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Working Group on the Development of Global Databases (Area C)
Summary of activities

Paper prepared by the Working Group on the Development of Global Databases

(for discussion)

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Introduction

1. This note reports on the activities of the Area C group over the last year. The objective of Area C is to establish a set of global SEEA databases to provide users with SEEA compliant data sets for integrated policy development and analysis, including the Sustainable Development Goals (SDGs). This is done by coordinating and supporting the development of such databases at international level, by facilitating the exchange of related data among international organisations (IOs), and by providing direct access to existing SEEA databases through the websites of IOs. The databases development work under Area C focuses on five priority accounts (air emissions, energy, material flows, land and water), identified at the Eleventh Meeting of UNCEEA in 2016. They build as much as possible on national data, complemented with estimates when national data are not (yet) available, to achieve global coverage.

2. The note summarizes the main progress made towards global databases for each priority account over the past year, with more details provided in the Annex to this report. The final section covers priority-setting during the coming years and questions to the UNCEEA.

Coordination, working methods, and governance

3. The Area C group meets every two months to discuss the advancements towards the implementation of global databases and data quality enhancement for the five priority accounts (i.e., air emissions, physical energy flow, mineral flow, Land and Water accounts). International organisations including Eurostat, Food and Agriculture Organization of the United Nations (FAO), the International Monetary Fund (IMF), the Organisation for Economic Co-operation and Development (OECD), the United Nations Economic Commission for Europe (UNECE), the United Nations Environment Programme (UNEP), United Nations Statistics Division (UNSD) and the World Bank regularly attend the meetings. In addition to the bi-monthly meeting, workshops and thematic meetings are held to focus on specific accounts or aspects thereof. Over the last year, particular attention has been devoted to the advancements of water and land cover accounts. Thematic meetings have seen the participation of experts on the topic and have been enlarged to include additional relevant bodies, such as the European Environment Agency (EEA). Furthermore, meetings between Eurostat, OECD and UNSD have been held to coordinate the global data collections for the Air Emissions Accounts (AEA) and Physical Energy Flow Accounts (PEFA), including harmonising the development of the questionnaires, the alignment of deadlines, and the validation rules. In the context of the cooperation with the Data Gaps Initiative (DGI), several meetings have been organised between the OECD and the IMF to develop an aligned methodology for the estimation of missing data for the AEA and PEFA. Finally, regular contacts are also maintained with the International Energy Agency (IEA).

4. Additional exchanges among experts happen at annual events such as the London Group meetings, the OECD/UNECE Joint Seminar on SEEA Implementation, and the OECD Working Party on Environmental Information (WPEI) meetings.

Progress on the five priority accounts

5. Over the last twelve months, the implementation of the global databases for the five SEEA priority accounts has seen important advancements. Eurostat, the OECD and the UNSD worked together to coordinate the first SEEA global data collection for AEA and PEFA.

6. Significant steps have been made this year also for Land Cover and Physical Water Flow Accounts. For the former, a questionnaire template has been developed and its testing phase will begin during Q4 2024. As for water, the OECD, Eurostat and UNSD are undertaking or about to start feasibility studies to assess the extent existing data would allow the compilation of the accounts. The link between these two accounts and ecosystem accounts is noteworthy. Area C is considering whether a full and independent implementation of these two accounts should be pursued in the period 2026-30 or all efforts should be devoted to the sole implementation of the ecosystem accounts. The last year of the current roadmap period will explore options in depth and report to the UNCEEA meeting in 2025.

7. Area C has also contributed significantly to the third phase of the G20 Data Gaps Initiative[1] (DGI-3) by promoting implementation of additional SEEA accounts (notably air emission and energy accounts). The DGI-3 has also included the methodological development and future compilation of environmental and climate related subsidies account, with special focus on the environmentally harmful subsidies as well as climate change mitigation and climate change adaptation (expenditure) accounts.

In addition, the UNEP updated the Global Material Flows Database.

- Air Emissions Accounts (AEA) and Physical Energy Flow Accounts (PEFA)

8. The first global data collection of AEA and PEFA took place in 2023, with Eurostat, OECD, and UNSD coordinating their actions for the implementation of consistent questionnaires, validation, and dissemination of the data.

9. In the European Union, where reporting standard tables for AEA and PEFA is mandatory, Eurostat introduced, on a voluntary basis, the collection of air emissions related to road transport by economic activity for carbon dioxide (CO_2), nitrogen oxides, particulate matter 2.5 and 10, as well as non-methane volatile organic compounds. 21 countries reported air emissions related to road transport.

10. For the rest of the globe, the OECD and UNSD have used a questionnaire with multiple embedded templates which contain “Detailed”, “Medium”, and “Aggregate” breakdowns, to better meet countries’ data availability (with the “Detailed” template being equivalent to the Eurostat breakdown). Results are available on the data portals[2] of the three organisations. Some countries have officially reported the AEA or PEFA to IOs for the first time in 2023 including, for example, Costa Rica, Japan, Mexico, Ukraine and USA for AEA; and Australia, Canada, Costa Rica, and Samoa for PEFA.

11. For the 2024 global data collection, OECD and UNSD have introduced a few small amendments to the PEFA and AEA questionnaires to better align with the Eurostat questionnaires and, hence, improve international comparability. For AEA, an additional table for the CO_2 emissions related to road transport

[1] Ministers of Finance and Central Banks Governors agreed on the need to address data gaps related to various areas of statistics including climate change. Please find more details here: G20 Data Gaps Initiative (imf.org)
[2] https://data.un.org/SdmxBrowser/start, https://data-explorer.oecd.org/ and https://ec.europa.eu/eurostat/data/database

has been added to the questionnaire. For PEFA, an additional table for emission-relevant energy use has been added to the questionnaire. Eurostat, OECD and UNSD have disseminated the 2024 PEFA and AEA questionnaires to countries in the first half of the year. Questionnaires are expected to be returned by mid-July for non-EU, non-OECD UN countries and by the end of September for EU and OECD countries. The validation process will take place during Q4 2024 with a release aimed at the end of 2024/early 2025.

12. Area C has contributed to the DGI-3 to reach the targets set in Recommendations 1 (greenhouse gas emission accounts and national carbon footprints) and 2 (energy accounts). The global AEA and PEFA questionnaires have been introduced at DGI workshops. It is anticipated that the targets for Recommendations 1 and 2 will follow the disaggregation used in the global questionnaires. In addition, Area C is contributing to the further development of estimation techniques for countries which do not yet compile these accounts.

- Economy-Wide Material Flow Accounting (EW-MFA)

13. In December 2023, UNEP and the International Resource Panel (IRP) updated the Global Material Flows Database[3]. The database covers more than 200 countries and territories and provides data for core indicators based on EW-MFA such as Domestic Extraction, Exports, Imports, Physical Trade Balance, Domestic Material Input, Domestic Material Consumption (DMC), Raw Material Equivalents of Exports, Raw Material Equivalents of Imports, and Material Footprint for the period 1970-2024. The Global Material Flows Database is one of the sources of UNEP reporting on SDG indicators 8.4.1/12.2.1 Material Footprint and 8.4.2/12.2.2 DMC. In March 2024, UNEP reported estimates of these indicators for non-EU countries to the Global SDG Database[4]. Later in the year, UNEP will contact non-EU countries and ask them to validate estimates for DMC and, if possible, replace it with national data. For EU countries, UNEP reported country data available in the Eurostat Database.

14. In addition, UNEP has developed, in close collaboration with the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the EW-MFA Compiler[5]. This is an XLSX tool for supporting countries in developing the EW-MFA. Finally, UNEP has revised the Global Manual on Economy-Wide Material Flow Accounting[6]. Both the Compiler and the Global Manual have been translated into Arabic, French and Russian and have been published on the UNEP online repository.

- Land Cover Accounts

15. At present, three sets of land cover *statistics* are available for different parts of the globe. The three sets are all based on data accessible at international level and include: the EEA land cover statistics for European countries based on information from Copernicus/European Space Agency; the FAO land cover statistics, derived from global land cover products from European Space Agency CCI; NASA MODIS; Copernicus CGLS and Worldcover, including all FAO countries for the period 2002-2022, and aligned with the SEEA and the Land Cover Classification System (LCCS); and the OECD national and sub-national statistics and policy-relevant indicators on land cover[7] for all countries worldwide based on global geospatial data (Copernicus/European Space Agency and Université Catholique de Louvain Geomatics Climate Change Initiative, selected following a comprehensive review of available datasets).

[3] https://www.resourcepanel.org/global-material-flows-database
[4] https://unstats.un.org/sdgs/dataportal
[5] EW-MFA Compiler
[6] The Use of Natural Resources in the Economy: A Global Manual on Economy Wide Material Flow Accounting
[7] OECD data on Land cover and land cover change is accessible here

16. In view of the implementation of a global database for land cover *accounts* based on national data (as opposed to available statistics based on international data), the work of Area C in 2023-2024 involved a series of meetings and exchanges among the EEA, OECD, FAO, United Nations Convention to Combat Desertification (UNCCD) and UNSD aiming to develop consensus on the scope of a possible future collection of national data. The Area C has identified the key attributes of the questionnaire and discussed the launch of a pilot test of the questionnaire with volunteering countries (currently scheduled for Q4-2024).

17. It has been agreed to proceed along a 2-tiered approach, with FAO using a template including the 14 SEEA-CF land cover classes, while the OECD[8] and EEA will use an expanded classification including an additional breakdown for tree-covered areas (including undisturbed, semi-natural, and planted) to better meet the need of policy makers (e.g. concerning carbon storage, renewable energy, wood processing, nature protection, land use planning, and other issues on the interface of biodiversity and climate policies). Such data are also needed to populate Indicator A.2 'Extent of natural ecosystems' of the post-2020 Global Biodiversity Framework, as well as in the context of the UNCCD and SDG Indicator 15.3.1 on land degradation. FAO aims at having between 15 and 20 pilot countries, and the OECD will send the questionnaire to all 38 member countries. UNSD will coordinate with FAO on piloting the land cover questionnaire. The pilot questionnaire will also include a feedback form to collect additional qualitative information on the Land Cover Questionnaire (Data and Metadata).

- Physical Water Flow Accounts (PWFA)

18. The OECD and UNSD are currently coordinating efforts to conduct a study to assess the feasibility of compiling water accounts from commonly available data sources, in support of the development of a global database. The study includes three phases. In the first phase, the OECD will take stock of the current status of compilation of water accounts as well as available data sources (including OECD/Eurostat and the UNSD/UNEP questionnaires, FAO's AQUASTAT database as well as Earth Observation data and other global data sources. In the second phase, methods to compile a basic set of PWFA will be developed, including addressing any data gaps, and testing the methodology for selected countries. Finally, in the last phase a report containing the results of the feasibility study including options (with pros and cons) for building a global database will be drafted.

19. Similarly, Eurostat intends to undertake a similar study to assess the data quality starting from the Eurostat/OECD Joint-Questionnaire on Inland Waters, plus other important information such as the EEA hydrological data and the European Commission Joint Research Centre water models for agriculture. Eurostat plans to assess the quality and completeness of available data and their fitness to develop water accounts on the quantity of water resources for human use (households, industry, agriculture). The report will also consider the policy relevance of water accounts, spatial and temporal breakdowns, industry breakdowns, etc.

A final report will be prepared based on these feasibility studies for consideration by Area C and reported back to the Committee in 2025.

[8] OECD member and accession countries were informed of the relevant Area C developments through a written consultation and discussions at the November 2023 and March 2024 meetings of the Working Party on Environmental Information (WPEI).

Setting objectives and priorities for 2025 and beyond?

20. A major priority for Area C remains the full implementation of the five SEEA priority accounts. This necessitates supporting countries to fill existing data gaps, to start implementation of the accounts where they do not exist, or developing UNCEEA-endorsed methodologies to estimate the accounts where official data are unavailable. During the last year of the 2021-2025 period, Area C will pursue the enhancement of the granularity and the timeliness of the accounts as well as expanding their geographic coverage. In addition, to meet the needs of analysts and policy makers, it is equally important to disseminate data over sufficiently long time series. The development of appropriate techniques to extend time series backwards might also be required.

21. The advancement in the land cover and water accounts might necessitate the amendment or the extension of the Global Data Structure Definitions (DSDs) for the SEEA. This may be done in a separate project or work stream, in close cooperation with relevant organizations. Furthermore, the implementation of the land cover accounts may require a closer cooperation with the teams working on the ecosystem accounts, as well as the SEEA EA Technical Committee.

22. Looking ahead into the next five-year period, 2026-2030, members of Area C have started discussing whether a review of the list of priority accounts could be in scope. It has been noted that, in light of the advancement of some DGI-3 recommendations[9], the UNCEEA could consider revising or expanding the existing list of SEEA priority accounts to include environmental subsidies, with special focus on the environmentally harmful subsidies (sometimes called 'potentially environmentally damaging subsidies[10]), and/or climate change expenditure accounts.

Questions for UNCEEA

1. Does the Committee agree with the proposed activities of Area C including the feasibility studies on Water and Land cover accounts?
2. Should the road map for the period 2026-30 include a re-assessment of the existing priority accounts and possibly consider the addition of new accounts (such as environmentally harmful subsidies and investments on climate change mitigation and climate change adaptation (expenditure) accounts)?

[9] Particularly Recommendation 6: Government Climate Impacting Subsidies and Recommendation 7: Climate Change Mitigation And Adaptation Current And Capital Expenditures (see DGI-3 Recommendations)

[10] See the Eurostat (2015) Environmental subsidies and similar transfers, Guidelines, https://ec.europa.eu/eurostat/documents/3859598/6923655/KS-GQ-15-005-EN-N.pdf/e3be619b-bb19-4486-ab23-132a83f6ff24