United Nations ECE/CES/2021/26

Economic and Social Council

Distr.: General
12 May 2021

English only

Economic Commission for Europe

Conference of European Statisticians

Sixty-ninth plenary session
Geneva, 23-25 June 2021
Item 3 of the provisional agenda
Official statistics for climate action

International statistical response to climate change-related data policy needs

Prepared by Eurostat, International Monetary Fund and the Organisation for Economic Co-operation and Development

Summary

This document provides a summary of the initiatives being undertaken by Eurostat, the International Monetary Fund (IMF) and the Organisation for Economic Co-operation and Development (OECD), and identifies possible areas of deeper collaboration going forward.

The document is presented to the Conference of European Statisticians' session on "Official statistics for climate action" for discussion.

I. Introduction

1. There is a growing sense of an impending climate crisis and an increasing policy need for climate change-related data to explain (a) how economic activity is impacting the climate, (b) whether "climate" policies are having the desired impacts and (c) the implications for economic growth and stability.

2. International organizations and national statistical organizations are being asked to support the integration of climate related data with traditional economic and financial indicators to facilitate the design of climate mitigation and adaptation policies, and more broadly macro-economic policies. There is already a number of international statistical initiatives focused on climate-related economic indicators including, System of Environmental Economic Accounting Central Framework[1], SEEA Ecosystem Accounting[2], UNECE CES Recommendations on Climate Change-Related Statistics[3], Network for Green of Finance—Bridging the Data Gaps[4], Climate Dashboards (IMF, ECB), UNECE CES Set of Core Climate Change-related Indicators[5], numerous databases of international organizations, etc.

3. This call for action on climate and resulting policy needs provides an opportunity to collaborate and coordinate efforts at the international level beyond the above-mentioned initiatives and further advance the development of the climate-related statistics. It also provides an opportunity to explore new avenues and new ways of collaborating among international agencies. Furthering the already strong collaboration on climate-related statistical initiatives, will help advance the development of comparable data across countries.

II. Key activities of international organizations

A. Eurostat

4. The European Union statistics for climate action are an integral part of a much broader strand of work on environmental sustainability, environmental accounts and statistics of the European Commission. Eurostat provides a large set of statistics that is relevant for climate action, including environmental accounts, statistics on energy, transport and agriculture, forestry statistics and production statistics. Apart from the official statistics provided by Eurostat, some relevant data are gathered directly by policy departments, and there is on-going inter-departmental work on a range of initiatives, such as the Sustainable Finance Taxonomy[6] or ecosystem and natural capital accounting[7].

5. Climate-change related statistics became even more important with the adoption of the European Green Deal by the European Commission in December 2019 as one of its top current priorities. The Green Deal is a new growth strategy to make the European Union's economy sustainable by turning climate and environmental challenges into opportunities across all policy areas.

6. The Green Deal initiatives for climate action are wide-ranging and crosscutting. They target not only greenhouse gas emissions but also enlist the support of various economic sectors and leveraging the impacts through transformative actions about renewable energy, sustainable finance, circular economy, sustainable transport and buildings, land use and many

[1] https://seea.un.org/content/seea-central-framework
[2] https://seea.un.org/ecosystem-accounting
[3] CES Recommendations on Climate Change-Related Statistics https://www.unece.org/stats/publications/ces_climatechange.html
[4] https://www.ngfs.net/en
[5] https://statswiki.unece.org/x/Yw8AEQ
[6] https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en
[7] INCA (Integrated system of Natural Capital and ecosystem services Accounting) for the European Union: https://ec.europa.eu/eurostat/documents/1798247/6079569/Leaflet+2019+–+The+INCA+project/

others. The Green Deal is the road to recovery from the COVID-19 crisis and includes integrating environmental sustainability considerations into the European Union economic co-ordination and fiscal surveillance and financing instruments.

7. These policy developments lead to increased demands for data; they require a broader perspective and a systematic approach, linking diverse statistical fields (including economic and environmental statistics, and various sectoral statistics), and reinforce the need for statistical experimentation as well as efforts to effectively communicate the data to users. 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.

8. 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[8] 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.[9]

9. Given the strong and increasing interest in the 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 end 2021.

10. 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. One of 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[10] based on the environmental accounts.

11. 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 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).

[8] https://ec.europa.eu/eurostat/web/climate-change

[9] CES Recommendations on Climate Change-Related Statistics: https://www.unece.org/stats/publications/ces_climatechange.html

[10] https://ec.europa.eu/eurostat/statistics-explained/index.php/Greenhouse_gas_emission_statistics_-_carbon_footprints

12. 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 work stream, 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 seeks also to close data gaps, e.g. by exploring a methodologically sound way of capturing and measuring potentially environmentally harmful subsidies.

B. International Monetary Fund

13. IMF is scaling up its work on climate issues and the macroeconomic policies needed to mitigate and reverse climate change.[11] To support this work, the IMF Statistics Department has responded to the growing need for climate-related data by Fund Departments to undertake surveillance and provide policy advice. Over the last year the 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.[12]

14. Fund Departments identified three areas of immediate need for data. First, they require 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. Second, Fund Departments have required estimates of the availability of financing to address climate change and third, they requested estimates of government intervention in the form of taxes, expenditures, subsidies and other fiscal policies, including emissions trading schemes.

1. Greenhouse gas emissions

15. Data required to monitor the GHG emission and progress towards targets are lagged thus impeding the ability of policymakers to make timely decisions and plan mitigation actions. Building on the existing annual data and closely cooperating with other international agencies, IMF developed the quarterly GHG emissions indicator to provide a timely indicator that is comparable in concept, timeliness and frequency to key macroeconomic indicators.[13] The indicator presents seasonally adjusted quarterly GHG emissions from economic activity (production and household consumption) using various data source including annual air emissions accounts, either nationally published or collected from national sources or estimated by OECD, Eurostat and IMF, estimates of CO_2 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.

16. In addition to timely estimates of GHG emissions, Fund Departments also indicated a need to identify sources (industry and country) of carbon emissions in order to focus policy responses to priority areas. To respond to this need, IMF has developed experimental estimates of CO_2 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

[11] For more information on IMF activities related to climate change see: https://www.imf.org/en/Topics/climate-change

[12] https://climatedata.imf.org/

[13] See details of the methodology at https://climatedata.imf.org/datasets/543872e1d86c49e3a3bdf38f2b758f92

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_2 emission embodied in trade and direct investment.

17. 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 and 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.

2. Sources of funds to combat climate change

18. Fund Departments have also identified a need to understand the level of green and low-carbon businesses and investments, as well as to manage climate change-related financial risks. Currently, there are no internationally agreed definitions of sustainable finance, including green bonds. Thus, a significant amount of conceptual work needs to be done in this area to develop an agreed set of concepts and their definitions, before starting to develop the associated data products.

19. Against this background and based on the loans-by-industry survey of selected members, IMF developed an experimental indicator of 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.

20. 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 size, trends and composition of green bonds.

3. Government policies

21. 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 definition of subsidies between statisticians and policy makers. The users have also identified data gaps related to capital and infrastructure spending. The future work will cover these areas.

4. Next steps

22. 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.[14] 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. IMF, together with other international organziation, is working on a concept note for on a possible new Data Gaps Initiative.

C. Organisation for Economic Co-operation and Development

23. 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 organisations related to climate change.

1. Air emissions-related statistics

24. 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_2 emissions from fuel combustion with series starting in 1960 for the OECD economies.

25. 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 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.

26. 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_2 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 above-mentioned estimates of indirect emissions, thus creating an inter-agency consistency, by design, for emissions embodied in trade.

2. Climate-related economic and financial statistics

27. 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 organisations and finance providers. It is designed to

[14] https://www.g20.org/wp-content/uploads/2021/04/Communique-Second-G20-Finance-Ministers-and-Central-Bank-Governors-Meeting-7-April-2021.pdf

serve as a platform for identifying data, methodological and knowledge gaps[15], 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.

28. 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).[16]

29. 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 organisations, 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.

30. OECD has been collecting and harmonising international data on environmental expenditure ince 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.

31. 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.

3. Climate related policy instruments

32. 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 classification of industries and household expenditures. PINE is a unique tool at international level, directly relevant for climate related statistical analysis and the derivation of policy indicators.

33. 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.

34. 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 organisations, such as IMF, and the

[15] 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 .

[16] The data are publicly available in the Creditor Reporting System (CRS) database.

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.

35. OECD has been developing methods for identifying environment-related technologies (ENVTECH) in global patent databases since 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.[17] Data on 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.

36. 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.

37. 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.

III. Conclusion

38. Given the large number of ongoing statistical efforts and joint initiatives of the international statistical system to provide the climate change related data necessary for policy making, there is a potential to further improve coordination and collaboration across international agencies and their respective memberships. There is demand from policy makers, researchers and citizens to develop a standard set of climate indicators. Building on the work of the UNECE task force on a set of climate-change related statistics and indicators using SEEA, and other more recent initiatives such as the IMF Climate Change Indicators Dashboard, institutions should collaborate to produce high-quality, high-frequency, and comparable data. Not only will this ensure there is a consistent set of global estimates but, more broadly, it will help promote public understanding of climate-change and the economic and financial inter-relationships. For example, OECD, IMF and IEA have recently developed an inter-agency task team to develop quarterly estimates of greenhouse gas emissions by country. Part of this work involves bringing together available official and related greenhouse gas emission estimates from various projects (e.g. Air Emission Accounts) into a single global database. Eurostat is also exploring the feasibility of regularly producing quarterly estimates of greenhouse gas emissions and is currently conducting a review of climate change related statistics.

39. Building on the wealth of examples of existing very good collaboration and data sharing between international organizations, key areas where the international statistical system should collaborate and co-develop include:

- The compilation of annual air emissions accounts across a broader set of countries and the development of a global database
- The development of quarterly air emission accounts
- The development of a standardized approach to present reported national emissions targets in a consistent manner (i.e. using the same reporting units)

[17] https://doi.org/10.1787/5js009kf48xw-en

- The extension of indicators and environmental statistics more broadly beyond advanced economies towards emerging and development economies
- Improved granularity, country coverage and consistency in reporting subsidies, taxes and government expenditures related to climate change.

40. Such cooperation could also facilitate the integration of climate-related statistics in the next International Statistical Standards Update (Balance of Payments and System of National Accounts Manuals) that is expected to be completed in 2025.