



DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS  
STATISTICS DIVISION  
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**Seventeenth Meeting of the UN Committee of Experts on  
Environmental-Economic Accounting  
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**Technical Committee on SEEA Ecosystem Accounting (Area B2)  
Summary of activities**

Paper prepared by the Chair and Secretariat of the Technical Committee on SEEA Ecosystem  
Accounting

*(for discussion)*

# TECHNICAL COMMITTEE ON SEEA ECOSYSTEM ACCOUNTING (AREA B2)

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Since the adoption of the System of Environmental-Economic Accounting—Ecosystem Accounting (SEEA Ecosystem Accounting) at the 52<sup>nd</sup> session of the United Nations Statistical Commission (UNSC) in March 2021, the Technical Committee on the SEEA Ecosystem Accounting (Area B2) has been focussing on implementation, development of supporting methodologies and guidelines for compilation of ecosystem accounts as well as addressing some issues in the research agenda linked to implementation. The SEEA Ecosystem Accounting Implementation Strategy was adopted by the UNSC in March 2022.<sup>1</sup> Noting the high policy demand for SEEA Ecosystem accounting, the UNSC further encouraged all countries to implement the SEEA Ecosystem Accounting, stressed the importance of adequate funding to support SEEA implementation in countries, and requested the translation of the SEEA Ecosystem Accounting into all United Nations official languages.

Two working groups on forest ecosystems and on oceans have been established, a number of implementation materials have been published, ARIES for SEEA is being tested in a few countries and is being progressively improved on the basis of the recommendations of the working groups on forest ecosystems and oceans, as well as practical experiences in countries.

The SEEA Ecosystem Accounting has been published as a white cover publication (pre-edited text) in September 2021.<sup>2</sup> It has undergone the official UN editing process and it is expected to be released by the end of 2022 after copyright agreements, proofreading and copy preparation is finalized.

## The Implementation Strategy for the SEEA Ecosystem Accounting

The Implementation Strategy<sup>3</sup> has been developed to provide a roadmap to support the implementation in countries by highlighting the main phases of implementation that countries may follow and identify actions at the global level that can support implementation in countries. The overall objective of the Strategy is to scale up the uptake of the SEEA Ecosystem Accounting, with a suggested target of at least 60 countries implementing at least one account of the SEEA Ecosystem Accounting by 2025. A number of specific objectives were also identified in the Strategy:

- Initiating regular production of selected ecosystem accounts, starting from ecosystem extent accounts to ecosystem condition and ecosystem services in physical and monetary terms;
- Mainstreaming biodiversity and ecosystems into (sub)national policies with ecosystem accounting contributing to the necessary information;
- Use of the SEEA Ecosystem Accounting for monitoring and reporting in particular in National Biodiversity Strategies and Action Plans (NBSAPs), the Voluntary National Reports that present country progress towards achieving the SDGs, and the National Determined Contributions (NDCs) that present country progress towards climate targets and highlight the government actions and policies to combat climate change; and

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<sup>1</sup> See UNSC decision 53/115(b) in E/2022/24, available at <https://unstats.un.org/unsd/statcom/53rd-session/documents/2022-41-FinalReport-E.pdf>.

<sup>2</sup> Available at <https://seea.un.org/ecosystem-accounting>.

<sup>3</sup> Available at <https://unstats.un.org/unsd/statcom/53rd-session/documents/BG-3I-implementation-strategy-for-the-SEEA-ecosystem-accounting-E.pdf>.

- Dissemination of nationally produced ecosystem accounts through a global platform.

The Strategy takes a flexible and modular approach which considers policy priorities, data availability and institutional framework and covers implementation at different scales, at national as well as subnational levels. It provides suggested steps to be undertaken in setting up an implementation and mainstreaming programme at national level. It also identifies existing global initiatives and possible entry points to advance and promote SEEA Ecosystem Accounting implementation.

The Strategy stresses the importance for national statistical offices to establish collaboration with relevant stakeholders at the national level, including environment ministries, and develop a formalized institutional arrangement, which may vary depending on countries' situation, to support the implementation. International agencies support the implementation in countries through capacity building activities, providing in countries support and developing guidelines, training materials and tools (e.g. ARIES for SEEA) that allow countries to leverage global datasets for national implementation. In this context, it is important to note the significance of contextualizing global datasets to the national situation combining them with national data and bringing together experts from different disciplines.

### Finalization of the SEEA Ecosystem Accounting

The white cover (pre-edited text subject to official editing) version of the SEEA Ecosystem Accounting was published in September 2021 on the SEEA website. This version is complemented by a number of online supplements, including the *SEELand* stylized example of the core ecosystem asset and ecosystem services accounts, the ecosystem services logic chains, and the ecosystem services reference list crosswalk. The final text of the SEEA Ecosystem Accounting is currently undergoing the official UN process of editing and copy preparation and is expected to be published by the end of 2022. A co-publication agreement is being drafted and agreed among the co-publishing agencies.

### SEEA Ecosystem Accounting implementation working groups

In line with the Implementation Strategy, it was decided to organize the work into thematic areas and to approach the work incrementally. This approach was particularly pertinent due to its (a) direct link to policies – policy decisions are usually taken for specific thematic areas; (b) expertise – usually experts tend to focus on a particular thematic area and bringing together experts on biophysical measurements and valuation would benefit the advancement of an integrated measurement agenda; and (c) data – usually data and models for measuring extent, condition and services are similar for each thematic area and across the different accounts.

Considering the relevance of thematic areas and availability of experts to lead and participate, two Working Groups (WGs) have been established so far – (1) on forest ecosystem accounts and (2) on accounting for oceans. The WGs are intended to advance the measurement of the respective thematic areas and compilation of ecosystem accounts for those areas, including identification of best practices, global data sources and possible tools to support the implementation. In doing so, they will also address some methodological issues that emerge. Each group is expected to develop papers that will provide guidelines in implementation.

The main objectives of the WG on forest ecosystems are to contribute to the advancement of the measurement of forest ecosystem accounts, including identifying best practices, models, data and tools, looking at both biophysical and monetary aspects, as well as policy entry points for forest ecosystem accounts. The WG, led by Fernando Santos Martin (Rey Juan Carlos University, Spain), met 5 times between November 2021 and May 2022. It has addressed definitional issues on forest ecosystems, delimitation of forest Ecosystem Functional Groups in the IUCN Global Ecosystem Typology (which is the reference classification for ecosystem types in SEEA Ecosystem Accounting) and looked at how ARIES for SEEA can support the compilation of accounts for forest ecosystems. The group is in the process of establishing four task teams to deal with particular areas of interest: (1) extent accounts for forest ecosystems; (2) condition accounts for forest ecosystems; (3) carbon ecosystem service (both in physical and monetary terms) related to forest ecosystems; and (4) on policy and users for forest ecosystem accounts.

The main objective of the WG on oceans is to contribute to the development of SEEA Ocean. The scope of SEEA Ocean is intended to cover the ocean economy as well as coastal and marine ecosystems. As such, its scope includes aspects of both SEEA Central Framework and SEEA Ecosystem Accounting. In the short and medium terms, the WG will focus on analyzing gaps in current methodological knowledge on ocean accounting and producing technical note(s) that propose approaches and solutions to the selected issues of high priority. The WG, co-led by Jonathon Khoo (Australian Bureau of Statistics) and Crystal Bradley (Department of Agriculture, Water and the Environment, Australia), has met three times between February and May 2022. The WG has started by updating the research agenda for the development of SEEA Ocean, as well as considered how can oceans be better represented in the monitoring framework for the Post-2020 Global Biodiversity Framework. The WG further decided to set up three task teams to work on particular aspects related to the ocean accounts: (1) policy aspects; (2) data; and (3) ocean economy.

### Supporting the implementation of the SEEA Ecosystem Accounting

Several guidelines and training materials were developed to support the implementation of the SEEA Ecosystem Accounting. The Guidelines on Biophysical Modelling for Ecosystem Accounting<sup>4</sup> were published by UNSD and are intended to provide an overview of how biophysical modelling can be applied to facilitate the compilation of ecosystem accounts. A unique characteristic of ecosystem accounts is that they are underpinned by spatial data sets. Biophysical modelling can help to fill data gaps where information is not readily available and spatially allocate data that is not spatially explicit.

A technical report on Policy Scenario Analysis Using SEEA Ecosystem Accounting<sup>5</sup> was jointly published by the UNEP and UNSD. The objective of the report is to improve the effectiveness of decisions for sustainable development by highlighting how use of the ecosystem accounts in scenario analysis models can provide policymakers with a better understanding of the interconnections between society, economy and the environment, and hence lead to better decisions. In addition, an interim technical report for monetary valuation of ecosystem services and assets is being finalized and will be published shortly.

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<sup>4</sup> Available at: <https://seea.un.org/ecosystem-accounting/biophysical-modelling>.

<sup>5</sup> Available at: <https://seea.un.org/ecosystem-accounting/policy-scenario-analysis>.

A new set of e-learning modules on the SEEA Ecosystem Accounting, fully aligned with the SEEA Ecosystem Accounting, was developed in cooperation between UNSD and ESCAP's Statistical Institute for Asia and the Pacific (ESCAP/SIAP) and is freely available on the UN Global Platform.<sup>6</sup> The e-learning was used as a base for the global SEEA Ecosystem Accounting course led by ESCAP/SIAP and UNSD between April and June 2022,<sup>7</sup> as well as the regional course for Latin America and the Caribbean led by ECLAC and UNSD in May 2022.<sup>8</sup>

### ARIES for SEEA and the interoperability strategy for the next generation of SEEA accounting

Artificial Intelligence for Environment and Sustainability (ARIES) technology, an integrated, open-source modelling platform for environmental sustainability, was used for the development of the ARIES for SEEA Explorer application. This application allows users anywhere in the world to produce rapid, standardized, scalable and customizable ecosystem accounts for a selected area of interest that are consistent with the SEEA Ecosystem Accounting.

ARIES for SEEA was officially launched in April 2021 and has since been freely available via the SEEA website.<sup>9</sup> In the past year, ARIES for SEEA has been piloted in various countries, including the Philippines, Senegal and South Africa by UNSD as well as other countries by partner agencies. In addition, five countries members of the Gaborone Declaration for Sustainability in Africa will be trained on using ARIES for SEEA at a hands-on training that will take place in Kigali in July 2022.

Work is also on-going to improve the user experience of the ARIES for SEEA and to extend the coverage of classes for ecosystem extent accounts, improving the methodology for measuring ecosystem condition in forest ecosystems and developing a module for water accounts. The working groups on forest ecosystems and oceans are providing useful inputs for expanding the coverage and improving measurement in the ARIES for SEEA. The groups will also be instrumental in testing and experimenting with the tool.

In October 2021, UNSD, in collaboration with BC3 and UNEP, has published an interoperability strategy for the next generation of SEEA accounting.<sup>10</sup> The document paves the way toward implementing and scaling up the semantic web vision while taking open science to the next level. By making the data and models that underlie SEEA interoperable (able to work together with minimal effort), NSOs and the scientific community can advance sustainability science and practice by making it possible to rapidly integrate and share new scientific data and models. Doing so requires an understanding of the benefits of interoperability, the costs of the status quo, and concrete pathways toward community-endorsed approaches for interoperability.

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<sup>6</sup> Available at <https://learning.officialstatistics.org/course/view.php?id=78>.

<sup>7</sup> For more information see <https://seea.un.org/events/system-environmental-economic-accounting-%E2%80%93-ecosystem-accounting-seea-ea-e-learning-course>.

<sup>8</sup> For more information see <https://www.cepal.org/es/cursos/curso-linea-introduccion-la-contabilidad-ecosistemas-sistema-contabilidad-ambiental-economica>.

<sup>9</sup> Available at <https://seea.un.org/content/aries-for-seea>.

<sup>10</sup> Available at [https://seea.un.org/sites/seea.un.org/files/seea\\_interoperability\\_strategy.pdf](https://seea.un.org/sites/seea.un.org/files/seea_interoperability_strategy.pdf).

## Natural Capital Accounting and Valuation of Ecosystem Services (NCAVES)

The “Natural Capital Accounting and Valuation of Ecosystem Services (NCAVES)” project completed its activities in December 2021. The project was funded by the European Union and jointly implemented by UNSD, as overall lead, and UNEP, in close collaboration with the Secretariat of the Convention on Biological Diversity (SCBD). The project piloted the SEEA Ecosystem Accounting in the five participating partner countries, namely Brazil, China, India, Mexico and South Africa. Over its 5-year implementation period, the contributions of the NCAVES project have been far reaching, resulting in multi-scale impacts, both at the national and global levels.

In total 85 reports were compiled, the majority of which were developed in collaboration with national agencies, academia or governmental institutions and released by national statistical offices (NSOs) either as official statistics or as experimental estimates. All the reports are available on the SEEA website.<sup>11</sup> In terms of mainstreaming, the project promoted and fostered collaboration at the national level within the NSO as well with other governmental and non-governmental stakeholders, leading to more collaborative modalities of operation. Natural Capital Accounting national plans/roadmaps outlining the strategy and work plan on NCA have been developed for each of the 5 project countries as central part of the project activities, based on national assessments (on policy and/or data available).

The benefits of the project go well beyond the 5 project countries. Regional training, workshops, development of e-learning, guidelines, and technical material has contributed to developing capacity and generate interest in compiling ecosystem accounts at the global level. The NCAVES project was also instrumental to ensuring that Natural Capital Accounting was well recognized as an important statistical framework for the indicators in the monitoring framework of the Post-2020 Global Biodiversity Framework. The project had a small workstream on business accounting, under which a roadmap towards alignment between SEEA and private sector natural capital accounting has been developed. As part of the roadmap, two pilot studies (Lafarge Holcim, Spain) and (Ambuja Cement, India) have been undertaken.

The project established a knowledge base with publications on SEEA and NCA, as well as initiated the quarterly SEEA News and Notes newsletter, which has (as of December 2021) a readership of 2,000 people. A total of 118 activities and events were undertaken, with approximately 9,500 participants. Various events and activities such as national forums were organized specifically to disseminate the results of the project. As a result there were about 100 articles in various media about organized events and/or released reports.

## Advancing the research agenda of the SEEA Ecosystem Accounting – Valuation

The research agenda in the SEEA Ecosystem Accounting identifies a number of issues to be addressed. Some of the issues are issues of implementation or issues that would benefit from further testing and experimentation. The working groups on forest ecosystems and ocean accounting are addressing some of the issues as they arise.

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<sup>11</sup> See <https://seea.un.org/home/Natural-Capital-Accounting-Project>.

Valuation of ecosystem services and ecosystem assets is one of the most notable issue on the research agenda, which the UN Statistical Commission has identified as high priority. This issue is currently being addressed as part of the SNA update process and in particular by the group of SNA valuation principles. The group will address conceptual issues related to the valuation principles for non-market transactions, concerning for example marginal vs. average prices, consumer surplus, measures of economic welfare and their relationship to exchange values. It will also address valuation methodologies that can be applied where market prices/exchange values cannot be observed. A Guidance note on valuation is being drafted and will be circulated widely within the SEEA community.

## Update on the European Union Regulation from Eurostat

Eurostat has prepared a draft European Union Regulation that would make the mandatory compilation of (a subset of) SEEA Ecosystem Accounts in the EU Member States. This is part of a package of 3 new mandatory SEEA accounts, including also forest accounts and environmental subsidies. The proposal includes extent accounts, condition accounts and ecosystem services (in physical terms) for 7 services. Extent for 12 broad types of ecosystems and condition for a sub-set of 5 ecosystem types and 8 condition indicators in total. Ecosystem services in monetary terms are not in the regulation yet, but they may be activated with a 'fast track' legal procedure in the future.

The Eurostat proposal must now go through the normal legislative procedure in the European Parliament and the Council, a process that may take one or two years. The first data transmission to Eurostat may take place in 2026.

In parallel to the legal process, a Eurostat task force is drafting guidance notes to support EU Member States' compilation of the accounts. There will be guidance notes about extent, condition and the ecosystem services covered in the regulation. Other notes may be drafted later with second priority, provided there are resources. At a later stage, the task force may develop guidance on valuation techniques for the ecosystem services in monetary terms covered in the legal act. Eurostat will also launch a voluntary data collection in preparation of the mandatory one, and will continue offering grants to EU Member States.

## Questions to the Committee

Does the Committee agree with:

- 1) The programme of work of the Committee focusing on the SEEA implementation and addressing methodological issues as they arise, with the exception of valuation which is being discussed as a broader issue in the context of the SNA update. Are there additional priority areas that the SEEA Ecosystem Accounting should consider?
- 2) What are the countries' needs in the implementation of the SEEA Ecosystem Accounting?
- 3) How can the Committee better support the implementation of the SEEA Ecosystem Accounting in countries?