



# Economic and Social Council

Distr.: General  
26 June 2024

English only

---

## Economic Commission for Europe

### Conference of European Statisticians

#### Seventy-second plenary session

Geneva, 20 and 21 June 2024

Item 11 (a) of the provisional agenda

**Programme of work of the Statistics subprogramme  
of the United Nations Economic Commission for Europe:  
Reports on the work of the Conference of European Statisticians,  
its Bureau and Teams of Specialists**

### **Summary of discussions and conclusions of the Ninth Joint Organisation for Economic Co-operation and Development / United Nations Economic Commission for Europe Seminar on the Implementation of the System of Environmental- Economic Accounting**

**Prepared by the Secretariat\***

#### *Summary*

The report presents the key outcomes of the Ninth Joint Organisation for Economic Co-operation and Development (OECD) / United Nations Economic Commission for Europe (UNECE) Seminar on the Implementation of the System of Environmental-Economic Accounting (SEEA) which took place in Geneva, Switzerland on 18–20 March 2024.

The report is submitted to the Conference of European Statisticians for information.

---

\* This document was submitted late for processing due to resource constraints.



## I. Introduction

1. The Ninth Joint Organisation for Economic Co-operation and Development (OECD) / United Nations Economic Commission for Europe (UNECE) Seminar on the Implementation of the System of Environmental-Economic Accounting (SEEA) was held in Geneva, Switzerland from 18 to 20 March 2024. It was jointly organized with OECD and an organizing committee with members from National Statistical Offices (NSOs) of Australia, Canada, Estonia, Finland (Chair), Germany, the Netherlands, Sweden and the United States of America. Eurostat, International Monetary Fund (IMF), United Nations Environment Programme (UNEP) and United Nations Statistics Division (UNSD) were represented in the Organizing Committee in addition to OECD and UNECE.
2. Experts from the following countries participated in the meeting: Armenia, Australia (online as presenter), Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Canada, Costa Rica, Croatia, Estonia, Finland, France, Georgia, Germany (online as presenter), Hungary, Ireland, Italy, Kazakhstan, Kyrgyzstan, Lithuania, Luxembourg, Malta, Mexico, the Netherlands, North Macedonia, Norway, Poland, the Republic of Moldova, Romania, the Russian Federation, Sweden, Tajikistan, Ukraine, the United Kingdom of Great Britain and Northern Ireland, the United States of America and Uzbekistan.
3. Representatives of the Economic and Social Commission for Asia and the Pacific (ESCAP), European Commission – Directorate-General for Environment (DG ENV), European Commission – Eurostat, European Commission – Joint Research Center, International Labour Organization (ILO), International Monetary Fund (IMF, online as presenter), OECD, United Nations Conference on Trade and Development (UNCTAD), UNECE / Food and Agriculture Organization of the United Nations (FAO) Forestry and Timber Section, UNEP, United Nations Institute for Training and Research (UNITAR), UNSD (online as presenter) and World Tourism Organization (UN Tourism) also participated in the meeting.
4. Attending non-governmental organizations were Earthjustice and The Political Environment Inc.
5. Academia and research were represented by the Technical University of Dresden, Université de Neuchâtel, University of Exeter, University of London, University of York and Zhytomyr Polytechnic State University.

## II. Organization of the meeting

6. The seminar started on 18 March at 11:00 and finished on 20 March at 17:30. It was chaired by Ms. J. Pakarinen from Statistics Finland.
7. The participants adopted the agenda of the seminar.
8. The seminar consisted of four main sessions, some of them split into sub-sessions:
  - (a) **Session 1: Opening and overview on international work** – Session Chair: J. Pakarinen (Statistics Finland);
  - (b) **Session 2: Utilizing SEEA for measuring circular economy:**
    - Sub-session 2a: Setting the scene** – Sub-session Chair: I. Apkhaidze (National Statistics Office of Georgia);
    - Sub-session 2b: Utilizing SEEA for measuring physical flows of plastics** – Sub-session Chair: R. Campanale (Italian Institute for Environmental Protection and Research);
    - Sub-session 2c: The “circular economy sector”: New developments and utilizing Environmental Goods and Services Sector Accounts (EGSS) for measuring jobs, goods and services related to circular economy** – Sub-session Chair: O. Thunus (Statistics Luxembourg);

**Sub-session 2d: Measuring flows of biomass and bio-based material in a circular economy** – Sub-session Chair: Prof. P. Hopkinson (University of Exeter);

**Sub-session 2e: Waste Accounts for measuring circularity** – Sub-session Chair: S. Schenau (Statistics Netherlands);

**Sub-session 2f: Panel discussion and wrap-up** – Moderator: M. Nagy (UNECE);

(c) **Session 3: Informing climate change-adaptation and response policies with SEEA:**

**Sub-session 3a: Setting the scene** – Sub-session Chair: J. Hass (U.S. Bureau of Economic Analysis);

**Sub-session 3b: Climate change expenditures** – Sub-session Chair: N. Brown (Statistics Sweden);

**Sub-session 3c: Measuring ecosystem condition, degradation and loss of ecosystem services** – Sub-session Chair: K. Oras (Statistics Estonia);

**Sub-session 3d: Panel discussion and wrap-up** – Moderator: K. Oras (Statistics Estonia);

(d) **Session 4: Main conclusions and recommendations** – Session Chair: J. Pakarinen (Statistics Finland).

(e) The meeting also featured a **World Café event** (English only) which allowed for informal discussions. It was organized before the formal start of the seminar on 20 March from 9:00 to 11:45. The following seven organizations hosted World Café tables:

- ESCAP: Disaster-related Statistics
- European Commission (DG ENV and Eurostat): SEEA Accounts in the European Union (EU), legal basis, available guidance and future plans
- OECD: Global SEEA databases
- UNCTAD: Ongoing work on Trade and Biodiversity Statistics
- UNECE Forests, Land and Housing Division: Joint Pan-European Data Collection on Forest Resources, Joint Forest Sector Questionnaire on Forest Products and Joint Wood Energy Questionnaire
- UNECE Sustainable Energy Division: United Nations Framework Classification for Resources (UNFC)
- University of Exeter: Measuring Circular Economy (poster presentation).

9. For organizational reasons sub-sessions 2b and 2e were swapped in the final version of the programme.

10. All documents of the meeting and weblinks to meeting recordings are available at <https://unece.org/info/Statistics/events/383686>.

### **III. Summary of the discussion and main conclusions reached at the meeting**

#### **A. Session 1: Opening and overview on international work**

11. After information about housekeeping items by M. Nagy (UNECE) the meeting was opened by J. Pakarinen (Chair), T. Luige (UNECE, Director of Statistical Division) and B. Edens (OECD, on behalf of P. Schreyer, Director, OECD Statistics and Data Directorate).

12. Updates from international organizations and their expert groups were provided by OECD, the London Group on Environmental Accounting, ESCAP, UNSD and UNECE.

13. The presentation by OECD informed about the new Expert Group on Natural Capital, recent developments on the Global SEEA accounts databases, work on maritime emissions as well as ongoing work on environmentally related tax revenue statistics and accounts.

14. The Chair of the London Group on Environmental Accounting informed about the discussions at the twenty-ninth meeting of the group, which was held in Pretoria, South Africa in September 2023. The focus was on areas relevant for the planned update of the SEEA Central Framework (SEEA CF). Topics covered included accounting for ecosystem services in physical and monetary terms, the integration of accounts (e.g., SEEA Central Framework and Ecosystem Accounts), input-output models and the production of quarterly accounts. The next meeting of the London Group will be from 30 September – 3 October 2024, hosted by the U.S. Bureau of Economic Analysis in Washington, D.C.

15. The representative of ESCAP explained the SEEA-related activities in Asia and the Pacific. The focus of work is on technical and institutional capacity building, including strategic planning, technical assistance and training and e-learning courses. Normative work which potentially is also relevant for other regions includes ocean accounting and the development of the Disaster-Related Statistics Framework (DRSF).

16. UNSD provided an update from SEEA-related discussions and decisions of the fifty-fifth session of the United Nations Statistical Commission (UNSC, 27 February – 1 March 2024 in New York, United States), details on the planned SEEA CF update, the status of SEEA implementation in countries, the mainstreaming use of SEEA in informing policymaking and the webinar series 2024. At its recent session UNSC endorsed the update of SEEA CF. A list of issues and the road map for its update are to be submitted at the next session of the UNSC in 2025. Among other issues, UNSC welcomed the use of SEEA EA as the methodological basis for several indicators of the monitoring framework of the Kunming-Montréal Global Biodiversity Framework. UNSC also endorsed the Statistical Framework for Measuring the Sustainability of Tourism, which is based on SEEA, endorsed the Classification of Environmental Purposes and the IUCN Global Ecosystem Typology as international statistical classifications and recommended to include them in the international family of classifications. The UNSD representative informed that in 2023, 90 countries were compiling SEEA accounts (89 SEEA CF and 41 SEEA EA). The United Nations Committee of Experts on Environmental-Economic Accounting (UNCEE) is organizing a webinar series in 2024 to highlight various priority and/emerging policy areas, starting with the link between SEEA and the Global Biodiversity Framework.

17. A representative of UNECE Statistical Division presented the recently launched online inventory of thematic and extended accounts. It addresses the growing user need for more detailed information on certain sectors of the economy (thematic) or information including activities and assets that are not typically within the national accounts' boundaries (extended). Discussions with UNSD are ongoing on how to present the SEEA part. The online inventory is available at <https://stats.unece.org/tea/>.

## **B. Session 2: Utilizing the System of Environmental-Economic Accounting for measuring circular economy**

18. The main objectives of the session were to share experiences on producing and using selected SEEA Accounts for measuring Circular Economy, and to identify further activities of international organizations supporting countries in managing and measuring transition towards a circular economy with SEEA. The outcomes of this session will be considered in the Guidelines for Measuring Circular Economy (Part B) which is currently being drafted by a dedicated Conference of European Statisticians (CES) Task Force.

### **Sub-session 2a: Setting the scene**

19. The sub-session started with a presentation by the University of Exeter on the conceptual view on the circular economy and a discussion of the most important measurement points. The presenter summarized them in form of four main categories: (1) Measuring progress over time (from linear to circular economy); (2) Resource productivity focused; (3) Benefits focussed; and (4) Implementation focused.

20. The circular economy in EU policy was presented by a representative of the Directorate-General Environment (DG ENV) of the European Commission. The Circular Economy Action Plan formulates 35 actions to make sustainable products the norm, to manage at key value chains (such as electronics, plastics or food) and to reduce waste. Information needs increased significantly for impact assessments and the monitoring of implementation and legislation and result in data production challenges for EU Member States and data management by international organizations such as Eurostat, European Environment Agency and others. The EU Circular Economy Monitoring Framework addresses some of these challenges.

21. The “*Conference of European Statisticians’ Guidelines for Measuring Circular Economy*” (CES Guidelines) were presented by the Chair of the UNECE Task Force (Statistics Finland). Part A of the Guidelines, consisting of a conceptual framework, a monitoring framework and a set of indicators recommended for regular production and publication, was endorsed by the Conference of European Statisticians in June 2023. Work is now ongoing by the dedicated UNECE Task Force to draft part B, which will discuss in detail data sources, required institutional collaboration, and will provide guidance on using the indicators.

22. A Eurostat representative presented the Circular Material Use Rate Indicator (CMUR), which is a flagship indicator in many dashboards (e.g., EU Circular Economy Monitoring Framework, EU Sustainable Development Goals indicators, EU single market scoreboard), and which is also recommended for regular production by the CES Guidelines. The presentation showed how it is calculated and showed results for Europe and their interpretation.

#### **Sub-session 2e: Waste accounts for measuring circularity**

23. This sub-session had to be swapped in the programme with session 2b, therefore it is discussed earlier in this report.

24. Statistics Luxembourg shared its experience in using waste accounts for measuring circularity. From this experience it can be summarized that more guidance is needed on how to produce and use the accounts. For example, a waste products classification is needed, and it is not clear how to record recycling of waste in a plant of the same company. Without clear guidance on how to treat these cases (and others mentioned in the presentation) it is difficult to calculate a circularity rate.

25. The Australian Bureau of Statistics (ABS) also discussed the limitations of SEEA waste accounts. One issue discussed is that traditional waste accounts have a limited view on the destination of waste materials. For example, ABS is of the opinion that there is the need for a “recycled products” account covering supply, use and inventories.

26. The last presentation of this sub-session was delivered by Eurostat. It discussed the main results of an experimental study on using waste accounts for measuring plastic flows in the EU economy. One of the conclusions was, that the results, compared to other sources, are generally reasonable. Another conclusion was that packaging recycling is likely overestimated, and that the composition data are crucial for the waste flow model.

#### **Sub-session 2c: The “circular economy sector”: New developments and utilizing Environmental Goods and Services Sector Accounts for measuring jobs, goods and services related to circular economy**

27. To set the scope for the further discussion, the UNECE Secretariat gave a short presentation of the conceptual framework pillar “socioeconomic opportunities of a circular economy” and the main indicators identified in the *CES Guidelines for Measuring Circular Economy* (Part A). The eight proposed indicators are clustered into four indicator topics: (1) Market developments and new business models; (2) Trade developments; (3) Skills, awareness and behaviour; and (4) Inclusiveness of the transition. Even if relevant, the measurability of most of the indicators is low to medium (either lack of methodology or lack of data).

28. Given its relevance for producing EGSS, Eurostat informed about the Classification of Environmental Purposes (CEP) which was adopted by the UNSC in 2024. Eurostat is the custodian agency. CEP integrates the Classification of Environmental Protection Activities (CEPA 2000) and the Classification of Resource Management Activities (CReMA 2008). It now provides a multi-purpose classification serving diverse environmental and climate uses, following international statistical classification criteria. European accounts concerned by the new classification include environmental goods and services sector (EGSS) accounts, environmental protection expenditure accounts (EPEA) and environmental subsidies and similar transfers (ESST). The legal procedure to amend EU law to use CEP instead of CEPA and CREMA has started.

29. The National Institute of Statistics and Economic Studies of France presented a national example on how EGSS data are used for measuring employment in the circular economy. Even if the scope of activities included in EGSS differs from the one of a circular economy, one of the strengths with using EGSS for this purpose is that it is possible to apply EGSS estimation methods (e.g., for employment or value added) also for circular economy activities which are not covered by EGSS. However, EGSS is not helpful for solving difficult issues as compiling circular economy data for industrial and territorial ecology or the service economy.

30. A second national example was presented by Statistics Finland, comparing EGSS and structural business statistics data on measuring circular economy. For the national indicator set on circular economy 18 indicators with time series from 2010 onwards are being produced. The data source for circular economy business indicators are structural business statistics (SBS), where the circular economy is defined through industries following the Eurostat list of industries. Even if there is excellent data coverage in SBS, the applied industry classification misses a lot of circular economy activities. EGSS is used for measuring output, value added and export, using a slightly different scope of industries covered. The EGSS scope consists of both industries and products while circular economy business indicator only contains industries that are included completely in the circular economy.

#### **Sub-session 2d: Measuring flows of biomass and bio-based material in a circular economy**

31. The sub-session chair from the University of Exeter opened the session with a short presentation of the concept of a circular economy and some key agenda for biological materials. It was concluded that the biosphere and the technosphere in a circular economy are distinct but also highly connected, and have different implications for system design, business models, actions and responses. For biomaterials the look at measuring biological cascades is relevant, and also already addressed by the CES *Guidelines for Measuring Circular Economy* (Part A).

32. The policy perspective of the sustainable and circular bioeconomy in the European Union was presented by DG ENV of the European Commission. In the bioeconomy encompasses all sectors and associated services and investments that produce, use, process, distribute or consume biological resources, including ecosystem services. It represents 5 per cent of the EU GDP and employs 8.3 per cent of its workforce. In 2020, an EU Bioeconomy Monitoring System was launched, covering indicators for the five objectives of the 2018 Bioeconomy Strategy: Ensure food and nutrition security, manage natural resources sustainably, reduced dependence on non-renewable, unsustainable resources, mitigate and adapt to climate change and to strengthen European competitiveness and create jobs. The information is used to guide policy and investment decisions through its cascading use principle (highest economic and environmental value-added) and life cycle assessments.

33. A representative of the Central Bank of Costa Rica (BCCR) presented their work on using environmental accounts for policymaking on circular economy and bioeconomy. In 2022, the results of the “Bioeconomy pilot account for Costa Rica” were published, a study carried out by BCCR jointly with the United Nations Economic Commission for Latin America and the Caribbean (ECLAC). For the pilot account a supply and use table for bioeconomy was developed, and activities and products were reclassified according to their correspondence with bioeconomic concepts. The main lessons learned of this exercise were that (a) environmental accounts are important to monitor the transition of a country to circular

economy; and (b) the bioeconomy pilot exercise is a very good starting point to know the importance of bioeconomy in the country.

34. The sub-session was concluded by a presentation of Statistics Netherlands on measuring stocks in the ‘urban mine’ to monitor circular economy with SEEA. The main objective of this work is to support policy on secondary materials use from stocks instead of importing or extracting raw materials, including bio-based materials. One of the results of this work shows that most biomass material is in buildings. Next steps include improving statistical data on material intensity of products and improving statistical data on lifespan and durability of products.

### **Sub-session 2b: Utilizing the System of Environmental-Economic Accounting for measuring physical flows of plastics**

35. This sub-session had to be swapped in the programme with session 2e, therefore it is discussed later in this report.

36. The session was started with short presentations by UNEP and UNITAR who collaborate in the development of a statistical guideline on measuring flows of plastic along the life cycle which is based on SEEA. UNEP presented the United Nations Environment Assembly Resolution 5/14 to end plastic pollution and the outline of the statistical guidelines. The guidelines are planned to be finalized in 2024, including a global consultation and pilot testing. UNITAR presented their contribution to this work by developing so-called Plastic-KEYS, which is a classification of products containing plastics.

37. UNCTAD gave a presentation of the work on measuring international trade of plastics. The main data source for that is United Nations Comtrade and Harmonized System (HS) codes are used to identify plastic products. The resulting data set is still labelled as experimental. The data shows that for example plastics trade is regionally highly concentrated – Asia and Oceania for example account for half of global plastics exports.

38. Statistics Canada presented their physical flow account for plastic material which informs Canada’s Zero Plastic Waste Agenda. The account uses multiple data sources, including supply and use tables, survey data (e.g., on waste management) and administrative data. Canada also informed about surveys used for informing circular economy, which are the waste management survey, the annual survey of manufacturing and logging industries, and the household and environment survey. All these surveys have been expanded to include specific questions on the circular economy and related material flows (e.g., plastics).

39. A second national example was provided by the Statistical Office of the Republic of North Macedonia on the use of SEEA Material Flow Accounts for deriving circular economy indicators (including plastics). The main data sources are industry statistics, foreign trade statistics and surveys on municipal waste. Having these statistics available will help to develop policies addressing some of the mentioned challenges, such as lack of recycling facilities and poorly controlled import of waste that is used as fuel in factories.

### **Sub-session 2f: Panel discussion**

40. This panel discussion concluded session 2 and provided an additional opportunity for discussion. The panel was moderated by M. Nagy (UNECE), with the following panellists: L. Villalobos (Central Bank of Costa Rica), J. Pakarinen (Statistics Finland), O. Thunus (Statistics Luxembourg), L. Lungu (National Bureau of Statistics of the Republic of Moldova), P. Hopkinson (Exeter University), V. Stoevska (ILO) and A. de la Fuente (Eurostat).

41. The very active discussion among panellists and with the audience on how to utilize SEEA for measuring various aspects of a circular economy can be summarized as follows:

(a) It is important to start measuring circular economy with currently available data, while further development in classification is envisaged;

(b) It was suggested to develop circular economy-specific guidelines instead of taking everything into SEEA CF update;

(c) Regional approaches are necessary, while international comparability is desired.

### **C. Session 3: Informing climate-change-adaptation and response policies with the System of Environmental-Economic Accounting**

42. The main objectives of the session identifying and reviewing current practices for using SEEA in relation to climate adaptation and policy response. This includes climate change-related expenditures and monitoring ecosystem condition and degradation, which can lead to reduced resilience against climate-related hazards. The session also aimed to inform about current international work on disaster-related statistics and to discuss its links with SEEA.

#### **Sub-session 3a: Setting the scene**

43. After a short introduction by the sub-session chair OECD presented climate change adaptation policies and SEEA-related information demands. The presentation discussed what information is needed to enhance adaptive capacity, strengthening resilience and reducing vulnerability to climate change (Glasgow-Sharm el-Sheikh work programme) and what countries actually measure. At the international level, towards the Global Goal on Adaptation (GGA), priorities are reducing water scarcity, attaining resilience against climate change-related health impacts and reducing climate impacts on ecosystems and biodiversity. OECD supports countries in their efforts to understand progress in implementing their adaptation policies. SEEA plays an important role, even if the definition of climate change adaptation by the Intergovernmental Panel on Climate Change (IPCC) goes beyond this scope. It was stated that the technical nature of climate change adaptation (CCA) policies is difficult to identify, in particular for government expenditure. The development of detailed lists on climate change adaptation-related activities and products would be helpful.

44. ESCAP presented disaster-related statistics and the linkages to SEEA. Mandated by a decision of UNSC a global disaster-related statistics framework (DRSF) is currently in development. Starting point is the ESCAP DRSF aiming at supporting countries to meet national, regional and global information demand related to reducing disaster risk (e.g., 2030 Agenda, Sendai Framework, national policies and strategies). There are close links with SEEA, for example measuring reduction in stocks (catastrophic losses) with asset accounts, the disruption of supply and use of products with physical flow accounts and the development of disaster-risk-reduction expenditure accounts. Changes in ecosystem assets and ecosystem services can be measures with SEEA EA. Even if there are clear links, more research is needed to fully utilize both SEEA CF and SEEA EA for informing disaster risk management.

45. UNECE, on behalf of the Task Force on the Role of NSOs in Achieving National Climate Objectives, informed about the development of guidance on how NSOs can contribute to achieving national climate objectives – identify concrete ways in which NSOs can be involved and showcase what the statistical system already offers to support climate action. NSOs can contribute through, e.g., producing data and indicators, helping standardize data produced by others, building up data inventories, coordinating within the statistical office and with other agencies and ministries, knowledge sharing, and improving the accessibility and use of data for informing the public. In February 2024, the draft report was approved by the CES Bureau, and a broad consultation with all CES member countries and international organizations was planned for April 2024.

#### **Sub-session 3b: Climate change expenditures**

46. The sub-session started with a presentation given by Statistics Netherlands on behalf of UNSD on the revision of the Classification of Functions of Government (COFOG). COFOG was endorsed by UNSC in 1999. In March 2022, UNSC recommended a revision. Among the main drivers for a revision is to meeting emerging data needs for policymaking (e.g., environmental expenditures, climate change and biodiversity). The revision process starts in 2024 with a global consultation on list of issues and is expected to end in 2027 with a submission to UNSC for approval.



47. OECD presented an integrated approach to the classification of public environmental expenditure. Presently governments classify their public expenditure using COFOG. However, given its limitations governments are increasingly turning to environmental budget tagging. A survey in 2022 shows that two-thirds of OECD countries have adopted green budgeting, an increase of approximately 60 per cent since the 2021 survey. An update of the structure of COFOG is necessary to meet new users' needs. The COFOG revision process, which should be linked with the SEEA CF update, provides an opportunity for taking this into account.

48. The third phase of the G20 Data Gaps Initiative (DGI-3), recommendations 6 (government climate impacting subsidies) and 7 (climate change mitigation and adaptation current and capital expenditures) were presented by IMF. The targets for recommendation 6 are to develop and disseminate general government and central government climate-impacting subsidies (climate-sustaining and climate-damaging) in per cent of GDP and in percent of government expenditure, within 12 months of reference period. The targets for recommendation 7 are to develop and disseminate estimates of both climate change mitigation and climate change adaptation, current and capital expenditures. A methodological framework for both recommendations is being developed. It is an iterative process – key definitions are being formulated and the scope agreed through discussion and consultation with countries, in close alignment with other existing initiatives (including the United Nations Framework Convention on Climate Change (UNFCCC), Inter-American Development Bank (IADB), United Nations Development Programme (UNDP), World Bank, UNECE and UNSD).

49. Statistics Netherlands provided the example of a climate change mitigation investments. The presentation covered the policy needs (e.g., measuring size and distribution of costs and benefits), the statistical data needs (including IMF DGI-3, Eurostat environmental accounts, monitoring of the national energy plan, input for scenario analysis and policy evaluation), a discussion of the scope and important definitions (e.g., climate mitigation), data sources and methods and some results for the Netherlands. The work showed that multiple data sources are needed, and existing classifications often do not suffice (e.g., CPC and COFOG). Adaptation investments are still not well defined.

50. A second national example on climate change mitigation and adaptation expenditures was given by the Bureau of Economic Analysis of the United States (U.S. BEA). U.S. BEA produces thematic accounts (e.g., on health care, travel & tourism etc.) allowing in-depth analysis of these topics. Now climate change expenditure accounts are being developed, and the starting point for this work are the existing Environmental Protection Expenditures (EPE) on greenhouse gas mitigation. Other important starting points are SEEA CF (research agenda), existing work of Eurostat on EPE and Resource Management (RM) statistics and climate change statistics, IMF DGI-3 (recommendation 7) and IPCC (definition of climate change mitigation and adaptation). Next steps will include developing criteria for determining what to include and what to exclude. It is also a matter of learning by doing.

51. The third national example was given by the Committee on Statistics of the Republic of Kazakhstan, discussing their environmental expenditures account and its application. Among the indicators regularly produced and published are the volume of current expenditures on environmental protection and volume of investments in environmental protection. However, by now there is no calculation of climate change-related investments. The data basis for this is gradually improving and might be a project for the near future. The current work focusses on estimating time series before 2015 and the coverage of household environmental protection expenditures.

### **Sub-session 3c: Measuring ecosystem condition, degradation and loss of ecosystem services**

52. The Integrated system of Natural Capital Accounting (INCA) tool was presented by the EU Joint Research Centre. The INCA tool supports the calculation of ecosystem services accounts. The methodology implemented in the tool is aligned with the proposed European legislation on ecosystem accounts. Additionally, the tool supports the calculation of accounts in line with SEEA EA. Recently, new ecosystem services accounts have been incorporated, one on local climate regulation (air filtration) and on marine ecosystem services. The

ecosystem services data calculated with INCA help, amongst other issues, to inform policies to move towards resilient agricultural practices, to adapt to extreme weather events and to stop biodiversity loss.

53. The role of the SEEA in the Kunming-Montreal Global Biodiversity Framework was presented by Statistics Netherlands on behalf of UNSD. The Global Biodiversity Framework was adopted at the fifteenth meeting of the Conference of parties (COP 15) in December 2022. A number of its indicators [related to Goal A, Goal B target 11, 9 and 14] are linked with SEEA EA. UNSD is the custodian agency for indicators based on SEEA and responsible for the development of the metadata. Each indicator has a metadata document that provides the rationale, definitions, methodology, etc. To finalize the metadata, SEEA EA Technical Committee established two Task Teams (TTS) on A2 and B1 indicators. Indicator metadata final adoption is expected at the COP 16 in Colombia, 21 October – 1 November 2024.

54. A national example on ecosystem condition accounting was given by Statistics Lithuania. Work started in 2021 with support of the Eurostat Grant project entitled “Pilot ecosystem extent and forest condition accounts”. The project consists of two parts forest condition accounts and the development of an ecosystem condition variable account. Among the first conclusions is that the quality of the generated data is largely determined by the quality of the original spatial data sets used for calculations. There are also differences between national and “international” indicators (e.g., tree density). Plans are to update data on ecosystem extent and forest condition in 2024–2025 and to start work on ecosystem services accounting.

55. The Australian Bureau of Statistics presented its work on so-called “blue carbon ecosystem accounts”, which is also used to measuring the value of coastal ecosystems in alleviating impacts of climate change. The results show that 40 m of saltmarsh or 90 m of mangroves can attenuate wave action and reduce coastal erosion (as well as other biodiversity and species nursery benefits). The alternative is to move settlements (very expensive) or build seawalls (expensive). There is still need to develop estimates where the area of ecosystems protects agricultural or other economic production activities from climate impacts. There is interest in incorporating these estimates or methods into disaster management.

56. The Statistical Office of Ukraine presented their work on implementation of environment statistics and SEEA, presenting some results and challenges related to measuring the environmental damages of the current war. Work on air emissions accounts started in 2015, and on environmental protection expenditures in 2019. For both accounts time series until 2021 exist. The accounts are gradually being improved. For example, in 2023 a study on the calculation of intermediate consumption of environmental protection services for the production of environmental protection services by non-specialist producers according to Regulation (EU) No 2022/125 was carried out. For measuring the environmental impacts of the war various statistical and non-statistical data sources are being used. They include for example data on forest fires, unintended oil product fires, or emissions of poisonous substances into the air. Estimates of the damages are made in physical and monetary terms.

### **Sub-session 3d: Panel discussion**

57. This panel discussion concluded session 3 and provided an additional opportunity for discussion. The panel was moderated by K. Oras (Statistics Estonia), with the following panellists: J. Hass (U.S. BEA), A. Nakipbekov (Committee on Statistics of the Republic of Kazakhstan), K. Ahmed (United Kingdom Health Security Agency, co-chair of Inter-Agency Expert Group on Disaster-related Statistics (IAEG-DRS)), I. Remond-Tiedrez (Eurostat) and T. Praphotjanaporn (ESCAP).

58. The discussion among panellists and with the audience on how to utilize SEEA for measuring climate change finance and disaster risk can be concluded as follows:

(a) Importance of clear communication with indicators to policymakers, coordinated efforts in update of classification systems, development and discussions on estimates are highlighted;

(b) Alignment between CEP and COFOG revision would be important. Double tagging with secondary purpose is an interesting idea, which could be tested with countries;

(c) It is important to look at relevant statistics (climate and disaster related statistics) in a system as a whole in terms of scope and definitions etc. Interpretation and interlinkage with other domains are important. SEEA expenditure accounts could be helpful to move focus from response-based to prevention-based disaster risk management. It is important to connect communities and raise awareness.

## **D Session 4: Main conclusions and recommendations**

59. In this short session the main conclusions of the substantive sessions, the results of the participants' survey and a short summary of the discussions at the tables of the informal "World Café" were presented.

### **Main conclusions of the substantive sessions**

60. For session 1 (opening and overview on international work) it can be concluded that the update of SEEA CF which was endorsed by UNSC in March 2024 provides a large opportunity to take into account countries' practical experiences in producing accounts and bringing them closer to nowadays policy questions. However, it was suggested to develop policy-specific guidelines (e.g., on how to measure circular economy with SEEA) instead of taking everything into the SEEA CF update.

61. For session 2 (utilizing SEEA for measuring circular economy) the following conclusions can be drawn:

(a) It is important to start measuring the circular economy with currently available data, while further developments in classifications are envisaged;

(b) A global classification of waste could be helpful and should be considered in the SEEA CF update;

(c) Measuring circular economy is not limited to monitor waste flows. Socio-economic opportunities is an important topic to inform policymakers on the development of the circular economy sector;

(d) Using EGSS data to identify circular economy activities is an interesting approach, but requires further research;

(e) The implementation of the new Classification of Environmental Purposes (CEP) is helpful, but it does not cover all components of the circular economy;

(f) An international harmonization of the scope of circular economy activities would be welcomed;

(g) Based on country examples on measuring biomass flows and stocks, the session emphasized the relevance of developing quality criteria for biomaterials, for their recoverability, and a proper delineation of the bioeconomy;

(h) There is a need to integrate bioeconomy strategies and measures with the circular economy to ensure circular bioeconomy;

(i) Statistical guideline on plastic is going to be consulted and tested in 2024;

(j) A plastic Toolkit based on the classification system Plastic-KEYs is available. It was suggested to associate the Plastic-KEYs with carbon emissions.

62. Main conclusions of session 3 (Informing climate change-adaptation and response policies with SEEA) are the following:

(a) While efforts in measuring expenditures for climate change adaptation and mitigation expenditures are ongoing and the disaster-related statistics framework is available, gaps and challenges remain (e.g., measuring observed climate impacts, attributing actions to reduction in climate risks and impacts, indirect impacts of disasters);

(b) SEEA environmental protection and resource management expenditures can be a starting point for Climate Change Expenditure Accounts. Measurement criteria should be further developed;

(c) SEEA EA serves as the methodological basis for some of the Global Biodiversity Framework headline indicators (e.g., extent of natural ecosystems, provision of ecosystem services). Collaboration through Convention on Biological Diversity (CBD) focal points would be important for implementation;

(d) Alignment between CEP and the new COFOG would be important. Double tagging with secondary purpose is an interesting idea, which could be tested with countries; the treatment and classification of nature-based solution is also an issue;

(e) It is important to look at relevant statistics (climate and disaster related statistics) in a system as a whole in terms of scope and definitions etc. Interpretation and interlinkage with other domains are important. SEEA expenditure accounts could be helpful to move focus from response-based to prevention-based disaster risk management. It is important to connect communities and raise awareness.

### **Main outcomes of the participants' survey**

63. All participants were invited to take part in a survey to collect opinions about the Seminar and interest in the potential for a tenth Joint Seminar in 2025. There was full support for OECD and UNECE to organize another SEEA Implementation seminar in about one year.

64. Most participants wished to organize the next Seminar as an in-person event (up to 3 days duration) with a possibility to also connect remotely.

65. In the survey possible topics for the next seminar were ranked as follows: (1) SEEA EA (ecosystem services and ecosystem condition) and Air Emissions Accounts; (2) Water Accounts; (3) Taxes and Subsidies; and on the fourth rank the following accounts: Forests; Environmental Protection Expenditures; Land; and Waste.

66. Participants also suggested to continue with the discussion of the relationship of SEEA with emerging areas, such as circular economy, nature-based solutions, climate adaptation, etc. Other areas that should be tackled are the using new techniques and new data sources for filling of data gaps and/or increasing granularity of the accounts, and discussion of strategies to enhance use of SEEA accounts in analyses and policy.

---