrous oxide (N2O). Emissions in CO2-equivalents are available in the 100 year and 20 year time frame using IPCC Sixth Assessment Report (AR6) Global Warming Potentials.
emissions_quantity	Quantity of gas emitted in metric tonnes. If reported quantity is zero, it means that gas is not emitted. If reported quantity is empty/null/N-A, data is not yet available.
emissions_quantity_units	Units of reported "emissions_quantity" field. Climate TRACE used SI base units and standard abbreviations when possible. https://www.nist.gov/pml/owm/metric-si/si-units
temporal_granularity	Resolution of the data available.
created_date	Date country emissions quantity was added to the Climate TRACE database.
modified_date	Last date on which any updates were made to the dataset for the specific country.

Metadata description for: <sub-sector-name>**_confidence**.csv	
Data-attribute	**Definition**
source_id	The internal Climate TRACE identifier for each individual source of emissions. Every distinct source is defined by a unique combination of facility name, country, source type, and subsector.
source_name	Name of the entity or source that produced the emissions. Where exact names were not available, Climate TRACE has created descriptive names based on source location.
iso3_country	Corresponds to the ISO 3166-1 alpha-3 specification of the country where the entity is physically located.
original_inventory_sector	Intergovernmental Panel on Climate Change (IPCC) emissions sector to which the source belongs.
start_time	The time using Coordinated Universal Time (UTC) of emissions, either as an instance of start time of observation.
end_time	The time using Coordinated Universal Time (UTC) of emissions, either as an instance of end time of observation.
source_type	Qualitative confidence level for the emissions source type classification data available on the file <sub-sector-name>_emissions_sources.csv, when type data is reported. Entries that are available are: "very high","high","medium","low" and "very low".
capacity	Qualitative confidence level for the emissions source capacity data available on the file <sub-sector-name>_emissions_sources.csv, when capacity data is reported. Entries that are available are: "very high","high","medium"," low" and "very low".
capacity_factor	Qualitative confidence level for the emissions source capacity factor data available on the file <sub-sector-name>_emissions_sources.csv, when capacity factor data is reported. Entries that are available are: "very high","high"," medium","low" and "very low".
activity	Qualitative confidence level for the emissions source activity data available on the file <sub-sector-name>_emissions_sources.csv, when activity data is reported. Entries that are available are: "very high","high","medium"," low" and "very low".
co2_emissions_factor	Qualitative confidence level for the emissions source carbon dioxide (co2) emissions factor data available on the file <sub-sector-name>_emissions_sources.csv, when co2 emissions factor data is reported. Entries that are available are: "very high","high","medium","low" and "very low".
ch4_emissions_factor	Qualitative confidence level for the emissions source methane (ch4) emissions factor data available on the file <sub-sector-name>_emissions_sources.csv, when ch4 emissions factor data is reported. Entries that are available are: "very high"," high","medium","low" and "very low".
n2o_emissions_factor	Qualitative confidence level for the emissions source nitroux oxide (n2o) emissions factor data available on the file <sub-sector-name>_emissions_sources.csv, when n2o emissions factor data is reported. Entries that are available are: "very high","high","medium","low" and "very low".
co2_emissions	Qualitative confidence level for the emissions source carbon dioxide (co2) emissions data available on the file <sub-sector-name>_emissions_sources.csv, when co2 emissions data is reported. Entries that are available are: "very high","high"," medium","low" and "very low".
ch4_emissions	Qualitative confidence level for the emissions source methane (ch4) emissions data available on the file <sub-sector-name>_emissions_sources.csv, when ch4 emissions data is reported. Entries that are available are: "very high","high"," medium","low" and "very low".
n2o_emissions	Qualitative confidence level for the emissions source nitroux oxide (n2o) emissions data available on the file <sub-sector-name>_emissions_sources.csv, when n2o emissions data is reported. Entries that are available are: "very high","high"," medium","low" and "very low".
total_co2e_100gwp	Qualitative confidence level for the emissions source carbon dioxide equivalent on 100 year global warming potential (co2e_100gwp) emissions data available on the file <sub-sector-name>_emissions_sources.csv, when co2e_100gwp emissions data is reported. Entries that are available are: "very high","high","medium","low" and "very low".
total_co2e_20yrgwp	Qualitative confidence level for the emissions source carbon dioxide equivalent on 20 year global warming potential (co2e_20gwp) emissions data available on the file <sub-sector-name>_emissions_sources.csv, when co2e_20gwp emissions data is reported. Entries that are available are: "very high","high","medium","low" and "very low".
created_date	Date emissions source was added to the Climate TRACE database.
modified_date	Last date on which any updates were made to the dataset for the specific emissions source.

Metadata description for: <sub-sector-name>_emissions_sources_**ownership**.csv	
Data-attribute	**Definition**
source_id	The internal Climate TRACE identifier for each individual source of emissions. Every distinct source is defined by a unique combination of facility name, country, source type, and subsector.
source_name	Name of the entity or emission source that produced the emissions. Where exact names were not available, Climate TRACE has created descriptive names based on emission source location.
iso3_country	Corresponds to the ISO 3166-1 alpha-3 specification of the country where the emissions source is physically located.
original_inventory_sector	Intergovernmental Panel on Climate Change (IPCC) emissions sector to which the source belongs.

lat	Approximate latitude location of the source. When source is an aggregation of smaller emissions sources (e.g county, urban area etc), the latitude centroid of the geometry is provided.
lon	Approximate longitude location of the source. When source is an aggregation of smaller emissions sources (e.g county, urban area etc), the latitude centroid of the geometry is provided.
geometry_ref	Corresponds to the reference id to the geopackage file present in the downloads. This id allows matching the emissions source location with the location of the emissions source.
relationship	Describes the relationship between the emisson source with the company. Entries are: operator or owner.
ultimate_parent_name	Corresponds to the highest level parent company identified.
ultimate_parent_id	Corresponds to the unique id of the ultimate parent name. This corresponds to a unique id created by Climate TRACE.
percent_interest_parent	Corresponds to the percent of ownership or operational control of the emission source.
company_name	Name of the lowest level identified owner or operator of the emission source.
company_id	Unique identifier of the lowest level identified owner or operator of the emissions source.
percent_interest_company	Percent interest of the company of the lowest level owner or operator.
interest_units	Corresponds to the units of how the percentage of ownership is being defined. Example: barrels of oil produced, emissions.
start_date	Starting date that ownership data is being reported.
end_date	Ending data that ownership data is being reported.
created_date	Date and time that ownership data was added to Climate TRACE database.
modified_date	Date and time that ownership data was modified on Climate TRACE database.
percent_company_datasource	Datasource establishing chain of ownership/operational interest from the lowest level owner/company to the emissions source.
percent_parent_datasource	Datasource establishing chain of ownership interest from the ultimate parent to the company or lowest level owner

Metadata description for: <sub-sector-name>_emissions_sources_**ownership_data_source**.csv	
Data-attribute	**Definition**
reference_id	Corresponds to the reference id value present on <sub-sector-name>_emissions_sources_ownership.csv file on columns percent_company_datasource and percent_parent_datasource.
created_date	Date and time that ownership data was added to Climate TRACE database.
modified_date	Date and time that ownership data was modified on Climate TRACE database.
recency	Defines the recency of the source's reports of which the ownership information was gathered.
url	URL of source of where ownership data was gathered.

Recommended citation format for data from a specific sector	
Electricity generation	Freeman, J., Rouzbeh Kargar, A., Couture, H., Jeyaratnam, J., Lewis, J., Hobbs, M., Koenig, H., Nakano, T., Dalisay, C., Davitt, A., Gans, I., Lewis, C., Volpato, G., McCormick, C., and McCormick, G.(2023). Electricity Generation Emissions Methodology. WattTime, USA Transition Zero, UK, Pixel Scientia Labs, USA and Global Energy Monitor, USA, Climate TRACE Emissions Inventory. https: //climatetrace.org [Accessed date]
Steel	Isabirye, A., and Sinha, A. (2023). Steel Emissions Methodology. TransitionZero, UK, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Cement	Isabirye, A., and Sinha, A. (2023). Cement Emissions Methodology. TransitionZero, UK, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Aluminum	Isabirye, A., and Sinha, A. (2023). Aluminum Emissions Methodology. TransitionZero, UK, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Chemicals and Pulp and Paper	Isabirye, A., Sinha, A., Sridhar, L. (2023). Chemicals and Pulp and Paper Emissions Methodology. TransitionZero, UK, and WattTime, USA. Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Domestic and international shipping	Mayes, B., Powell, M., Knights, D., Schofield, M., and Mackereth, T. (2023). Shipping Emissions Methodology. OceanMind, UK and the University of Minnesota, USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Domestic and international aviation	Volpato, G. and Saraswat, I. (2023). Domestic and International Aviation Emissions. WattTime, USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Urban Area-level Road Transportation	Kott, T., Foster, K., Reilly, E., and Hughes, M. (2023). Transportation Sector - Road Emissions Estimation Methodology. The Johns Hopkins University Applied Physics Laboratory (JHU/APL), USA, Climate TRACE Emissions Inventory. https: //climatetrace.org [Accessed date]
Oil and gas production and transport	Schmeisser, L., Teeza, A., Wang, R., Huffman, M., Schadel, S., Bylsma, S., Hansen, J., Schmidt, Z., Conway, TJ, and Gordon, D. (2023). Oil and Gas Production, Processing, Refining, and Transport Emissions, RMI, USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Oil Refining	Jenson, N., Fallurin, J., Wang, J., Conway, TJ, and Gordon, D. (2023). Fossil Fuel Operations Sector: Refining Emissions, RMI, USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Coal Mining	Lewis, I., Tate, R.D., and Mei, D.L. (2023). Coal Mining Emissions Methodology, WattTime and Global Energy Monitor, USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Petrochemicals	Peltier, M., Fallurin, J., Wang, J., Conway, TJ, and Gordon, D. (2023). Petrochemical Ethylene Steam Cracker Emissions, RMI, USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Bauxite mining, copper mining, iron mining, rock and sand quarrying	Jollys, M. and Duddy, P. (2023). Assessing Mining and Quarrying Emissions using InSAR Retrievals, Hypervine, UK, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Rice cultivation	Rudiyanto and Minasny, B. (2023). Rice Cultivation Emissions Estimates using Sentinel-1A/B and -2A/B. Universiti Malaysia Terengganu, Malaysia and the University of Sydney, Australia, Climate TRACE Emissions Inventory. https: //climatetrace.org [Accessed date] Rudiyanto and Minasny, B. (2023). Rice Cultivation Emission Estimates using MODIS. Universiti Malaysia Terengganu, Malaysia and the University of Sydney, Australia, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date] Davitt, A., Dittmar, C., and Lewis, C. (2023). Rice Cultivation Emissions Estimates using FAOSTAT. WattTime, USA, and Williams College, USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Enteric fermentation and Manure management (feedlot+dairy, source-level)	Davitt, A., Volpato, G., Cheng, X.F., Block, E., Raniga, K., Vandermal, J., Mendoza, A., McCrary, D., Sutherland, A., Rostami, R., Smith, M., Goodwin, B., Pluard, C., and Schiller, S. (2023). Enteric fermentation and manure management emissions from feedlots and dairies. WattTime, Harvard University, Syntheiac, Carbon Yield, USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Enteric fermentation and Manure management (feedlot+dairy, country-level)	Davitt, A., Volpato, G., Lewis, C. (2023). Country-level Enteric fermentation and Manure Management Emissions Estimates from Cattle Feedlots and Dairies. WattTime, USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Enteric fermentation and Manure management (pastures)	Jimenez, D., Volpato, G., Davitt, A., Reilly, E. (2023) Agriculture sector: Cattle Emissions from Enteric Fermentation and Manure Left on Pasture WattTime and The Johns Hopkins University Applied Physics Laboratory (JHU/APL), USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Synthetic Fertilizers	Sharma, P. and Basso, B. (2023). Estimation of Direct Nitrous Oxide (N2O) from Synthetic Fertilizers at Country- level. Department of Earth and Environmental Sciences, Michigan State University, USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Wastewater Treatment	Collins, G., Jain, A., Sridhar, L., Reilly, E., (2023). Emissions from Wastewater treatment plants. Johns Hopkins University Applied Physics Laboratory (JHU/APL) and WattTime, USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Solid Waste Disposal	Raniga, K., Davitt, A., Lewis, C., Sridhar, L., Gans, I., McCormick, G. (2023). Solid Waste Sector: Estimating CH4 Emissions from Solid Waste Disposal Sites. WattTime, USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Water Reservoirs	Brown, N., Volpato, G., Reilly, E. (2023). Emissions from Reservoirs. WattTime and Johns Hopkins University Applied Physics Laboratory (JHU/APL), USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Net forest, grassland and wetland emissions	Saatchi, S. and Yang, Y. (2023). Forest & Mangrove, Shrub & Grassland, and Wetland (Living Biomass) Emissions Emissions Methodology. CTrees, USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Implicit Estimation	Lewis, C., Volpato, G., Sridhar, L., Reilly, E., Stephens, A., Baker, M., and McCormick, G. (2023). Implicitly Estimated National Greenhouse Gas Emissions. WattTime and The Johns Hopkins University Applied Physics Laboratory (JHU/APL), USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]
Source ownership	Gans, I., McCormick, G., Saraswat, I., Volpato, G., Raniga, K., Lewis, C., Freeman. J., Davitt, A., Schmeisser, L., Jenson, N., Fallurin, J., Isabirye, A., Sinha, A., Jolleys, M., and De Sousa, K. (2023). *Source & Company-Level Ownership Methodology*. WattTime and RMI, USA, TransitionZero, Hypervine, and OceanMind, UK. Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date] Louis, G., and Inman, M. (2023). Global Energy Monitor Methodology for Ownership Data. Global Energy Monitor, USA, Climate TRACE Emissions Inventory. https://climatetrace.org [Accessed date]

Detailed terms of use and licensing information	
All emissions data has been made available via Climate TRACE under the Creative Commons Attribution 4.0 International License (CC BY 4.0) with the following exceptions.	
The following datasets have been reproduced directly from their source. It is the sole responsibility of the data user to review the terms and conditions for all the above sources prior to using the data. The Climate TRACE Coalition makes no claims or warranties regarding the accuracy, completeness or licensing terms for these datasets.	
Country level emissions estimates for Other energy use, Road Transportation, Railways, Other transportation, Residential and commercial onsite fuel usage, Other onsite fuel usage, Solid fuel transformation, Other fossil fuel operations, Other manufacturing, Solid waste disposal, Biological treatment of solid waste, Incineration and open burning of waste, Wastewater treatment and discharge and Fluorinated gases, Cropland fires (country and source level)	**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): https://edgar.jrc.ec.europa.eu/
Country level emissions estimates for Rice cultivation (in some geographies), Other Agricultural Soil Emissions, Enteric Fermentation- Other, and Manure Management - Other	**FAO, 2023. FAOSTAT Climate Change: Agrifood systems emissions, Emissions Totals**, http://www.fao.org/faostat/en/#data/GT
Source-level emissions estimates for some sources in the "Other manufacturing" sector	**European Pollutant Release and Transfer Register**: https://www.eea.europa.eu/data-and-maps/data/member-states-reporting-art-7-under-the-european-pollutant-release-and-transfer-register-e-prtr-regulation-23/european-pollutant-release-and-transfer-register-e-prtr-data-base **US Environmental Protection Agency FLIGHT dataset**: https://ghgdata.epa.gov/ghgp/main.do?site_preference=normal **Israel Pollutant Release and Transfer Register**: https://www.gov.il/en/departments/topics/prtr/govil-landing-page
Source-level emissions estimates for some sources under the "Solid Waste Disposal" sector	**US Environmental Protection Agency FLIGHT dataset:** https://ghgdata.epa.gov/ghgp/main.do?site_preference=normal **US Environmental Protection Agency Landfill Methane Outreach Program**: https://www.epa.gov/lmop (some landfills only) **Canada Greenhouse Gas Reporting Program - Facility GHG Data:** https://open.canada.ca/data/en/dataset/a8ba14b7-7f23-462a-bdbb-83b0ef629823. **European Pollutant Release and Transfer Register:** https://www.eea.europa.eu/data-and-maps/data/member-states-reporting-art-7-under-the-european-pollutant-release-and-transfer-register-e-prtr-regulation-23/european-pollutant-release-and-transfer-register-e-prtr-data-base
Source ownership	Facility ownership information has been made available from a variety of sources, including primary sources such as company websites, secondary sources such as industry news articles, and aggregators such as PermID, OpenCorporates, and Wikipedia. A full list of data sources are included in the methodology documentation.

Geographic boundaries and names (iso3_country data attribute):	
The depiction and use of boundaries, geographic names and related data shown on maps and included in lists, tables, documents, and databases on Climate TRACE are generated from the **Global Administrative Areas (GADM) project** (Version 4.1 released on 16 July 2022) along with their corresponding ISO3 codes, and with the following adaptations. The stated usage is not warranted to be error free and does not imply the expression of any opinion whatsoever on the part of Climate TRACE Coalition and its partners concerning the legal status of any country, area or territory or of its authorities, or concerning the delimitation of its borders.	- HKG (China, Hong Kong Special Administrative Region) and MAC (China, Macao Special Administrative Region) are reported at GADM level 0 (country/national); - Kosovo has been assigned the ISO3 code 'XKX'; - XCA (Caspian Sea) has been removed from GADM level 0 and the area assigned to countries based on the extent of their territorial waters; - XAD (Akrotiri and Dhekelia), XCL (Clipperton Island), XPI (Paracel Islands) and XSP (Spratly Islands) are not included in the Climate TRACE dataset; - ZNC name changed to 'Turkish Republic of Northern Cyprus' at GADM level 0; - The borders between India, Pakistan and China have been assigned to these countries based on GADM codes Z01 to Z09. - Two IDs have been created for a region in UKR with missing IDs (at Level 1 and Level 2).