

UNECE-CES Steering Group  
on Climate Change-Related Statistics

# CLIMATE CHANGE-RELATED STATISTICS IN PRACTICE 2021



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# 1. BACKGROUND

This document presents an overview of recent activities, plans and challenges of national and international organizations working on climate change-related statistics.

For the last eight years, the annual UNECE Expert Forum has been the main platform for NSOs from the UNECE region to exchange experience and discuss difficulties encountered in producing climate change-related statistics. Good practices in climate change-related statistics presented at the Expert Fora or submitted by countries and organizations have been published on a [wiki](#) maintained by the UNECE Steering Group on Climate Change-Related Statistics.

In October 2020, the Steering Group proposed **strengthening the collection and dissemination of good practices in climate change-related statistics** by conducting an annual exercise of collecting and sharing information about new achievements and plans.

In May 2021, the Steering Group invited countries and international organizations participating in the work under the Conference of European Statisticians (CES) to share information about their work on climate change-related statistics through a short questionnaire. The questionnaire also included specific questions linked to the current year's Expert Forum topics. These submissions and consent for the responses to be shared were voluntary. The collected information is presented in this document and will also be published on the [good practice wiki](#).

Chapter 2 of this document summarizes the information provided by national organizations in an aggregated manner. Chapter 3 presents information about activities and achievements by each country, with links to data and pages where more information can be found. The descriptions reflect only the activities that organizations chose to share in the questionnaire and do not necessarily cover all the activities carried out in each country. **The country descriptions are tagged with keywords, are listed in the index at the end of the document.**

Chapter 4 presents updates about activities carried out by international organizations. Descriptions of activities by Eurostat, the International Monetary Fund (IMF) and the Organisation for Economic Co-operation and Development (OECD) are excerpts from the [paper "International statistical response to climate change-related data policy needs"](#) submitted by these organizations to the 69<sup>th</sup> CES plenary session. This paper is available in full on the [CES plenary session web page](#), together with a [paper by UNFCCC "Reporting on climate data and information under the Paris Agreement: A potential opportunity for national statistical offices to get involved"](#).

All countries and organizations that would like to share information about their experience and achievements are continuously invited to submit entries to the good practice wiki, offer presentations and papers to the annual Expert Fora and contribute to the next editions of this exercise.

All the resources produced by the Steering Group on Climate Change-Related Statistics can be found at: <https://unece.org/statistics/climate-change>.

## 2. REGIONAL OVERVIEW

### Introduction

This chapter presents a summary of the information provided by national organizations in an aggregated manner. Individual information submitted by the countries can be found in chapter 3. "Country achievements and plans".

**Twenty-three countries** responded to the questionnaire: Armenia, Belarus, Bulgaria, Canada, Costa Rica, Croatia, Finland, France, Hungary, Ireland, Israel, Kazakhstan, Lithuania, Luxembourg, Malta, Mexico, Mongolia, Netherlands, Poland, Slovenia, Switzerland, Turkey, Ukraine.

In twenty-two cases, the responses were submitted by national statistical offices. In the case of one country, the response was submitted by the national authority in charge of compiling the national greenhouse gas emissions inventory.

### Recent achievements

The main achievements in climate change-related statistics over the past few years mentioned by the respondents represented a wide range of activities: from **producing statistics, accounts and indicators** and **developing methodologies**, through improving **coordination** mechanisms and human and organizational **capacity** to supporting **dissemination, communication** and **use** of climate-related statistics and indicators.

Most commonly mentioned were activities concerning **air emission statistics and accounts** (7 times), followed by **climate change-related indicators** in general (6 times) and work on **environmental-economic accounts** in general (5 times). Four countries mentioned improvement of **energy statistics** and another four - cooperation with national stakeholders. Three organizations mentioned improving data for **GHG inventories**.

Other activities mentioned by one or two organizations included work on energy accounts, environment statistics in general, meteorological data, pilot studies, quarterly emissions, carbon footprint, classification of environmental activities, communication, ecosystem accounts, environmental and clean technology products account, environmental subsidies, fossil fuel subsidies, hazardous events and disasters, a survey on household environment behaviours, institutional arrangements, online tools, plant phenology, physical energy flow account, renewable energy, spatial statistics, subnational emissions and transport statistics.

## Key plans for the next years

Among the specific plans for the next years, most frequently mentioned was work on **measuring adaptation** (four countries), followed by work on **climate change investment/expenditure/sustainable finance** (three countries) and **national climate change-related indicator sets** (three countries). Climate change **impacts**, **sub-annual/quarterly GHG emissions**, **improving GHG emissions estimates**, **improving collaboration with other stakeholders** and continuing the work on **facilitating access and use** of their data were each mentioned twice.

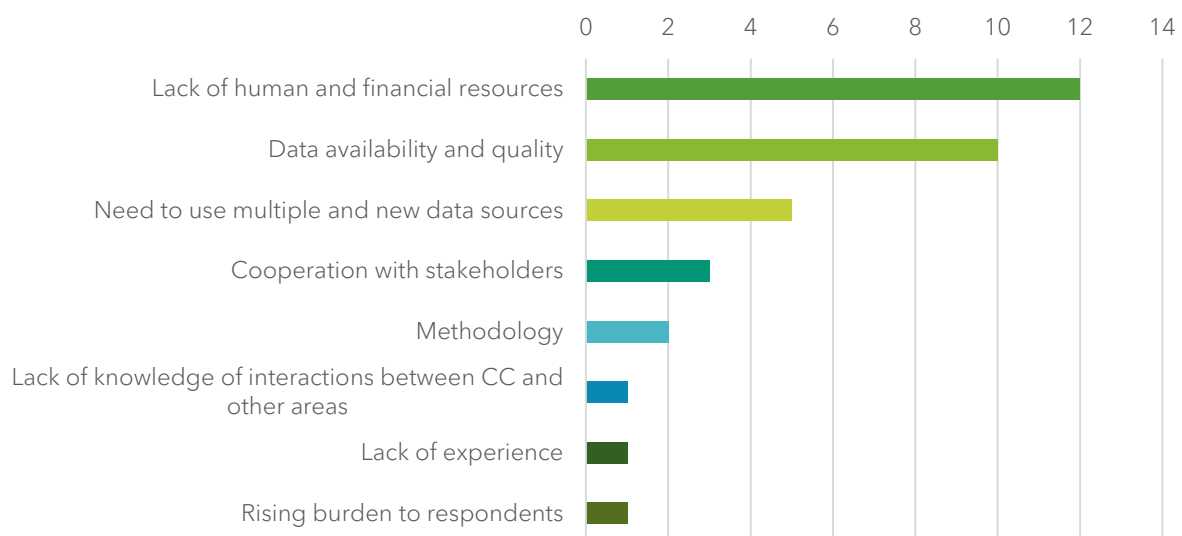
Two countries reported planned work on **linking data**. Ireland plans to combine household energy consumption with energy efficiency ratings and demographic microdata. Canada will examine differences in household GHG emissions based on various household characteristics and linking SEEA GHG and energy-use accounts to other satellite accounts.

Other activities mentioned were the following: participating in the Global Consultation on the Global Set and the Expert Fora, producing climate indicators based on meteorological data, indicators on the transition to electric vehicles, statistical release on vehicle odometers, agri-environmental indicators, exploring new data sources, investigating carbon sequestration by ecosystems through ecosystem accounting, measuring imported deforestation footprint, investigating the relationship between climate and other areas and general work on environmental-economic accounts.

## Challenges and obstacles

**Lack of human and financial resources** was the most significant obstacle to progress indicated by 12 organizations. The second most frequent challenge was **data availability and quality** (10 countries), followed by the need to use multiple and **new data sources** to produce the needed statistics and indicators (5 countries) (Figure 1).

Figure 1. What are the primary obstacles to progressing the development of climate change-related statistics in your organization?



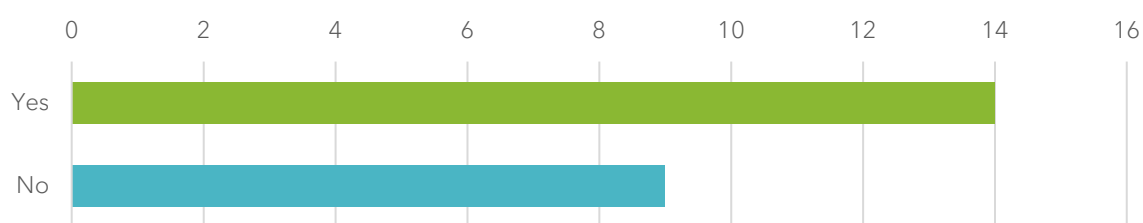
Cooperation with stakeholders, methodological challenges, lack of knowledge about interactions between climate change and other domains, lack of experience and rising burden to respondents were also indicated among the primary obstacles.

### National climate change-related indicators

Of the twenty-three countries, fourteen reported **producing national climate change-related indicators**. In some cases, the indicators are not a standalone set but are published among other statistical data, e.g. SDG indicators, UNECE indicators for EECCA countries, OECD Green Growth Indicators. Out of the fourteen, two countries that produce some indicators but not a standalone set are planning to start producing a national set in the near future.

Of the remaining nine countries, four are in the process of **planning or exploring the possibility of producing a national indicator set**.

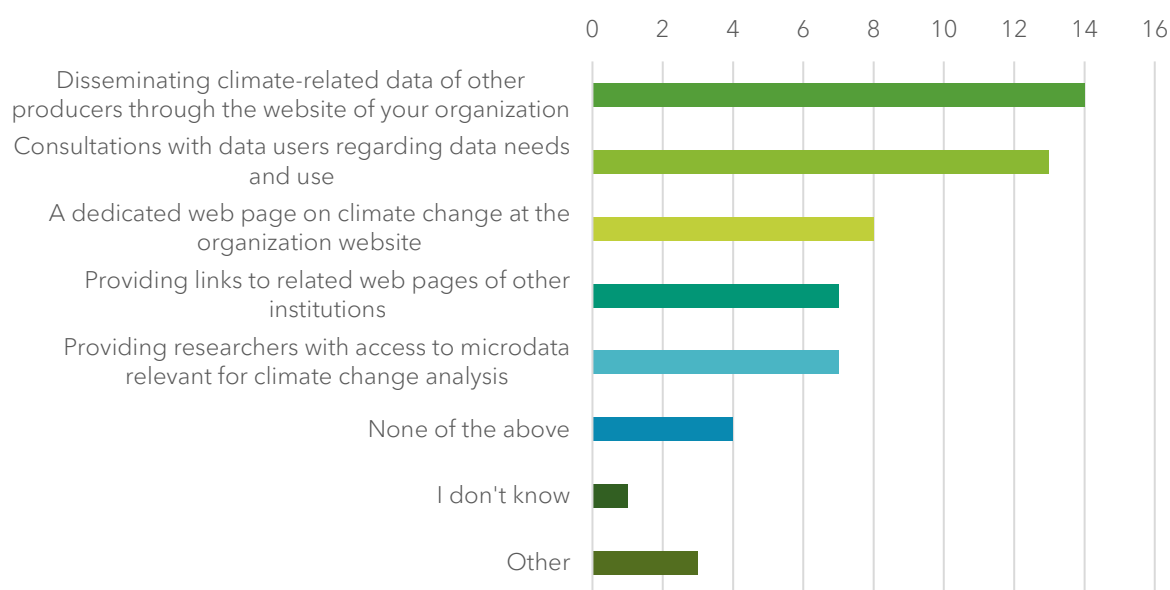
Figure 2: Does your organization produce a national (or regional) set of climate change-related indicators? (n=23)



### Facilitating access and use

18 out of 23 countries **facilitate access and use** of climate change-related statistics and data through at least one of the ways presented in Figure 3.

Figure 3: In which way your organization facilitates access and use of climate-related statistics and data? (n=23)



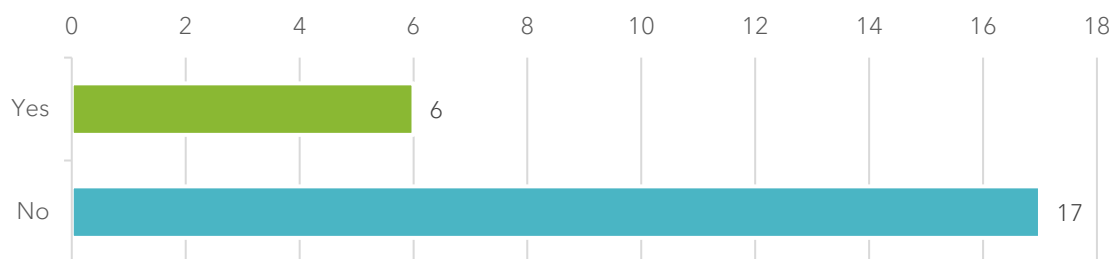
Fourteen NSOs **disseminate climate-related data of other producers** through their website. Thirteen organizations (twelve NSOs and one organization in charge of GHG inventory compilation) **conduct consultations with data users**. Eight organizations have a **dedicated web page on climate change** on the organization website. Seven organizations provide **links to other institutions' web pages**, and also seven – **provide access to microdata** to researchers.

Under the category "Other", the respondents mentioned the following activities:

- Publishing and providing access to the latest greenhouse gas inventory reporting, and coordinating, compiling and providing access to the National Communication to the UNFCCC.
- Providing data from the national GHG inventory upon request and support its understanding by providing technical assistance (response submitted by a national authority in charge of GHG emissions).
- Providing additional (not published) data for national GHG and air pollutants emission inventories and related works.

### Carbon footprints and consumption-based emissions

Figure 4. Does your organization produce any consumption-based estimates of greenhouse gas emissions, e.g. carbon footprint estimates? n=23



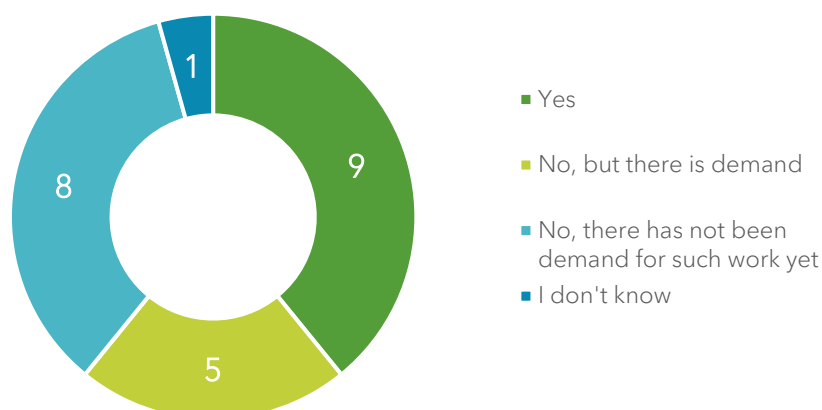
As illustrated by Figure 4, 6 NSOs reported work on consumption-based estimates of greenhouse gas emissions, e.g. carbon footprint estimates. In two countries where NSOs currently do not produce such estimates, they plan to start in the near future. Luxembourg is starting a pilot project on carbon footprint. Slovenia plans to start producing carbon footprint using the Eurostat methodological framework.

### Green finance

9 out of 23 organizations reported having undertaken some activities related to green finance (Figure 5). Examples shared included work on environmental taxes, environmental protection expenditure accounts, environmental goods and services sector accounts, environmental subsidies, taxonomy, green budgeting and measuring the cost of research and development work in ecology. Two responses mentioned work on estimates of green bonds or green/sustainable assets. In one country, the NSO reported plans to analyse climate change investments. Two NSOs reported engaging in dialogue with banks and the financial sector.

Five countries reported that they do not have any work on green finance yet, but there is demand for such work.

Figure 5. Does your organization have any activities related to green finance or climate finance? (n=23)



The following priorities and information demands related to green finance were mentioned:

#### Definitions and taxonomies

- Consistent and clear definitions related to ESG/sustainable finance and guidance on how to incorporate these into the SNA framework
- Establishing definitions differentiating between “green finances” and other finances, which do not have a direct connection with green policies
- Classification (taxonomy) of “green” projects to be financed through “green” bonds and “green” loans

#### Identifying statistics and data sources

- Identifying statistics and data that could be used in defining and measuring green finance
- Proposing a framework to present existing statistics
- Identifying and obtaining access to administrative data sources on green financing
- Identifying and developing new sources of data on the size and scale of green/climate/sustainable financial securities and their impacts

#### Information demands

- Measuring the effect of invested capital on the environment and the impact of changing status of the environment on the economy
- Measuring investment in climate change mitigation and the cost for the country to become carbon neutral
- Combining information on environmental subsidies with information on fossil fuel subsidies
- Unbiased assessment of the impact of green policy decisions
- More work with other agencies and stakeholders to determine their data needs

One response indicated that EU countries will align the priorities for work on green finance with the priorities of Eurostat and the European Central Bank. For 3 NSOs, it is too early to know what the priorities should be, especially in view of many initiatives currently happening in this domain.



One country emphasized the need to differentiate between green finance, which involves collecting funds for addressing climate and environmental issues and greening the finance, which involves improving the management of financial risk related to climate and the environment.

# 3. COUNTRY ACHIEVEMENTS AND PLANS

## Armenia

**Keywords:** Road map, GHG inventories

### Recent achievements

The road map for the development of climate change-related statistics in the Republic of Armenia has been developed with the support of the UNECE Statistical Division. It is the first study conducted in Armenia where is an attempt to assess the current status of climate change-related national statistical system, the priorities and actions for the development of such system.

### Facilitating access and use

Statistical Committee of the Republic of Armenia conducts consultations with data users regarding data needs and use and disseminates climate-related data of other producers through its website.

### Key development plans

As a non-Annex I Party to UNFCCC, the Republic of Armenia has no quantitative obligations to reduce its greenhouse gas emissions; however, country has stated its position to limit GHG emissions in the Intended National Determined Contributions of Armenia under the Paris Agreement.

In accordance with the CES recommendations, the priorities of the Statistical Committee of the Republic of Armenia are:

- Directly related to the statistics required for the compilation of Armenia's GHG emissions inventory,
- Related to other statistics required for climate change analysis,
- Related to the statistical "infrastructure" (e.g., statistical methods and standards) required to produce climate change-related statistics.

## Belarus

**Keywords:** Classification of environmental activities, Climate change-related indicators

### Recent achievements

Belstat is currently developing a Statistical Classifier of Environmental Activities (in accordance with the European Classifier of Environmental Activities CEPA 2000), which will contribute to the formation of selected indicators of this topic. The Classifier has to be approved in October 2021.

**Available statistics and indicators**

Within the indicator framework of the Shared Environmental Information System (SEIS), posted on the Belstat website, a separate group of indicators characterizing climate change (indicators of the “B. Climate Change” group) has been identified. In the statistical book “Environmental Protection in the Republic of Belarus”, a separate section entitled “Climate Change” is also highlighted (Chapter 6).

- <https://www.belstat.gov.by/en/ofitsialnaya-statistika/macroeconomy-and-environment/okruzhayuschaya-sreda/the-shared-environmental-information-system/b-slimate-change/>
- <https://www.belstat.gov.by/upload/iblock/f02/f02bd3e6749df60522dc85491b86fb25.pdf>

**Facilitating access and use**

Belstat maintains a dedicated web page on climate change and disseminates climate-related data of other producers through its website.

**Key development plans**

Work on the development of a national list of climate change-related indicators is planned for 2021 - 2023.

## Bulgaria

Keywords: [Ecosystem accounts](#), [Spatial statistics](#), [SEEA](#)

**Recent achievements**

The National Statistical Institute of Bulgaria (NSI) has achieved intermediate working results in the area of ecosystems accounts and spatial statistics.

**Available statistics and indicators**

NSI reports Air Emission Accounts to Eurostat. The reports are published in the Eurostat database:

- [https://ec.europa.eu/eurostat/databrowser/view/env\\_ac\\_ainah\\_r2/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/env_ac_ainah_r2/default/table?lang=en)

**Facilitating access and use**

NSI carries out consultations with data users regarding data needs and use and provides researchers with access to microdata relevant for climate change analysis.

**Key development plans**

NSI plans to:

- Continue working towards monetary valuation of the services provided by the ecosystems and spatial presentation and analysis of the data collected by the Environmental statistics.
- Implement the future modules of the REGULATION (EU) No 691/2011 of the European environmental-economic accounts, namely water, forest and ecosystems.

## Canada

**Keywords:** Air emissions, Sub-annual emissions, Sub-national emissions, Energy accounts, SEEA, Environmental and clean technology products, Renewable energy, Climate change-related indicators, Online tools, Communication, Green and sustainable finance

### Recent achievements

Some of the most notable improvements that Statistics Canada has achieved in climate change-related statistics over the past few years is to:

- Start publishing the GHG emissions account sub-nationally<sup>1</sup>
- Create online interactive tools for GHG emissions<sup>2</sup> and Energy use<sup>3</sup>
- Write more impactful articles using SEEA account data<sup>4</sup> and
- Improve communications on how the SEEA account differs from the UNFCCC estimates<sup>5</sup>.

Also, the Environmental and Clean Technology Products Economic Account produces data on GDP, jobs, output, and trade of clean energy.<sup>6</sup>

Statistics Canada has also started producing improved statistics on renewable energy production and use. Renewable Energy production and capacity data has been enhanced through improved coverage on the electricity surveys for hydroelectricity, solar, wind and biomass. Data is available from the Monthly electricity supply and disposition survey (MELE)<sup>7</sup>; Annual electric supply and disposition survey (ALEE)<sup>8</sup>, and Electric thermal power generating stations survey (EPTG)<sup>9, 10, 11</sup>. As of January 2020, statistics are now available on the supply and disposition of liquid renewable fuels (biofuels), including fuel ethanol and biodiesel. Monthly statistics are available on volumes of biofuel produced, blended with petroleum blendstock and imported and exported. Statistics are also available on stocks held.

- 1 - [Physical flow account for greenhouse gas emissions](#)
- 2 - [Physical flow account for GHG emissions: Interactive tool](#)
- 3 - [Physical flow account for energy use: Interactive tool](#)
- 4 - [Canadian System of Environmental-Economic Accounts: Energy use and greenhouse gas emissions, 2018](#)
- 5 - [Complementary approaches to reporting Canada's greenhouse gas emissions](#)
- 6 - [Environmental and clean technology products sector report](#)
- 7 - [Electric power generation, monthly generation by type of electricity](#)
- 8 - [Electric power, annual generation by class of producer](#)
- 9 - [Electric power generation, annual fuel consumed by electric utility thermal plants](#)
- 10 - [Electric power generation, annual cost of fuel consumed by electric utility thermal plants](#)
- 11 - [Electricity from fuels, annual generation by electric utility thermal plants](#)
- 12 - [Petroleum products by supply and disposition, monthly](#)
- 13 - [Petroleum and other liquids, supply and disposition, monthly](#)

### National climate change-related indicators and statistics

While Statistics Canada does not currently produce a complete set of climate change-related statistics, they produce [SEEA-based accounts on GHG emissions](#) and [energy use](#), including a [final demand table](#), and [intensities data](#). The [annual analytical articles](#) include the following indicators:

- Direct industrial energy intensity
- Direct industrial GHG emissions intensity
- Household energy use per capita and
- Household GHG emissions per capita.

As part of the [Canadian indicator framework \(CIF\)](#), a Canadian focused complement to the Global Sustainable Development Goals released on 22 June 2021, Statistics Canada has included the following indicators that could be considered climate change-related indicators.

Data from STC surveys:

- Total energy consumption per capita
- Proportion of electricity generated from renewable and non-greenhouse gas emitting sources
- Greenhouse gas emissions per dollar of value-added from infrastructure construction (This indicator name to be finalized soon)
- Proportion of new light-duty vehicle registrations that are zero-emission vehicles
- Proportion of municipal organizations who factored climate change adaptation into the decision-making process

Indicators produced by other departments and included in the CIF:

- Greenhouse gas emissions (CESI program at Environment and Climate Change Canada)
- Number of low carbon recharging and refuelling stations under development and completed along major highways, and in rural and urban areas across Canada (Natural Resources Canada)
- Number of low carbon recharging and refuelling stations under development and completed in public places, on-street, at apartment buildings, retail outlets, and the workplace (Natural Resources Canada)
- Frequency of selected natural disasters (Public Safety Canada)

### **Facilitating access and use**

Statistics Canada conducts consultations with data users regarding data needs and use, provides links to related web pages of other institutions and provides researchers with access to microdata relevant for climate change analysis. Additionally, work is in progress to set up a dedicated web page on climate change and disseminate climate-related data of other producers through its website.

### **Green finance**

Statistics Canada conducted some initial informal feasibility studies examining definitions and available data sources related to Environment, Social, Governance (ESG) and sustainability, including the measurement of carbon intensity and coverage of green bonds as part of security statistics. Statistics Canada is evaluating the feasibility of publishing estimates of green/sustainable assets.

### **Key development plans**

Statistics Canada is currently assessing the feasibility of various potential physical flow account (PFA) expansion projects such as:

- Producing sub-annual GHG emissions data

- Examining differences in household GHG emissions based on various household characteristics
- Linking SEEA GHG and energy-use accounts to other satellite accounts that focus on environmental and clean technology expenditures, tourism, natural resources, transportation, and agriculture
- Infographics
- Making an ongoing effort to reconcile differences between the SEEA-based account with the UNFCCC-based inventory for GHG emissions.

Statistics Canada is continually investigating ways to expand our data offerings, increase the granularity of our published datasets, and trying to reduce confidential cells wherever possible.

Statistics Canada is also working on a website under a project called the Canadian Centre for Energy Information that will provide a wide array of data, dashboards, and infographics related to energy use and GHG emissions from all federal government departments in one place.

## Finland

**Keywords:** [Air emissions](#), [GHG inventories](#), [Communication](#), [Green and sustainable finance](#)

### **Facilitating access and use**

Statistics Finland conducts consultations with data users regarding data needs and use and disseminates climate-related data of other producers.

Statistics Finland publishes and provides access on our webpages to the latest greenhouse gas inventory reporting, including access to a database and to the Excel files of the latest GHG inventory together with the National Inventory Report, which contains detailed information on methodology (to be used by the researchers, for instance). In addition, Statistics Finland publishes and provides data access to greenhouse gas emissions accounts as a part of the environmental accounts, publishes annually a report on greenhouse gas emissions, their trends and reasons behind the trends, methodology and climate targets, aimed to the different stakeholders, media and general audience.

Statistics Finland coordinates, compiles and provides access to the National Communication to the UNFCCC which contains an extensive description of the climate-related assessments and activities including the following: policy measures and projections of our country, climate change impact and vulnerability assessment, adaptation plans and measures, climate change-related.

Statistics Finland found that providing annually a report on greenhouse gas emissions, their trends and reasons behind the trends, methodology and climate targets, aimed at different stakeholders, media and general audience, is a good way to explain the structure and methodology behind the GHG inventory data they publish and provide. It gives a possibility to further clarify frequently asked or topical questions, according to the needs varying from year to year - including explaining differences in data from various sources.

The National Inventory Report produced annually is often too technical to be useful to all users of our dat. Thus Statistics Finland received very positive feedback on the shorter and more general audience-friendly report that provides information in addition to statistical releases.

### Green finance

Statistics Finland experts in environmental accounting discuss and consult the Bank of Finland and the Ministry of Finance on statistics and data that could be used in defining and measuring green finance.

## France

**Keywords:** Climate change-related indicators, Air emissions, Carbon footprint, Adaptation, Methodology development and improvement, Green and sustainable finance

### Recent achievements

The main achievement of the French environmental statistical office has been the development of the carbon footprint methodology.

### Available statistics and indicators

- Greenhouse gas emissions and carbon footprint: <https://notre-environnement.gouv.fr/themes/climat/article/les-emissions-de-gaz-a-effet-de-serre-et-empreinte-carbone>
- Key climate figures: <https://www.statistiques.developpement-durable.gouv.fr/chiffres-cles-du-climat-0?rubrique=26>
- French National Observatory on the climate change effects: <https://www.ecologie.gouv.fr/observatoire-national-sur-effets-du-rechauffement-climatique-onerc>
- Every four years, publication of the French state of environment report: <https://www.notre-environnement.gouv.fr/donnees-et-ressources/ressources/rapports/article/rapport-sur-l-etat-de-l-environnement-en-france-edition-2019?lienretour=https%253A%252F%252Fnotre-environnement.gouv.fr%252Frecherche%253Frecherche%253Drapport%252Bsur%252BI%252527%2525C3%2525A9tat%252Bde%252BI%252527environnement&lien-ressource=recherche>
- French Climate-Adapt platform: <https://www.adaptation-changement-climatique.fr/>

### Facilitating access and use

The French environmental statistical office maintains a dedicated web page on climate change, disseminates climate-related data of other producers through its website and provides links to related web pages of other institutions.

### Green finance

In the area of green finance, the French environmental statistical office works on statistics on the emission of green bonds and green finance taxonomy. It is also engaged in dialogue with banks and financial bodies.

### Key development plans

Key development plans for the next years include:

- Extension of the environmental expenditure accounts to climate investment
- Imported deforestation footprint
- Economic related statistics
- Adaptation related statistics
- Better measurement and understanding of interactions between climate change and other areas, such as economics, land use, use of transports, health effects and other environmental impacts

## Hungary

**Keywords:** Environment statistics, Environmental accounts, Air emissions, Pilot studies, Green economy, Coordination with stakeholders, Climate change-related indicators

### Recent achievements

The Hungarian Central Statistical Office participated in pilot studies in 2017 and 2020 regarding climate change-related indicators organized by the UN. We published some of the climate change-related statistics, data and analysis in the Environmental Report of Hungary in 2019 in Hungarian.

Hungary is participating in the Global Consultation about climate change-related statistics in 2021, involving all the key stakeholders.

### Available statistics and indicators

The Hungarian Central Statistical Office publishes climate change-related indicators only among the other statistical data and not as a separate set. Some examples, e.g. meteorology and air emission data, can be found at: [http://www.ksh.hu/stadat\\_eng?lang=en&theme=kor](http://www.ksh.hu/stadat_eng?lang=en&theme=kor)

### Facilitating access and use

The Hungarian Central Statistical Office disseminates its own and other producers' climate-related data through its website.

### Green finance

In July 2021, a publication on "Green Economy" was published in Hungarian. The publication provides analysis about the economic relevance of the following topics:

- Physical Energy Flow Accounts
- Environmental Taxes
- Environmental Protection Expenditure Accounts
- Environmental Goods and Services Sector Accounts
- Waste
- Material Flow Accounts
- Air Emission Accounts
- Carbon footprint

### Key development plans

The Hungarian Central Statistical Office plans to publish the main results of the consultation on the Global Set next year. Hungary will also continue participating in the global work on climate change-related indicators, including the Global Consultations, Expert Forum for Producers and Users of Climate Change-Related Statistics etc.



Finally, the Hungarian Central Statistical Office would like to put deepen the coordination and collaboration with all the stakeholders to be able to create and publish more indicators from the Global Set.

## Ireland

**Keywords:** Air emissions, SEEA, Environmental subsidies, Fossil fuel subsidies, Meteorological data, Plant phenology, Environmental behaviours, Household survey, Climate change-related indicators, Data linkage, Energy statistics, Vehicle odometers.

### Recent achievements

The main achievements of the Irish Central Statistics Office (CSO) in climate change-related statistics include:

- Compiling and publishing various climate-related Environmental Accounts modules and environment statistics such as air emissions, environment subsidies, fossil fuel subsidies, and business energy use.
- Publishing a Plant Phenology release
- Publishing a vehicle odometer release.
- Undertaking a historical Climate Data Rescue project of detailed daily meteorological data back to 1829.
- Undertaking a survey of household environment behaviours (Q2/2014 and Q3/2021).

### Available statistics and indicators

- Environmental indicators report:  
<https://www.cso.ie/en/releasesandpublications/ep/p-eii/environmentalindicatorsireland2020/>
- Climate-related Environmental Accounts:  
<https://www.cso.ie/en/statistics/environmentaccounts/>
- Plant Phenology, vehicle odometer data and Climate Data Rescue project of detailed daily meteorological data:  
<https://www.cso.ie/en/statistics/climateandenergy/>
- Survey of household environment behaviours (Q2/2014 and Q3/2021):  
<https://www.cso.ie/en/statistics/environmentstatistics/>

### Facilitating access and use

CSO carries out consultations with data users regarding data needs and use, maintains a dedicated web page on climate change, disseminates climate-related data of other producers through its website and provides researchers with access to microdata relevant for climate change analysis.

Energy balances produced by the Sustainable Energy Authority of Ireland are made available in the CSO database, see <https://data.cso.ie/#> and select Other Public Sector Bodies.

Ireland created anonymised research microdata files by matching the 2011 and 2016 Censuses of Population to analyse changes in the main central heating fuel. See:

- [https://www.cso.ie/en/media/csoie/aboutus-new/dataforresearchers/Instructions\\_on\\_the\\_use\\_of\\_COPENV\\_data\\_for\\_Researchers.pdf](https://www.cso.ie/en/media/csoie/aboutus-new/dataforresearchers/Instructions_on_the_use_of_COPENV_data_for_Researchers.pdf)

Separate annual Liaison Group meetings are held with the Energy and Environmental agencies.

#### **Green finance**

CSO publishes data on environmental subsidies, which can be found at:

- <https://www.cso.ie/en/statistics/environmentaccounts/environmentalsubsidiesandinternationaltransfers/>

#### **Key development plans**

In the next years, CSO plans to:

- Consolidate the current work.
- Publish a climate indicators report based on meteorological data.
- Publish an indicators report on the transition to electric vehicles.
- Combine household energy consumption with energy efficiency ratings and demographic microdata.
- Publish a statistical release based on vehicle odometers.
- Publish an agri-environment indicators release.

## Israel

**Keywords:** Climate change-related indicators, Meteorological data, Adaptation

#### **Recent achievements**

In Israel, a set of national climate indicators (based on the set of the World Meteorological Organization) for the period 1950-2017. The climate indicators will be published soon on the ICBS website

#### **Key development plans**

Key development plans in Israel include developing a wider set of adaptation indicators on a regular basis.

## Kazakhstan

**Keywords:** Climate change-related indicators, Coordination with stakeholders, Green and sustainable finance

#### **Recent achievements**

Agency for Strategic Planning and Reform of the Republic of Kazakhstan Bureau of National Statistics (the Bureau) annually produces the environmental indicators of the UNECE environmental monitoring and assessment for the EECCA countries, the OECD green growth indicators and the SDG indicators. They are calculated annually and published on the official website of the Bureau.

Currently, the experts of the Bureau, together with individual state bodies (the Ministry of Ecology, Geology and Natural Resources, the Ministry of Emergency Situations, the Ministry of Agriculture, and others), are working on the analysis of available data for the developing climate change indicators.

**Available statistics and indicators**

- Ecological Indicators of Environmental Monitoring and Assessment (under Shared Environmental Information System) [https://stat.gov.kz/for\\_users/ecologic\\_indicator](https://stat.gov.kz/for_users/ecologic_indicator)
- Environment indicators and "Green Economy" indicators: <https://stat.gov.kz/official/industry/157/statistic/7>
- Monitoring of the Sustainable Development Goals [https://stat.gov.kz/for\\_users/sustainable\\_development\\_goals](https://stat.gov.kz/for_users/sustainable_development_goals)

**Facilitating access and use**

The Bureau carries out consultations with data users regarding data needs and use and disseminates climate-related data of other producers through its website.

**Green finance**

The Bureau, based on statistical observations, monitors the costs of research and development work in the field of ecology, investments in environmental protection, as well as current costs for environmental protection.

With the adoption of the new Environmental Code, regulatory documents and mechanisms are being developed in favour of improving the country's economy in the direction of applying green standards. Currently, the issue of classification (taxonomy) of "green" projects to be financed through "green" bonds and "green" loans is being worked out.

**Key development plans**

The Bureau has the following plans until the end of 2021:

- Develop a list of indicators based on available data, considering national priorities, together with government agencies
- Pilot a set of available climate change indicators for posting on the Bureau's official website.
- Study the methodological methods and experience of individual countries in this aspect.
- Examine the need for climate change indicators.

## Luxembourg

**Keywords:** Climate change-related indicators, Sub-annual emissions, Green and sustainable finance, Carbon footprint

**Recent achievements**

The main achievement of STATEC in recent years was the development and publication of the national set of climate change-related indicators. This dataset is published annually on the web portal of STATEC.

Another achievement of STATEC is publishing quarterly CO<sub>2</sub> emissions related to energy combustion.

**Available statistics and indicators**

- National set of climate change-related indicators (in French): <https://statistiques.public.lu/fr/actualites/territoire/territoire-climat/2019/10/20191001/index.html>

#### **Green finance**

STATEC has an internal work program called "Ecological transition", which aims to promote existing statistics. The project includes the objective to analyze the climate change investments. The most requested information concerns investments in climate change mitigation and the cost for the country to become carbon neutral.

#### **Key development plans**

In the coming years, STATEC plans to work in three areas:

- Estimation of quarterly GHG emissions
- Calculation of carbon footprint,
- Analysis of climate change expenditures.

## Malta

**Keywords:** [Air emissions](#), [GHG inventories](#), [Climate change-related indicators](#), [Coordination with stakeholders](#), [Online tools](#)

#### **Recent achievements**

The Malta Resources Authority (MRA) is designated pursuant to Maltese law as the Inventory Agency for the compilation of the annual national inventory of greenhouse gas (GHG) emissions by sources and removals by sinks. This is a role that MRA has been fulfilling for a number of years. The main focus in recent years has been on: (i) improving the quality of the national GHG inventory, including by elaborating an ISO-certified Quality Management System for those functions of MRA related to this specific function: (ii) extensive capacity-building support by external experts.

In the context of the efforts to improve the annual national GHG inventory, many of the efforts to-date have been focussed on improving the data produced so as to ensure that users of such data have a reliable source of information. The elaboration of an ISO certified quality management system has been an important milestone. Another important development is the move towards greater automation of our internal system. At present, this effort is targeted towards automation of our internal (Excel-based) spreadsheets, with the view of moving towards more intelligent automation in future.

#### **Available statistics and indicators**

MRA produces national indicators in the sense that the national GHG inventory provides the necessary quantitative data for the determination of indicators such as national annual emissions (total; by gas; by sector; by activity category/sub-category; etc.), parameters such as emissions intensity of the economy (e.g. GHG/GDP) and emissions per capita, and other indicators that depend on the data produced in the GHG inventory.

#### **Facilitating access and use**

MRA carries out consultations with data users regarding data needs and use, maintains a dedicated web page on climate change, and provides links to related web pages of other institutions.

Annual national GHG inventories of Malta are readily accessible to the public through portals of organizations such as the European Environment Agency and the UNFCCC Secretariat. MRA also provides data from the national GHG inventory upon request and supports its understanding by providing technical assistance as and where relevant.

### **Green finance**

Green finance and climate finance are not topics that fall within the official remit of MRA; however, with developing interest in such subjects at international and regional levels, there may in future be growing interest in data produced by MRA that would be important for green/climate finance activities. As a state in the European Union, Malta will be increasingly impacted by rules of the EU relating to sustainability and the targeting of financial resources in favour of more sustainable activities - this may imply growing interest and need for data that the MRA produces, either in its format or as input towards setting out of indicators and criteria.

### **Key development plans**

The immediate focus will remain primarily on continuous improvement of the preparation of the national (GHG) inventory. These improvement efforts remain a key element of the MRA development plans considering the level of scrutiny that national GHG inventories are subject to (annual reviews under both European Union legislation and the UN Framework Convention on Climate Change and its subsidiary treaties (Kyoto Protocol; Paris Agreement).

Efforts are currently being actively pursued to improve inter-agency collaboration with other local entities on such aspects as data gathering, expert assistance on technical matters relating to specific activities, and better sharing of results for the benefit of policy-making.

The MRA is also exploring the possibility of establishing systems that allow access to the general public to the data we generate, such as via web-based, interactive data viewers.

## **Mexico**

**Keywords:** [Climate change-related indicators](#), [Institutional arrangements](#), [Coordination with stakeholders](#), [Adaptation](#)

### **Recent achievements**

In Mexico, a Technical Committee on climate change statistics was established. A National Information System on climate change was developed under the Committee jointly by INEGI, Environmental Ministry and the National Climate Change Institute. In the National Information System, six strategic indicators were identified as strategic and are published and updated annually.

Currently, INEGI is working on the adaptation of the indicators developed by the UNECE Task Force as part of the Working Program of the Technical Committee and one of the strategic activities on the national Special Program on Climate Change.

The Climate Change Technical Committee brings together all the national institutions working with statistics on climate change, users and producers. It provides a platform for discussing and reviewing the data, methodologies and information needs, as well as developing technical norms, national information and key indicators. It also allows for joining efforts on strategic projects to develop statistics and indicators related to the national and international agreements.

#### **Facilitating access and use**

INEGI carries out consultations with data users regarding data needs and use, maintains a dedicated web page on climate change, disseminates data of other producers of climate-related data through its website, provides links to related web pages of other institutions and provides researchers with access to microdata relevant for climate change analysis.

#### **Key development plans**

The key development plan in Mexico is the production of the statistics on climate change within the different national programs established and the development of the indicators, mainly concerning climate change adaptation.

## Mongolia

**Keywords:** [Air emissions](#), [SEEA](#), [Hazardous events and disasters](#)

#### **Recent achievements**

In Mongolia, the recent achievements include:

- Developing physical flow accounts for water and for solid waste
- Plan to compile the air emission account in 2021
- Updating the Environment and Disaster Information Collection form

18 forms with 7 chapters related to the environment were approved and are available at: <https://eic.mn/statistic/mayagt.php>

#### **Facilitating access and use**

The National Statistics Office of Mongolia disseminates climate-related data of other producers through its website. The data is available at the following link: [https://www.1212.mn/Stat.aspx?LIST\\_ID=976\\_L24&type=tables](https://www.1212.mn/Stat.aspx?LIST_ID=976_L24&type=tables)

#### **Key development plans**

The National Statistics Office of Mongolia plans to generate the data needed to calculate greenhouse gas emissions, including the coal balance by type of coal.

## Netherlands

**Keywords:** [Air emissions](#), [SEEA](#), [Sub-annual emissions](#), [Climate change-related indicators](#), [Adaptation](#), [Green and sustainable finance](#)

#### **Recent achievements**

Among others, a recent achievement of Statistics Netherlands is the dissemination of quarterly GHG emissions (according to IPCC methodology and based on SEEA) approximately 75 days after the end of a quarter.

### Available statistics and indicators

Climate change-related indicators are included in, e.g., "Monitor of well-being & the SDGs 2020" (also regional data available) and "Netherlands Climate and Energy Outlook 2020":

- <https://www.cbs.nl/en-gb/publication/2020/21/monitor-of-well-being-the-sdgs-2020>
- <https://www.pbl.nl/en/publications/netherlands-climate-and-energy-outlook-2020-summary>

### Facilitating access and use

Statistics Netherlands carries out consultations with data users regarding data needs and use, maintains a dedicated web page on climate change and provides researchers with access to microdata relevant for climate change analysis.

### Green finance

The Netherlands is making the first steps in the area of green finance as part of its international work on SEEA.

### Key development plans

Key development plans in the Netherlands include, among others, starting the work on climate change adaptation and sustainable finance statistics.

## Switzerland

**Keywords:** Climate change-related indicators, SEEA, Carbon footprint, Ecosystem accounts, Carbon sequestration

### Recent achievements

In July 2019, the Swiss Federal Statistical Office (FSO) published a set of around 20 climate-related indicators on its website. The indicators are available in French and German and can be viewed under:

- <https://www.bfs.admin.ch/bfs/fr/home/statistiques/espace-environnement/indicateurs-lies-au-climat.html>

The aim of this project is to provide a simple and rapid overview of the topic, based on reliable statistical information, and moreover to provide an entry point to access further information and data on the subject. The indicators are divided into three domains, which also determine the storytelling: Human impacts > Observed changes > Reactions from Society. Some of the information found in the climate-related indicators originates from environmental accounting, which is compiled by the FSO according to Eurostat guidelines.

A simplified overview of the timeline of the development of climate-related indicators in Switzerland:

- August 2018: Collection of potential indicators from various sources, national and international
- September to December 2018: Two workshops with internal specialists were organized to discuss the structure of the set and possible indicators as well as to clarify data availability
- January 2019: Final selection of indicators based on predefined criteria

- March to April 2019: Editing with occasional involvement of specialists, internal and external
- May 2019: Internal consultation and revision of the manuscript
- June 2019: Translation, quality control
- July 2019: Publication of indicators.

#### **Available statistics and indicators:**

- Set of around 20 climate-related indicators available in French and German:  
<https://www.bfs.admin.ch/bfs/fr/home/statistiques/espace-environnement/indicateurs-lies-au-climat.html>
- Environmental accounting:  
<https://www.bfs.admin.ch/bfs/en/home/statistics/territory-environment/environmental-accounting.html>

#### **Facilitating access and use**

FSO carries out consultations with data users regarding data needs and use, maintains a dedicated web page on climate change, disseminates climate-related data of other producers through its website, provides links to related web pages of other institutions, and provides researchers with access to microdata relevant for climate change analysis.

#### **Key development plans**

At least at three different times during the year, FSO updates the climate-related indicators with all new data that becomes available. Moreover, FSO follows the current developments in this area. For example, if new statistics or indicators emerge, they will be considered for the set.

Environmental accounting is also being further developed and refined. For example, FSO is working on a new methodology for calculating the greenhouse gas footprint. For early 2022 we are planning a publication on the climate impacts of Swiss households. In the context of ecosystem accounting, FSO is conducting a feasibility study investigating carbon sequestration for all Swiss ecosystems starting this year up to 2024.

## Turkey

**Keywords:** Air emissions, GHG inventories, Environment statistics, SEEA, Energy statistics, Transport statistics, Climate change-related indicators

#### **Recent achievements**

Turkish Statistical Institute (TurkStat) is the focal point of the National GHG Emission Inventory and has compiled and published GHG statistics for years. Apart from this, TurkStat has produced environmental, energy and transport statistics, SDG indicators and environmental accounts for a long time which are inputs for the development of CC related statistics.

#### **Available statistics and indicators**

Some of the climate change-related statistics have been already produced and published under some topics such as Sustainable Development Indicators, GHG emission inventory, Energy statistics etc., but TurkStat has not produced a national (or regional) set of climate change-related indicators yet.



#### **Key development plans**

It is being considered to produce all climate change-related indicators and increase the other institutions' awareness of the issues. TurkStat plans to include "Climate change-related Statistics" as a new topic in the next Official Statistics Programme of Turkey for the period 2022-2026.

## 4. INTERNATIONAL UPDATES

### Eurostat<sup>1</sup>

**Keywords:** Air emissions, SEEA, Sub-annual emissions, Energy accounts, Environmental taxes and subsidies, Carbon footprint, Online tools, European Green Deal, Classification of environmental activities, Green and sustainable finance, Ecosystem accounts, Carbon sequestration

[Excerpt from the CES paper]

#### Recent achievements

Over the past decades, Eurostat has been a leader in developing the **system of environmental-economic accounts** and collecting data that are linked to economic statistics, including **air emissions accounts** and **energy accounts**, dataset central to the monitoring of climate targets. Eurostat also produces a range of statistics about energy, transport, industrial processes, waste, agriculture, forestry and land use. Eurostat actively contributed to the CES debate and recommendations on climate change-related statistics.

To facilitate users' access to relevant information, Eurostat has set up **a dedicated website on climate change-related statistics**. The website organizes the data along drivers, mitigation, impact and adaptation, and climate action initiatives. On this website, Eurostat also **re-publishes data from the European Environmental Agency** on greenhouse gas inventories, surface temperatures, etc. The website also provides background explanations. This website implements one of the CES recommendations on climate change-related statistics:

<https://ec.europa.eu/eurostat/web/climate-change>

Critical for the further development of climate change-related statistics is its **compatibility with economic statistics**, warranted under the frame of the international System of Environmental-Economic Accounting (SEEA). In the European Union, the reporting of key environmental-economic accounts is mandatory. The datasets have originally been designed to address needs for structural information, complementing macro-economic statistics, and they are available with a substantial time lag after the end of the reference period. Among the European environmental accounts are the **air emission accounts** (greenhouse gases and air pollutants), which are similar to the greenhouse gas inventories but aligning the scope of the countries' emissions to GDP and other national accounts data and using economic classifications such as NACE Rev. 2. Eurostat also produces other related SEEA data, including **energy flows, environmental taxes and subsidies, material flows, investments, growth and jobs in the environmental sector**, etc. All those accounts can be used for integrated analyses and modelling. For instance, Eurostat estimates **carbon footprints** based on environmental accounts.

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<sup>1</sup> The text in this section is an excerpt from the paper "International statistical response to climate change-related data policy needs" submitted by Eurostat, IMF and OECD to the 69th plenary session of the Conference of European Statisticians. See the full paper at: [https://unece.org/sites/default/files/2021-05/ECE\\_CES\\_26\\_2106302E.pdf](https://unece.org/sites/default/files/2021-05/ECE_CES_26_2106302E.pdf)

### Future work

Eurostat is currently finalizing an action plan on the European Statistical System's contribution to the **European Green Deal** and the European Union recovery plan.

Given the strong and increasing interest in climate change-related data, Eurostat has initiated **a review of the climate change-related statistics**, which it produces in partnership with the members of the European Statistical System (ESS). The review will engage partner producers, users and other international stakeholders, e.g. international organizations; it will help to identify all relevant needs, synergies and potentials for closer collaboration in this statistical field across the ESS. The review will include consultations with stakeholders and senior managers as well as workshops to discuss the findings and recommendations. This review is scheduled to be completed by the end of 2021.

Eurostat has several initiatives to deliver more climate change-related statistics in the future. Eurostat is studying the feasibility of producing **early estimates** as well as **quarterly estimates of greenhouse gases emissions** based on the air emissions accounts, building on the current experience of Eurostat's early estimates of carbon dioxide emissions from energy use. Eurostat is also preparing a legal basis for more mandatory European environmental-economic accounts, in particular about **environmental subsidies, green investments, forest accounts** and **ecosystem services accounts** (including carbon sequestration).

In collaboration with the European Union Member States and Directorate-General for the Environment, Eurostat is advancing on the review of the **classification of environmental activities** and the update of **the list of environmental products** to make them more relevant in relation to new policy needs and technological progress. Within this workstream, reconciliation with the **Sustainable Finance Taxonomy** is also sought. Apart from that, Eurostat is testing the feasibility of **delineating and measuring climate change mitigation and adaptation activities** in a similar manner as already put in place for the environmental economy (the environmental goods and services sector accounts). Eurostat also seeks to close data gaps, e.g. by exploring a methodologically sound way of capturing and measuring potentially **environmentally harmful subsidies**.

## International Monetary Fund<sup>2</sup>

**Keywords:** Online tools, Air emissions, SEEA, Sub-annual emissions, NDCs, Green and sustainable finance, Environmental taxes and subsidies

### Recent achievements

Over the last year, the IMF Statistics Department has been collaborating with the other international organizations (OECD, the World Bank, the United Nations, the European Commission, Eurostat, the Food and Agriculture Organization of the United Nations, International Energy Agency (IEA), the National Oceanic and Atmospheric Administration of the United States) to develop a set of experimental climate change indicators housed on the **Climate Change Indicator Dashboard**.

<sup>2</sup> The text in this section is an excerpt from the paper "International statistical response to climate change-related data policy needs" submitted by Eurostat, IMF and OECD to the 69th plenary session of the Conference of European Statisticians. See the full paper at: [https://unece.org/sites/default/files/2021-05/ECE\\_CES\\_26\\_2106302E.pdf](https://unece.org/sites/default/files/2021-05/ECE_CES_26_2106302E.pdf)

Fund Departments identified three areas of immediate need for data:

- Timely, **high-frequency estimates of greenhouse gas emissions** (GHG) by activity, structural information about the source of emissions and the emission targets countries are establishing as part of the framework convention on climate change
- Estimates of the **availability of financing to address climate change**, and
- Estimates of government intervention in the form of **taxes, expenditures, subsidies and other fiscal policies**, including **emissions trading schemes**.

IMF developed the **quarterly GHG emissions indicator** to provide a timely indicator that is comparable in concept, timeliness and frequency to key macroeconomic indicators.<sup>3</sup> The indicator presents seasonally adjusted quarterly GHG emissions from economic activity (production and household consumption) using various data sources, including annual air emissions accounts, either nationally published or collected from national sources or estimated by OECD, Eurostat and IMF, estimates of CO<sub>2</sub> from fuel combustion obtained from the IEA and national published estimates of real gross value added by industry and real household final consumption expenditures. While currently, only three countries publish quarterly estimates of greenhouse gas emissions, the IMF calculations extended the country coverage to 26 countries and will further expand the coverage over the coming months.

IMF has developed **experimental estimates of CO<sub>2</sub> emissions per US\$ of output**. This indicator not only considers the direct emissions of the industry but also all of the emissions resulting from its use of inputs into the production process. These estimates are available for 64 countries and 64 industries. The indicator will help policy makers to identify industries and countries where adjustment to low carbon or no carbon technologies is the most urgent and where the greatest effort is required. Building on this work, IMF has also developed indicators of CO<sub>2</sub> emission embodied in trade and direct investment.

Fund Departments also indicated a desire to **track country progress towards officially communicated emissions targets**. Nationally Determined Contribution (NDC) reports submitted by countries under the United Nations Framework Convention on climate change embody country emission targets for 2030 and 2050. Unfortunately, the targets outlined in the NDCs are not reported according to a uniform or consistent reporting structure/methodology. Some countries report their targets as a percentage reduction from a baseline period. Others present their targets as an absolute level of emissions. Others report their targets as a percentage reduction from an assumed “business as usual” (BAU) level of emissions. IMF has developed a methodology to **estimate the targets in a consistent and standardized manner across countries**. First, the Fund staff estimate the expected level of emissions in 2030 for a given country under a business as usual scenario. The economy-wide 2030 targets implied by the NDC are then converted into an implied target level of emissions. This 2030 implied target level of emissions is then divided by the estimated 2030 business as usual estimates to derive the implied percentage target reduction in 2030 emissions from the estimated business as usual scenario.

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<sup>3</sup> See details of the methodology at

<https://climatedata.imf.org/datasets/543872e1d86c49e3a3bdf38f2b758f92>

IMF developed an **experimental indicator of the carbon intensity of domestic banking sector loans**. The indicator of the carbon footprint adjusted loans to total loans is estimated by weighting an industry's carbon emission factor by the share of loans to that industry and aggregating over all industries. It intends to capture the direct carbon emission concentration of domestic bank lending and contribute to climate-related financial disclosures with a macro perspective.

This area of work also includes **estimates of green bonds**, i.e. bonds earmarked to fund environmentally friendly projects. Using the commercial data providers information, IMF is trying to provide an overview of the size, trends and composition of green bonds.

### **Future work**

Governments have several channels to fight climate change, including taxes, subsidies, and expenditure to protect the environment. While data on government revenues from **environmental taxes** and **government expenditures on environmental protection** are available on the IMF Dashboard, their granularity and country coverage could be further improved. The environmental taxes are well defined in the SEEA and include taxes on energy, transport, pollution and on resources. Similarly, the government expenditures on environmental protection, including expenditures on pollution abatement, protection of biodiversity and landscapes, and waste management are well defined in the Classification of the Functions of Government (COFOG). However, users have identified data gaps related to subsidies, especially as there are **differences in the definition of subsidies between statisticians and policy makers**. The users have also identified data gaps related to **capital and infrastructure spending**. Future work will cover these areas.

The plans of IMF to further expand the coverage and granularity of its program of climate change indicators and refine the estimates by the time of the **IMF Statistical Forum in November 2021** and further over the medium term. Moreover, the Dashboard will serve as a conceptual framework for the climate-related part of the **new G20-sponsored data gaps initiative**.<sup>4</sup> This initiative will, among others, facilitate the development of a collection framework for climate data which would result in greater availability and comparability of national data and facilitate effective policymaking.

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<sup>4</sup> <https://www.g20.org/wp-content/uploads/2021/04/Communique-Second-G20-Finance-Ministers-and-Central-Bank-Governors-Meeting-7-April-2021.pdf>

## Organisation for Economic Co-operation and Development<sup>5</sup>

**Keywords:** Air emissions, GHG inventories, SEEA, Carbon footprint, Green and sustainable finance, Green budgeting, Environmental expenditure, Carbon price, Fossil fuel subsidies, Environment-related technologies, Climate change-related indicators, Online tools

OECD hosts **several databases** directly or indirectly related to climate change, maintains sets of climate-related indicators, monitors **climate-related finance and investments**, and carries out **methodological and statistical developments**. Climate issues are fully integrated into policy analysis, evaluation and guidance, as well as in the OECD country reviews. Climate change is influencing work across most Directorates and is overseen by a range of Committees and Working Parties. The quality of the data and indicators produced is verified with countries before use and public release. Moreover, all components of this work are conducted in close collaboration with international partners, particularly Eurostat, IMF, and the United Nations. Included below are brief descriptions of a few of the key areas of work as a sample of the current collaborations with other international organizations related to climate change.

### **Air emissions-related statistics**

**Emissions inventories** have been compiled at OECD since 2015. They are currently based on official submissions to UNFCCC for most countries and complemented with reporting through the OECD questionnaire for other countries. IEA also releases estimates of CO<sub>2</sub> emissions from fuel combustion, with series starting in 1960 for the OECD economies.

**Air emission accounts** (AEA) are collected in collaboration with Eurostat and complimented with OECD estimates for countries not currently producing official AEAs. The estimates are derived from UNFCCC inventories and based on the OECD methodology that has been endorsed by UNCEEA. Efforts are ongoing to continuously improve the AEAs, particularly with respect to the extension of geographical coverage, increase of frequency and improvement of the timeliness of data. This line of work includes the new collaboration with IMF. This includes ongoing work at OECD to produce bottom-up estimates of emissions from aviation (including monthly, quarterly as well as annual data) and maritime transport with residence-territory adjustments for bridging between inventories and emissions accounts.

The creation of the **Trade in Value-Added** (TiVA) initiative in 2011, and, by extension, the updated [inter-country input-output tables](#) (ICIOs) to support this initiative, has meant that CO<sub>2</sub> estimates embodied in international trade are now also a permanent part of the OECD statistical information system. Work in this area continues including in particular efforts to develop regional TiVA estimates, such as Eurostat's FIGARO, APEC-TiVA and North American TiVA. Moreover, these outputs are used by IMF for the above-mentioned estimates of indirect emissions, thus creating an inter-agency consistency, by design, for emissions embodied in trade.

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<sup>5</sup> The text in this section an excerpt from the paper "International statistical response to climate change-related data policy needs" submitted by Eurostat, IMF and OECD to the 69th plenary session of the Conference of European Statisticians. See the full paper at: [https://unece.org/sites/default/files/2021-05/ECE\\_CES\\_26\\_2106302E.pdf](https://unece.org/sites/default/files/2021-05/ECE_CES_26_2106302E.pdf)

### Climate-related economic and financial statistics

OECD work on climate finance aims at **tracking investment and finance flows and assessing their consistency with climate objectives set in the Paris Agreement**. The work is carried out by the OECD [Research Collaborative on Tracking Finance for Climate Action](#), a network of governments, research organizations and finance providers. It is designed to serve as a platform for identifying data, methodological and knowledge gaps<sup>6</sup>, defining research priorities, coordinating ongoing initiatives, and developing methodologies to monitor investment and finance flows. The body of work developed under the Research Collaborative contributes to the knowledge base being gathered by the [OECD Centre on Green Finance and Investment](#).

OECD also [monitors](#) development **finance flows targeting the objectives of the Rio Conventions** in development cooperation activities. The monitoring is based on a set of markers, two of which are Rio markers related to climate change (climate change adaptation and mitigation).<sup>7</sup>

In December 2017, OECD launched the [Paris Collaborative on Green Budgeting](#) at the One Planet Summit with the support of France and Mexico. Work on **green budgeting**, among other work related to climate finance, is carried out with international think tanks and research organizations, Multilateral Development Banks, UNDP, Private sector investors and financial institutions, and other international initiatives such as [the Coalition of Finance Ministers for Climate Action](#) launched by governments from over twenty countries in April 2019.

OECD has been collecting and harmonising international data on [environmental expenditure](#) since the 1970s. Part of the data is collected via the State of the Environment questionnaire, which became a joint questionnaire with Eurostat in the early 1990s. The latest revision (2018) aligned the reporting framework with the SEEA and its **environmental expenditure accounts** (EPEA). Work continues to improve data quality and to better cover climate and biodiversity-related expenditure by using synergies with work on green budgeting and climate finance.

Work on environmental expenditure sees the cooperation with Eurostat on Environmental Protection Expenditure Accounts (EPEA) data collection and quality assurance, as with other areas of SEEA work, is organized in collaboration with Eurostat, the London Group on Environmental Accounting and the UNCEEA.

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<sup>6</sup> Jachnik, R., M. Mirabile and A. Dobrinevski (2019), "Tracking finance flows towards assessing their consistency with climate objectives", OECD Environment Working Papers, No. 146, OECD Publishing, Paris, <https://doi.org/10.1787/82cc3a4c-en>.

<sup>7</sup> The data are publicly available in the [Creditor Reporting System \(CRS\) database](#).

### Climate-related policy instruments

The “Policy Instruments for the Environment” ([PINE](#)) is a unique database gathering detailed information on policy instruments relevant for environmental protection and natural resource management. Initially built to collect environmentally related taxes in OECD countries, today, the PINE database contains information on over 3500 policy instruments in 111 countries since 1994, tagged into 12 environmental domains and complemented with a classification of industries and household expenditures. PINE is a unique tool at the international level, directly relevant for climate-related statistical analysis and the derivation of policy indicators.

Additional information on policies aiming at decarbonisation is provided by the [carbon pricing gap](#). On aggregate, the gap indicates how advanced economies as a whole are in line with the implementation of market-based tools to decarbonise their economies. At the country level, the same indicator can be interpreted as a measure of long-run competitiveness.

Also, OECD hosts an inventory of government [support to fossil fuels](#), with data covering close to 1200 individual government policies that benefit the production and consumption of **fossil fuels**. To populate the OECD inventory, data collected from countries are supplemented by information collected by IEA and IMF (on consumer price support). OECD also compiles data on fossil fuel producer and budgetary and tax-related consumer support. OECD and IEA have been actively involved in methodological discussions on government support to fossil fuels together with UN Environment, the custodian of the related SDG indicator (12.c.1), and other international organizations, such as IMF, and the Global Subsidies Initiative of the International Institute for Sustainable Development (IISD). One output from this work, [Measuring Fossil Fuel Subsidies in the Context of the Sustainable Development Goals](#), is a methodological guide endorsed by UNCEEA.

OECD has been developing methods for identifying **environment-related technologies** (ENVTECH) in global patent databases since the early 2000s, building on its long tradition of work on patent statistics. OECD maintains a unique ENVTECH patent search strategy, in collaboration with the European Patent Office.<sup>8</sup> Data on the development and diffusion of a wide range of technologies relevant to climate change mitigation and adaptation are available on [OECD.Stat](#). OECD monitors external development finance targeting environmental objectives through its Creditor Reporting System (CRS) using “policy markers”, including two climate-related Rio markers.

**Climate-related indicators** are included in several OECD indicator sets, including the OECD Core Set of [Environmental indicators](#) and the set of [Green Growth indicators](#). Climate-related indicators from OECD and other international sources are being brought together by using an internationally agreed upon framework developed by UNECE and promoted by UNSD.

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<sup>8</sup> <https://doi.org/10.1787/5js009kf48xw-en>



Finally, in April 2021, OECD established the **International Programme for Action on Climate (IPAC)**. IPAC offers participating countries a new steering instrument to pursue progress towards the transition to net-zero greenhouse gas emissions and a more resilient economy by mid-century, thanks to a precise evaluation of their action and the sharing of good practices. The programme will have four key deliverables: the Annual Climate Action Monitor, a dashboard of climate-related indicators, concise country notes with targeted policy advice and an interactive online platform.

## United Nations Statistics Division

**Keywords:** Environment statistics, Global Set, Climate change-related indicators, Capacity development

### Recent achievements

A recent achievement of UNSD is the **linkage of the Framework for the Development of Environment Statistics (FDES 2013), and climate change statistics**. Chapter 5 of the FDES addresses climate change as a cross-cutting theme and provides a set of environmental topics and individual statistics based on the IPCC framework that are important when informing any country on climate change:

<https://unstats.un.org/unsd/envstats/climatechange.cshtml>

and the development of the **Global Set of Climate Change Statistics and Indicators**, currently under review, and which will be submitted to the 53rd session of the Statistical Commission in March 2022 for adoption.

[https://unstats.un.org/unsd/envstats/ClimateChange\\_StatAndInd\\_global.cshtml](https://unstats.un.org/unsd/envstats/ClimateChange_StatAndInd_global.cshtml)

### Facilitating access and use

UNSD carries out consultations with data users regarding data needs and use, maintains a dedicated web page on climate change, disseminates climate-related data of other producers through its website, and provides links to related web pages of other institutions.

### Future work

The Global Set is accompanied by metadata which will be further elaborated upon and developed into more guidance and implementation material. **Training workshops and courses** are also planned to be further developed to contribute to the implementation of the Global Set once adopted by the Statistical Commission.

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