SITRA

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ECOSYSTEM ACCOUNTING IN FINLAND

Recommendations and Measures to Support Utilisation

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IUCN

Sitra memorandum

Ecosystem Accounting in Finland –
Recommendations and Measures to Support Utilisation

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Foreword

Europe and Finland are facing significant challenges. Major powers are using increasingly forceful means to pursue their own interests, technological competition is intensifying, and the economic outlook is overshadowed by uncertainty.

At the same time, Finland's economy is grappling with both short- and long-term challenges. It is weighed down by a prolonged period of stagnation, an ageing population and weak productivity growth. Taken together, these factors underline the need for the careful allocation of national economic resources.

Nature is a vital form of capital for the functioning of both the economy and society. The economy cannot operate without the natural resources, energy sources and countless essential services provided by nature, such as crop pollination and carbon sequestration. The importance of nature becomes even more apparent in times of crisis. A resilient and healthy natural environment helps to safeguard security of supply and strengthen societal resilience. It supports, for example, food security and our capacity to cope with the extreme weather events associated with climate change.

Nature therefore has not only intrinsic value but also immense economic value. It can be understood as essential biological infrastructure that underpins our society. However, if this biological infrastructure is to be used sustainably, it must first be measured. This is where natural capital accounting plays a crucial role.

Natural capital accounting extends the national accounts framework by providing countries around the world with a structured way to examine the importance of nature to the economy. At its core is the international statistical standard and recommendation for ecosystem accounting adopted by the United Nations Statistical Commission. It makes it possible to assess the condition of nature and the services it provides to people and the economy. It also supports the monetary valuation of nature's benefits and the inclusion of natural capital in the national balance sheet.

This report brings together the findings of a stakeholder process carried out in autumn 2025, during which representatives from ministries, research institutes, companies and interest groups identified ways in which ecosystem accounting could be utilised in decision-making. The process also produced ten recommendations for measures to support the use of

ecosystem accounting. The work was funded by the European Union via the Technical Support Instrument.

We hope that this report will contribute to the development of natural capital accounting in Finland so that it can be used increasingly in support of decision-making, thereby strengthening the foundations of future well-being.

We would also like to extend our warm thanks to the experts who contributed to this work, to the International Union for Conservation of Nature and Natural Resources (IUCN) for cooperation, and to the EU for funding the process.

Lasse Miettinen
Director, Programmes

Summary

This report summarises the results of a stakeholder process carried out in Finland in autumn 2025. In the process, representatives from ministries, research institutes, companies and interest organisations identified various decision-making contexts in which ecosystem accounting data (SEEA EA) could be utilised.

Many of the identified use cases relate to risk analyses in the public, private and financial sectors, such as scenario analyses examining the impacts of nature-related risks. In the public sector, potential applications were also identified in supporting assessments of fiscal sustainability, cost– benefit analyses and impact assessments, as well as in underpinning national strategies and targets. In addition, use cases were identified in land-use planning processes.

The stakeholder process produced ten recommendations to support the use of ecosystem accounting in Finland. To place user needs at the centre of ecosystem accounting development, the report recommends establishing a working group, developing a roadmap, and implementing pilot projects. The proposed measures also promote the continuity of data production, data availability, effective communication, the utilisation of synergies, cooperation among key actors in environmental statistics, and knowledge exchange in international forums.

In addition, drawing on the findings of the stakeholder process and a literature review, the report outlines a concept for possible ecosystem accounting in Finland. The concept describes an approach through which Finland could advance the integration of ecosystem accounting into decision-making.

For ecosystem accounting data to be effectively used in decision-making in Finland, further development requires a clear mandate, adequate resources, and clearly defined responsibilities. Commitment of political decision-makers and the leadership of key organisations support the fulfilment of these preconditions.

When properly implemented and utilised, ecosystem accounting can serve as a key tool for strengthening the evidence base for decision-making and enable Finland and Finnish organisations to contribute to nature-positive outcomes and to the implementation of the Kunming–Montreal Global Biodiversity Framework (GBF).

Tiivistelmä

Tämä raportti kokoaa yhteen Suomessa syksyllä 2025 toteutetun sidosryhmäprosessin tulokset. Prosessissa ministeriöiden, tutkimuslaitosten, yritysten ja etujärjestöjen edustajat tunnistivat erilaisia päätöksentekotilanteita, joissa ekosysteemitilinpidon (SEEA EA) tietoja voitaisiin hyödyntää.

Monet tunnistetuista käyttökohteista liittyvät riskianalyyseihin julkisella sektorilla, yksityisellä sektorilla ja rahoitusalalla – kuten skenaarioanalyyseihin, joissa tarkastellaan luontoon liittyvien riskien vaikutuksia. Julkisella sektorilla mahdollisiksi käyttökohteiksi tunnistettiin myös julkisen talouden kestävyyden arvioinnin tukeminen, kustannus–hyötyanalyysit ja vaikutusarvioinnit sekä kansallisten strategioiden ja tavoitteiden tukeminen. Lisäksi käyttömahdollisuuksia tunnistettiin maankäytön suunnitteluprosesseissa.

Sidosryhmäprosessi tuotti kymmenen toimenpidesuositusta ekosysteemitilinpidon hyödyntämisen tukemiseksi Suomessa. Jotta käyttäjien tarpeet saataisiin ekosysteemitilinpidon kehittämisen keskiöön, raportissa suositellaan työryhmän perustamista, tiekartan laatimista sekä pilottihankkeiden toteuttamista. Ehdotetut toimenpiteet edistävät myös tiedon tuotannon jatkuvuutta, tietojen saatavuutta, vaikuttavaa viestintää, synergioiden hyödyntämistä ja yhteistyötä ympäristötilastojen keskeisten toimijoiden kanssa sekä tiedonvaihtoa kansainvälisillä foorumeilla.

Lisäksi raportissa hahmotellaan sidosryhmäprosessin havaintojen ja kirjallisuuden perusteella konsepti mahdolliselle ekosysteemitilinpidolle Suomessa. Konsepti kuvaa lähestymistavan, jonka avulla Suomi voisi edistää ekosysteemitilinpidon integroimista päätöksentekoon.

Jotta ekosysteemitilinpidon tietoa voidaan hyödyntää tehokkaasti päätöksenteossa Suomessa, kehittämistyö tarvitsee selkeän mandaatin, riittävät resurssit ja selkeästi määritellyt vastuut. Näiden edellytysten toteutumista tukee poliittisten päättäjien ja keskeisten organisaatioiden johdon sitoutuminen.

Oikein toteutettuna ja hyödynnettynä ekosysteemitilinpito voi toimia keskeisenä välineenä päätöksenteon tietopohjan vahvistamisessa sekä mahdollistaa Suomen ja suomalaisten organisaatioiden toimia luontopositiivisuuden edistämiseksi ja Kunming–Montrealin maailmanlaajuisen luonnon monimuotoisuuskehyksen (GBF) toimeenpanemiseksi.

Sammanfattning

Denna rapport sammanfattar resultaten av en intressentprocess som genomfördes i Finland hösten 2025. I processen identifierade representanter för ministerier, forskningsinstitut, företag och intresseorganisationer olika typer av beslutsfattandesituationer där data från ekosystemredovisning (SEEA EA) kan utnyttjas.

Många av de identifierade användningsområdena är kopplade till riskanalyser inom den offentliga sektorn, den privata sektorn och finanssektorn, till exempel scenarioanalyser där effekterna av naturrelaterade risker bedöms. Inom den offentliga sektorn identifierades även potentiella användningsområden såsom bedömningar av de offentliga finansernas hållbarhet, kostnads-nyttoanalyser och konsekvensbedömningar samt uppföljning och genomförande av nationella strategier och mål. Därtill identifierades användningsmöjligheter inom processer för planering av markanvändning.

Intressentprocessen resulterade i tio åtgärdsrekommendationer för att stödja användningen av ekosystemredovisning i Finland. För att sätta användarnas behov i centrum för utvecklingen av ekosystemredovisningen rekommenderas det i rapporten att en arbetsgrupp inrättas, att en färdplan tas fram och att pilotprojekt genomförs. De föreslagna åtgärderna bidrar även till kontinuitet i dataproduktionen, förbättrad tillgång till data, effektiv kommunikation, utnyttjande av synergier och samarbete med centrala aktörer inom miljöstatistiken samt till informationsutbyte via internationella forum.

Baserat på observationer från intressentprocessen och relevant litteratur utformas i rapporten ett koncept för ett möjligt genomförande av ekosystemredovisning i Finland. Konceptet beskriver ett tillvägagångssätt för hur Finland kan främja en integrering av ekosystemredovisning i beslutsfattandet.

För att informationen från ekosystemredovisningen ska kunna användas effektivt i beslutsfattandet i Finland krävs ett tydligt mandat, tillräckliga resurser och klart definierade ansvarsområden. Uppfyllandet av dessa förutsättningar stöds av ett engagemang från politiska beslutsfattare och ledningen för centrala organisationer.

Om ekosystemredovisning genomförs och används på ett ändamålsenligt sätt kan den fungera som ett centralt verktyg för att stärka beslutsfattandets kunskapsunderlag. Därtill kan den möjliggöra åtgärder för att främja naturpositiv utveckling i Finland och finländska organisationer samt bidra till att verkställa Kunming-Montreal-ramverket för global biologisk mångfald (GBF).

1. Context and aim of the project

The Kunming–Montreal Global Biodiversity Framework (GBF) calls on countries to prepare National Biodiversity Finance Plans. The project "Support for the assessment of environmentally harmful subsidies (EHS) and for the preparation of national biodiversity finance plans in Belgium, Finland, Luxembourg, and the Netherlands", implemented under the European Union Technical Support Instrument, supports the participating countries in developing comprehensive biodiversity finance plans. Several activities are carried out in each country to support the preparation of the plans.

This report summarises the results of one of the project's activities in Finland, titled "Recommendations for ecosystem data governance (ecosystem accounting) in Finland".

The aim was to develop and propose enabling measures for Finland to use ecosystem data in budgeting practices, and more broadly in decision-making, to support cost-effective flow of biodiversity funding and the implementation of GBF. Summarised in a final report, the work will help define what the "Finnish model" of environmental and ecosystem accounting could be. The model or concept takes into account national needs as well as EU reporting requirements (Regulation (EU) 2024/3024).

The project activities included:

- Outlining a concept for possible ecosystem accounting in Finland.
- Organizing and supporting a cross-sectoral government discussion and cooperation, including with Statistics Finland as the National Statistical Agency, on environmental and ecosystem accounting. In this context, organise workshops and interviews across government organisations and ministries and Finnish research community.
- Proposing recommendations for further improving ecosystem data governance and ecosystem accounting, including data access for public and private actors and for key applications of ecosystem accounting data for public and private actors.
- Developing a report with the findings and recommendations.

In practice, the project was carried out as a stakeholder process, consisting of a round of interviews, a workshop, and commenting on and finalising the recommendations for measures. During the planning phase of the process, key stakeholders were consulted (Statistics Finland, ministries,

research institutes), and their views were requested on what should be taken into account to make the process support Finnish actors as effectively as possible.

The interviews gathered the stakeholders' views on the topic, which supported the workshop preparations. The workshop facilitated cross-sectoral discussion and cooperation in practice. In the workshop, the stakeholders were given the task of co-creating recommendations for enabling measures. Based on the literature, interviews, workshop, and the subsequent discussions on finalising the recommendations, a concept for possible ecosystem accounting was outlined by Sitra.

The report is organised as follows. Chapter 2 briefly presents the international ecosystem accounting framework (System of Environmental-Economic Accounting – Ecosystem Accounting, SEEA EA) and discusses its links to policy and business decision-making. Chapter 3 briefly introduces Finland's recent and ongoing work and examples of applying ecosystem accounting information in other countries. Findings from the interviews and workshop are discussed in Chapter 4. Chapter 5 illustrates a concept for possible ecosystem accounting in Finland. Chapter 6 presents the recommendations for action, and Chapter 7 concludes.

2. Ecosystem accounting

2.1 The System of Environmental-Economic Accounting – Ecosystem Accounting (SEEA EA)

The System of Environmental-Economic Accounting – Ecosystem Accounting (SEEA EA) is an integrated and comprehensive statistical framework developed for the systematic organisation of data on ecosystems – such as different habitats – and ecosystem services, for tracking changes in them, and for linking this information to economic activities. The framework has been developed to respond to diverse policy needs and challenges, and its central aim is to highlight the contribution of nature to economic activity and human well-being. A plain-language description of ecosystem accounting and examples of its development in different countries can be found in Finnish in Sitra's working paper published in 2024 (Sitra 2024).

The SEEA EA provides a structured approach to measure the extent and condition of ecosystems, the physical and monetary flows of ecosystem services they generate, and the monetary value of ecosystem assets, organised into five core accounts:

1. ecosystem extent,
2. ecosystem condition,
3. ecosystem services flow (physical terms),
4. ecosystem services flow (monetary terms), and
5. Monetary ecosystem asset.

The framework employs a spatially explicit approach, mapping ecosystem assets and service flows to their locations and beneficiaries. The accounts can be presented as tables and maps.

The United Nations Statistical Commission adopted the SEEA EA in 2021 after extensive testing. The framework and physical ecosystem accounts were adopted as an international statistical standard, and the chapters describing the monetary valuation of ecosystem services and assets were recognised as "internationally recognised statistical principles and recommendations" (United Nations et al. 2024).

The ecosystem accounting data are structured to be consistent with the System of National Accounts. By expressing nature's contributions also in monetary terms, ecosystem accounting allows the value of ecosystem services to be considered, among other factors, in economic decision-making and environmental policy. Governments and analysts use ecosystem accounts to, for instance, monitor changes in ecosystems and ecosystem services over time, evaluate environmental degradation or

improvements, and integrate environmental considerations into economic assessments and national reporting.

The SEEA EA complements the System of Environmental-Economic Accounting – Central Framework (SEEA CF). The SEEA CF, adopted by the United Nations Statistical Commission in 2012, is an international statistical standard for measuring how the environment interacts with the economy. It covers environmental flows – the movement of natural inputs, products, and residuals between the environment and the economy – and stocks of environmental assets, such as water and energy resources, accounting for how these assets change over time due to economic activity and natural processes. The framework also encompasses economic activities related to the environment, tracking monetary flows such as spending on environmental protection and resource management and the production of environmental goods and services (United Nations et al. 2014). Currently, the SEEA CF is being updated, with the aim of having it adopted by the United Nations Statistical Commission in 2028 (IDEEA Group 2026).

The UN carries out global assessments to evaluate the progress of implementation of the SEEA in countries. Based on the findings of the 2025 Global Assessment, the SEEA has been implemented by 98 countries (United Nations 2026). Among these countries, 49 have compiled SEEA EA core accounts.

2.2 Links to policy and business applications

Ecosystem accounts directly support the production of indicators related to the goals of Kunming-Montreal Global Biodiversity Framework (GBF) and the Sustainable development Goals (SDG) (see Box 1). SEEA EA can also be used in scenario analysis to support policymaking (United Nations 2021). Combining backward-looking ecosystem accounts with forward-looking models helps decision-makers understand links between society, the economy, and the environment, enabling more informed decisions.

One example of the use of ecosystem services data and economic modelling in a decision-making context is the cost–benefit analysis of restoration carried out in the Thukela River catchment in South Africa for the period 2021–2030 (Turpie et al. 2021). Another example is a scenario analysis in China using the SEEA framework in relation to the ecological compensation system (Chinese Academy of Sciences 2020). In addition, for example, the World Bank and the European Commission's Joint Research Centre (JRC) have published reports on the use of ecosystem accounting data in macroeconomic analyses (World Bank 2025; Rokicki et al. 2024; La Notte et al. 2020).

For EU member states, Regulation (EU) No 691/2011 established a common framework for compiling European environmental economic accounts. In 2026, EU member states will report ecosystem accounts in line with SEEA EA for the first time (Regulation (EU) 2024/3024). The reported statistics will include ecosystem extent (divided into 12 ecosystem types), eight indicators describing ecosystem condition, and seven ecosystem services in physical terms.

In addition to serving public decision-making, the SEEA ecosystem accounts support several efforts in business decision-making. For instance, in 2025 the International Organisation for Standardisation (ISO) published the standard "Natural Capital Accounting for Organisations" (ISO 14054:2025). It provides guidance for natural capital accounts that show how an organisation impacts nature and depends on it. This helps understanding performance and risks better. Its predecessor, the British standard "Natural Capital Accounting for Organizations" (BS 8632), was published in 2021 (British Standards Institution 2021).

Also The TNFD framework (Taskforce on Nature-related Financial Disclosures), for example, which helps businesses identify, manage and report their impacts and dependencies on nature, as well as related risks and opportunities, draws on the SEEA EA definitions and classifications of ecosystems and their condition (TNFD 2023).

BOX 1.

Ecosystem accounting supports the monitoring of the Kunming–Montreal Global Biodiversity Framework (GBF) and the Sustainable Development Goals (SDGs)

The Kunming–Montreal Global Biodiversity Framework's key elements include four goals for 2050 and 23 targets for 2030 (CBD 2022). In addition, ecosystem accounting information directly supports monitoring the following GBF goals and targets:

- Extent of natural ecosystems (Goal A)
- Services provided by ecosystems (Goal B and Target 11).

Furthermore, ecosystem accounting information is related to Target 14 (Integrating biodiversity in decision-making) and Target 19 (International public funding, including official development assistance, domestic public funding, and private funding on conservation and sustainable use of biodiversity and ecosystems) (UNEP-WCMC 2025).

The Sustainable Development Goals, adopted by the UN in 2015, are a global call to action for all countries to foster prosperity while safeguarding the planet. The SDGs consist of 17 interconnected goals with a total of 169 targets.

SEEA EA can directly support the calculation of at least 4 indicators for monitoring (UNSD 2020):

- Forest area as a proportion of total land area (SDG 15.1.1)
- Proportion of land that is degraded over total land area (SDG 15.3.1)
- Change in the extent of water-related ecosystems over time (SDG 6.6.1)
- Average share of the built-up area of cities that is open space for public use for all, by sex, age, and persons with disabilities (SDG 11.7.1).

3. Recent and ongoing work in Finland and other countries

EU Member States are required to report ecosystem accounts for the first time in 2026. In Finland, Statistics Finland is working in close cooperation with organisations involved in data production and is further developing statistical production processes to meet this requirement.

Ecosystem accounting has also been actively advanced in Finland through a range of research projects. A comprehensive list of projects and scientific publications is available on the website of the Finnish Environment Institute (Syke 2025). For example, the Finnish Ecosystem Observatory project (2020–2024) examined how an ecosystem extent account, together with two ecosystem service accounts (nature-based tourism and global climate regulation), could be compiled using available national data, and identified development needs related to both data and methodologies (Vihervaara et al. 2024). At the time of writing, the ECOFLOW project funded by Eurostat is ongoing, aiming, inter alia, 1) to develop the statistical production system for ecosystem accounts, and 2) to assess the feasibility of monetary valuation of ecosystem services and the implementation of ecosystem service accounts in marine environments.

Data compiled in accordance with the ecosystem accounting framework on ecosystem extent and ecosystem services have also been utilised in Finland's seventh national report under the Convention on Biological Diversity (CBD) (Ministry of the Environment 2026).

In addition to national ecosystem accounts, municipal-level ecosystem accounting has been developed in Finland based on the specific needs of municipalities. Pilot implementations have been carried out in Espoo, Helsinki, Pirkkala and Tampere (see Kopperoinen et al. 2022; Syke 2024). In preparing these accounts, municipalities' own datasets have been used to achieve a sufficiently high level of spatial detail. For instance, assessing the cooling effects provided by individual trees requires data in which individual trees can be identified. However, municipal land use and land cover datasets do not necessarily follow the same ecosystem type classification applied in national ecosystem accounting.

Natural capital accounting is also attracting increasing interest among private sector actors. Finnish companies are participating in the International Sustainable Forestry Coalition (IFSC) initiative "Forestry Natural Capital Project" (IFSC 2025). The project focuses on seven selected ecosystem services and aims to develop a harmonised methodology for

measuring them across the forestry sector. The results of the project are expected to be completed by the end of 2026.

Another example of ongoing international work involving Finnish experts, companies and organisations is the Circhive project, coordinated by the Natural Resources Institute Finland. Launched in 2023, Circhive is a five-year Horizon Europe project that seeks to support both companies and the public sector in different countries in measuring and reporting the value of nature. The project develops methods to integrate two complementary approaches—nature footprint assessment and natural capital accounting (Circhive 2023).

During the stakeholder process conducted in autumn 2025, several examples of the use of ecosystem accounts in other countries were also identified. In Estonia, national data on ecosystem types and their condition have been used, for example, to identify suitable locations for wind power development (Estonian Environment Agency 2025). In the Netherlands, data produced by the national statistical authority have been applied, inter alia, to analyse green spaces and ecosystem services at the municipal level, as well as to assess developments in gross domestic product and ecosystem services through scenario analyses (Schenau, seminar presentation, 30 October 2025). In Norway, ecosystem accounting is being developed at multiple scales, including national, municipal and project-specific levels (for example, in renewable energy and transport projects) (Randen and Grimsrud 2025).

4. Findings from the stakeholder interviews and workshop

4.1 Stakeholders involved

The stakeholder process comprised an interview round, a workshop, and the review and finalisation of policy recommendations. Prior to the process, organisations in Finland that could potentially utilise ecosystem accounting information, as well as those involved in the production of ecosystem accounts, were identified. The preliminary list was further refined through consultations with key stakeholders (Statistics Finland, ministries, and research institutes) before invitations were issued. Invitees received a single invitation covering both the interviews and the workshop. Responses were received from all invited parties. Most organisations participated in both the interviews and the workshop; however, a small number did not attend the workshop.

The number of interviews was limited to 18 due to time and resource constraints. Municipalities were not represented in the stakeholder process, although they are important actors at the regional level. At the same time, a separate project was underway in which ecosystem accounting was being piloted in Finnish municipalities (Syke 2024, see Chapter 3). Regional perspectives were included through the participation of one regional council.

In total, 18 interviews were conducted between September and November 2025. The organisations interviewed included:

- Five ministries: the Ministry of Finance, the Prime Minister's Office, the Ministry of the Environment, the Ministry of Agriculture and Forestry, and the Ministry of Economic Affairs and Employment;
- Three universities or research institutes: Natural Resources Institute Finland (Luke), Finnish Environment Institute (Syke), and the University of Eastern Finland;
- Four other public organisations: Statistics Finland, Pirkanmaa Regional Council, the Bank of Finland, and Metsähallitus;
- Three trade and industry associations: MTK, Finnish Energy, and the Confederation of Finnish Construction Industries;
- Two companies: Stora Enso and Metsä Group; and
- One environmental non-governmental organisation: WWF Finland.

The interviews were conducted as semi-structured interviews. They commenced with a discussion of examples of situations in which the organisation typically makes use of nature-related data. The main themes of the interviews were:

1. Potential use cases and benefits of ecosystem accounting;
2. Challenges hindering the use of ecosystem accounting information; and
3. Ways to support the use of ecosystem accounting information in practice.

In addition, organisations involved in the production of ecosystem accounts were asked to provide their views on issues related to the production of ecosystem accounting.

The following sections (4.2–4.5) present the key findings that emerged from the interviews, organised by theme. Observations arising from the workshop have also been incorporated. During the workshop, participants co-developed recommendations for measures to support the use of ecosystem accounting in decision-making in Finland (see the description of the workshop and the recommendations in Chapter 6).

4.2 Potential uses and benefits of ecosystem accounts

In most interviews, the potential of ecosystem accounting to make changes in ecosystems, as well as ecosystem services and their changes, visible in a concrete and measurable way was emphasised. The monetary valuation of ecosystem services was also considered important, for example when assessing different policy or management options.

Risk analysis and risk management in the public sector, businesses and the financial sector were identified as areas where ecosystem accounting could provide useful information. Practical examples mentioned included forward-looking scenarios and the assessment of different types of shocks (e.g. damage to soils or forests).

For the public sector, potential applications included cost–benefit analysis, comparison of options (e.g. in spatial planning) and impact assessment (e.g. in support of legislative drafting). In addition, ecosystem accounts could provide useful information for monitoring national strategies and targets. Examples mentioned in the interviews included the minerals strategy, the bioeconomy strategy, climate change adaptation and invasive alien species. Various reporting frameworks were also highlighted, such as the Kunming–Montreal Global Biodiversity Framework and the Sustainable Development Goals (SDGs) (see also Chapter 2).

Figure 1. Potential applications of ecosystem accounting mentioned in the interviews

In general: making ecosystem services, ecosystem changes and benefits visible (also in monetary terms)

Public sector

- Cost-benefit analyses, comparison of alternatives (land use changes), impact assessments (policy design)
- National strategies and objectives (e.g. mineral strategy, bioeconomy strategy, climate change adaptation, invasive alien species)
- Land use planning at different levels (e.g. counties)
- Reporting (e.g. GBF, SDG)

Private sector

- Planning of investments related to land use (e.g. construction, mines)
- Utilisation of statistics as a reference level

Risk analyses (scenarios, assessments of shocks, e.g. soil, forest damages)

- e.g. assessment of sustainability of public finances, business and financial sector risk management

The information needs of the private sector regarding nature are diverse (e.g. risk management, long-term strategic planning), and national ecosystem accounting may not directly meet all corporate information needs. Nevertheless, national ecosystem accounts can provide useful information for businesses, for example in planning land-use-related investments (e.g. construction, mining), or national statistics can be used as benchmarks. Cooperation between the public and private sectors was considered particularly valuable, especially in relation to definitions and different stages of data production, as this would enhance interoperability and the use of data. As an example of private sector development work, the ongoing International Sustainable Forestry Coalition's "Forestry Natural Capital Project" pilot was mentioned (IFSC 2025).

Both the interviews and the workshop showed that in Finland there is still little practical experience in using ecosystem accounts in real decision-making situations. Despite this, the interviewees identified several potential use cases in the ways described above. Figure 1 brings together the potential use cases identified in the interviews.

The interviews also raised, as points for reflection, possible applications about which there was less certainty. For example, participants considered whether ecosystem accounts could support the planning of the location of restoration measures or provide coarse-level baseline information for identifying areas suitable for ecological compensation.

Ecosystem accounts were also seen as a complementary knowledge base for examining biodiversity loss and climate change at the same time.

In addition, it was considered whether ecosystem accounting data could support the assessment of significant harmful impacts in line with the DNSH (do no significant harm) principle. For the financial sector, questions were raised as to whether ecosystem accounts could in the longer term support the setting of banks' capital buffer requirements, and whether information accumulated through companies' reporting obligations, combined with nature risk analyses enabled by ecosystem accounts, could affect, for example, the terms of loans granted to companies.

With regard to public finances, it was noted that an ex post assessment of the Finnish state budget is carried out annually from the perspective of the Sustainable Development Goals. For example, the Parliament's Committee for the Future has used SDG assessments in its work.

4.3 Barriers to effective use

In the interviews, one of the key challenges for the use of ecosystem accounting was seen as users' low awareness of the topic. This was regarded as natural, since the theme is relatively new. As practical experience accumulates, awareness is expected to gradually strengthen. Workshop discussions also noted that the introduction of new tools takes time.

The scarcity of resources was seen as a challenge from the perspective of both data users and data producers. In addition, it was noted that no actor has been clearly designated within central government to lead the development of ecosystem accounting (for example a responsible ministry). Ensuring the production of key source datasets required for ecosystem accounts, such as CORINE land cover data, was considered important.

All interviews also raised general challenges related to the use of data, such as the coverage of datasets, timeliness, comparability (over time and between countries), the functioning of technical interfaces, and the resolution of available spatial data. For example, planning related to land use requires information at a sufficiently accurate level.

4.4 Enabling the use of ecosystem data in practice

A number of ideas were put forward in the interviews to promote the use of ecosystem accounting information. First, it was noted that the awareness and understanding of decision-makers and civil servants could be strengthened by facilitating dialogue between users and producers of data. Such dialogue would also help to better identify user needs.

Second, it was considered important to respond to the diverse needs of users—some require raw data, while others value more interpreted outputs (such as policy briefs).

Third, there was a call to improve the clarity of communication on ecosystem accounting and to adopt a more positive framing. Fourth, several interviewees emphasised the importance of continuity: long-term resourcing is needed for the development and production of statistics, as well as for maintaining time series. Establishing more permanent forms of cooperation between organisations was also seen as beneficial, in order to reduce reliance on individual experts.

Fifth, it was noted that as ecosystem accounting information becomes available as official statistics, further development work will be needed to support its application in macroeconomic models. For example, an ecological macroeconomic model is currently being developed within the SISU research project (SISU 2023; see also Chapter 2.2).

4.5 Perspectives on data production

According to the interviewees, the cost-efficiency of the production of ecosystem accounts could be improved if data collected across different processes were utilised for multiple purposes. One interview also highlighted the potential of citizen science in supporting data production: for example, photographs taken by individuals and linked with geospatial information could complement other datasets. Workshop discussions likewise emphasised the potential of new technologies in cost-effective data production (e.g. remote sensing and artificial intelligence).

Some interviewees also considered how data produced by a single actor (e.g. a company or landowner) could, in the future, be integrated into ecosystem accounting information, and with what time lag. In this context, the possibility of monetary compensation for data produced by private actors was also raised. Issues related to the sharing of data from privately owned land were also noted: not all landowners may wish, for example, for locations of high recreational value on their land to be made publicly available as geospatial data. In the publication of statistics, it is established practice to present data at a level that prevents identification of individual persons or properties.

From 2026 onwards, the ecosystem accounts reported to Eurostat are based on a relatively aggregated classification of 12 ecosystem types. This classification is aligned with the SEEA EA reference classification, namely the IUCN Global Ecosystem Typology. However, SEEA EA recommends the use of more detailed classifications where data allow, in order to ensure that the accounts are fit for a wide range of purposes.

One interview raised the question of whether national ecosystem accounts could distinguish between different categories of land ownership, such as state-owned land and other areas.

It was also noted that, in the current security context, maps made openly available online may pose security risks; this risk should therefore also be assessed in relation to data published as part of ecosystem accounting.

In some interviews, suggestions were made to implement ecosystem accounting in Finland beyond the minimum requirements of EU regulation, in order to provide more useful information to support decision-making. For example, including marine ecosystems in the national accounts was considered beneficial (pilot accounts for the extent and condition of marine ecosystems have already been developed in Finland; see Virtanen et al. 2024), as was expanding the list of ecosystem services to include, for instance, water purification.

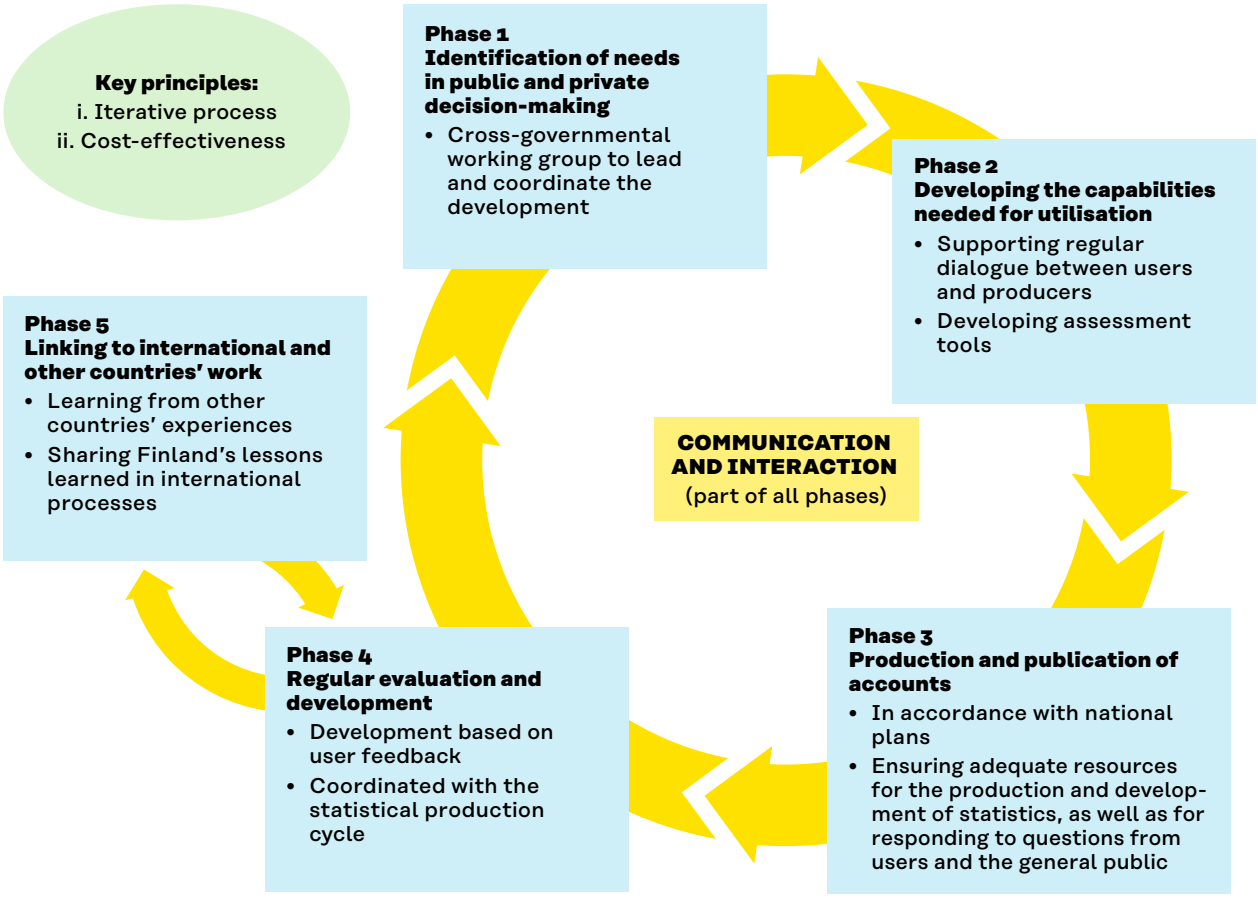
One interview also emphasised the need to further develop ecosystem accounting so as to enable analysis of interactions between ecosystem condition and ecosystem services. In this context, the importance of developing the fifth core account of SEEA EA—the ecosystem asset account—was highlighted. Several interviews also referred to the inclusion of monetary estimates of ecosystem services as part of the national accounts.

5. Concept for possible ecosystem accounting in Finland

This chapter describes a possible ecosystem accounting approach for Finland. In addition to the findings of the stakeholder process, the UN Ecosystem Accounting framework (United Nations et al. 2024) and the Implementation strategy for the SEEA Ecosystem Accounting (United Nations 2022) have been used as key sources.

The key principle of the approach is to proceed in stages and iteratively: start with small steps and develop the system step by step. Another important principle is cost-effectiveness in data production and utilisation. Cost-effectiveness can be strengthened e.g. by utilising the nature data that is produced for all meaningful purposes.

Figure 2. A concept for possible ecosystem accounting in Finland



The concept phases 1–5 are briefly described below.

1. Identification of use needs in public and private decision-making
In the development and implementation of ecosystem accounting, the first step is to identify user needs, that is, the decision-making situations and processes in which the data will be used (for example land-use planning, risk analyses, and scenario analyses). User needs exist in both the public and the private sectors.

Once user needs have been identified, it is possible to assess how well data production in line with EU-level regulation responds to those needs and what additional information might be useful. Useful information may include, for example, nature data that are already being collected or a broader examination of ecosystem services. In addition, the Central Framework of environmental-economic accounting (SEEA CF) provides relevant information for many situations, so the analysis should also take into account the information provided by the Central Framework.

In practice, a cross-governmental working group could lead and coordinate the identification and development of user needs (see Recommendation 1 in Chapter 6). The working group could consist of representatives of key ministries, Statistics Finland and other producers of statistics (for example the Natural Resources Institute Finland and the Finnish Environment Institute), as well as research organisations. The working group could also lead the preparation of a roadmap (Recommendation 2 in Chapter 6), in which stakeholders would be broadly involved, including companies, regions, and municipalities, so that their needs would also be taken into account.

2. Developing the capabilities needed for utilisation
Once user needs have been identified, it is also possible to identify the key organisations that will use the data (for example ministries). A precondition for the use of data is that key people, such as political decision-makers and civil servants, are aware of ecosystem accounting.

Users' awareness can be supported through regular dialogue between data users and producers. Dialogue also supports users' understanding of the opportunities for using the data and practical issues related to it, and helps data producers better understand users' needs. Dialogue requires enabling structures, and a cross-governmental working group could play a central role in maintaining them (see Recommendation 1 in Chapter 6).

The use of ecosystem accounts data also requires various assessment and modelling tools, for example for scenario analyses. Identifying and developing suitable tools is essential for supporting the use of ecosystem accounting. Key actors in this work may include ministries, universities, and research institutes.

3. Production of SEEA EA and other relevant accounts, and publication of statistics

The production of statistics is carried out in accordance with national plans and processes. Adequate resources for the production of statistics and data are important for providing high-quality information to users. New technologies, such as remote sensing and artificial intelligence, are also likely to offer opportunities to improve the production of statistics, for example by enabling ecosystem accounts to be produced more cost-effectively and/or more comprehensively in the future.

In addition to regular statistical releases, communication about them and responding to questions from users and the general public strengthen awareness and understanding of ecosystem accounting.

In phase 3, the key actors are Statistics Finland and other organisations involved in the production of statistics, as well as the Ministry of Finance, under whose administrative branch Statistics Finland operates.

4. Regular evaluation and development

A process timed appropriately to the statistical production cycle, with the aim of evaluating and developing statistical production and the usability of data on the basis of user feedback.

The key actors may include the cross-governmental working group, Statistics Finland, and other organisations involved in the production of statistics.

5. Linking to international and other countries' development work

Active participation in discussion and cooperation in key international forums (for example the EU Task Force on Ecosystem Accounting and other working groups), as well as bringing relevant experiences to Finland. In addition, Finland's experiences and recommendations should be shared in international processes.

Key actors may include several ministries in their respective international forums, as well as Statistics Finland.

Communication and interaction (part of all phases)

Effective communication and interaction are needed especially to increase awareness among users and among those who influence the preconditions for the use of ecosystem accounting, and to improve understanding of the decision-making situations in which ecosystem accounts data are particularly useful.

Strategic communication planning could form part of the responsibilities of the cross-governmental working group. All actors linked to ecosystem accounting can have an active role in operational communication.

6. Recommendations for enabling measures

A key output of the stakeholder process was the list of ten recommendations outlining measures to support the use of ecosystem accounting in decision-making.

Stakeholders developed the ideas for these recommendations through group work during the workshop. The workshop programme also included presentations by Statistics Netherlands (CBS) and Statistics Finland, as well as a presentation of the findings from the interviews.

Following the workshop, Sitra compiled a preliminary set of recommendations and circulated them to participants for comment. Based on the feedback received, a revised version of the recommendations was prepared and discussed in a meeting with representatives from ministries, Statistics Finland and research institutes. The recommendations were subsequently finalised by Sitra, taking into account the observations raised during the meeting and the subsequent email exchange.

Table 1. Recommendations for measures to support the utilisation of ecosystem accounts

Theme or recommendation number	Theme or recommendation	Links to concept phase # (Chapter 4)
Theme I: Identifying needs and integrating ecosystem accounting into decision-making		
Recommendation 1	Establish a cross-governmental working group to coordinate the use and development of ecosystem accounting based on national needs, involving both data users and data producers broadly.	1, 4
Recommendation 2	Develop a phased roadmap for the use and further development of ecosystem accounting over the next few years, in collaboration with a broad range of stakeholders (e.g. regions and municipalities, businesses and financial institutions).	1–5
Recommendation 3	Identify the decision-making processes and information needs of ministries and other key users in which ecosystem accounting can be applied (e.g. risk assessments) and implement pilot projects in these areas.	1, 2
Theme II: Continuity of data production		
Recommendation 4	Identify the key source data required for producing ecosystem accounts (e.g. land use and land cover data) and ensure sufficient resources for their production.	3
Recommendation 5	Ensure adequate resources for the production and further development of statistics, as well as for providing expert support to users, taking national use needs into account.	3
Theme III: Access to data		
Recommendation 6	Publish ecosystem accounting data at the most detailed level possible together with metadata, while taking data protection and data security into account, and document the methods and source materials used.	3
Recommendation 7	Based on user needs, assess which actions would be particularly useful for improving data availability and usability.	4
Theme IV: Effective communication		
Recommendation 8	Increase awareness among decision-makers and civil servants of the benefits and potential of ecosystem accounting, for example through a joint communication campaign by different actors in 2026.	Communication
Theme V: Other recommendations		
Recommendation 9	Identify and actively utilise synergies and engage in broad cooperation with relevant actors in the field (e.g. the LUKKI group, the environmental accounting network, scientific panels), for example in data production, integrating ecosystem accounting information into decision-making, and communication.	1–5
Recommendation 10	Actively participate in the exchange of experiences and knowledge in international forums and networks (for example within the EU and the Coalition of Finance Ministers for Climate Action). Promote Finland's lessons learned and recommendations in international processes related to ecosystem accounting and environmental-economic accounting.	5

7. Conclusions

Ecosystem accounting can provide useful information to support decision-making in a wide range of contexts and organisations. Although the United Nations framework for ecosystem accounting is primarily designed to provide an overview of ecosystems at the national or regional level, the findings of the stakeholder process support the view that ecosystem accounting can also provide useful information for, for example, businesses, regions and the financial sector. For this reason, it is appropriate to further develop ecosystem accounting in Finland in a way that enables its use by a wide range of public and private sector actors, taking cost-effectiveness into account.

To enable the effective use of ecosystem accounting in decision-making in Finland, a clear mandate, sufficient resourcing and well-defined responsibilities are required for its further development (for example, the establishment of an interministerial working group and the designation of a responsible lead organisation). Commitment from political decision-makers and senior leadership in key organisations supports the fulfilment of these conditions.

In Finland, ecosystem accounting has been developed, and continues to be developed, primarily from the perspective of account production and research. Practical experience in the use of national ecosystem accounting data in decision-making remains limited. Valuable lessons could be gained from pilot projects focused on the current needs and processes of key users, such as ministries. In addition, pilots can help communicate the topic through concrete examples.

The application of ecosystem accounting in different contexts requires the availability of data at different levels of detail. Experiences from Estonia and the Netherlands, where national datasets have been used, for example, in planning the siting of wind power installations or in assessing green infrastructure at the municipal level, indicate that in many cases more detailed data are needed than those required for reporting to the EU. Finland should make use of the experiences of other countries in the further development of ecosystem accounting.

In Finland, ecosystem accounting at the municipal level has already been developed in several pilot projects based on local needs. Going forward, a key question is how different levels (municipal, regional and national) can best support one another. One important prerequisite for this is the compatibility of municipal-level ecosystem data with the ecosystem typology used in national ecosystem accounting, that is, the IUCN Global Ecosystem Typology. Therefore, assessing the use of, or compatibility with,

the IUCN classification may also be justified at the regional and municipal levels.

The private sector also has diverse needs for nature-related information and collects large amounts of data. More detailed analysis is required to assess whether, and how, data collected by businesses could be meaningfully integrated into national ecosystem accounting. In any case, aligning the concepts and definitions used in official statistics and private sector data collection would be beneficial in order to avoid potential interoperability issues in the future. In situations where the public sector and businesses have shared information needs, there may also be opportunities to share the costs associated with data collection and production.

Cost-effectiveness can be promoted through prioritisation, by focusing on selected national needs, and by making use of the data in all relevant contexts. In addition, cooperation and the identification of synergies with organisations working with environmental and nature-related data (e.g. the LUKKI group and the environmental accounts network) can help identify efficient ways to advance the development and use of ecosystem accounting. Such cooperation and the utilisation of synergies could form part of the tasks of an interministerial working group.

When properly implemented and used, ecosystem accounting can serve as a key instrument through which Finland and Finnish stakeholders can better integrate nature into decision-making, promote nature positivity, and support the implementation of the Kunming–Montreal Global Biodiversity Framework (GBF).

References

British Standards Institution 2021. Natural Capital Accounting for Organizations (BS 8632:2021). https://knowledge.bsigroup.com/products/natural-capital-accounting-for-organizations-specification. On 13 April 2026.

CBD 2022. Kunming-Montreal Global Biodiversity Framework. Web page. https://www.cbd.int/gbf. On 13 April 2026.

Chinese Academy of Sciences 2020. Scenario-based Analysis of Ecological Compensation Standard in Xijiang Basin. Report of the NCAVES Project. https://seea.un.org/sites/seea.un.org/files/documents/China_Inception_Mission/c._scenario-bsased_analsysis_of_ecological_compensation_standard_in_xijiang_basin.pdf. On 13 April 2026.

Circhive 2023. About Circhive. Web page. https://circhive.eu/circhive/about. On 14 April 2026.

Estonian Environment Agency 2025. Methodology for GBF Indicator A.2 using the ecosystem condition information. Presentation at London Group Meeting. https://seea.un.org/sites/seea.un.org/files/2_london-group-2025_linder-et-al.pdf. On 13 April 2026.

Finnish Environment Institute (Syke) 2024. Kunnallinen ekosysteemitilinpito kaupunkien viher- ja vesialueiden arvon mittaamisessa (Countecos). Web page. https://www.syke.fi/fi/projektit/countecos. On 13 April 2026.

Finnish Environment Institute (Syke) 2025. Ekosysteemitilinpidon avulla kohti kestävää yhteiskuntaa. Web page. https://www.syke.fi/fi/palvelut/mallinnus-ja-laskenta/ekosysteemitilinpito. On 13 April 2026.

IDEEA Group 2026. You can take part in the update to the SEEA Central Framework. Blog post, 2 March 2026. https://ideeagroup.com/you-can-take-part-in-the-update-to-the-seea-central-framework/. On 13 April 2026.

IFSC 2025. Forests and the Future Bioeconomy - Measuring the Contribution of Nature to Global Prosperity. https://static1.squarespace.com/static/64ed3bc9e0d7041a0ba6c51a/t/690b82599c731f77cd54d336/1762361945424/Natural+Capital+Report+FOR+PRINTING.pdf. On 13 April 2026.

ISO 2025. Natural Capital Accounting for Organisations (ISO 14054:2025). International Organization for Standardization. https://www.iso.org/standard/14054. On 13 April 2026.

Kopperoinen et al. 2022. Urban experimental ecosystem accounting pilot in the Nordic cities. Nordic Council of Ministers. https://www.norden.org/en/publication/urban-experimental-ecosystem-accounting-pilot-nordic-cities. On 13 April 2026.

La Notte, A. et al. 2020. Linking accounts for ecosystem services and benefits to the economy through bridging (LISBETH), EUR 30193 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-18427-0, doi:10.2760/480477, JRC120571. https://dx.doi.org/10.2760/480477. On 13 April 2026.

Ministry of the Environment 2026. Finland's 7th National Report on Biodiversity. https://valtioneuvosto.fi/documents/1410903/33891761/scbd-ort-Finland-Seventh-National-Report.pdf/a3550563-4020-e02b-7f92-e6ec9d62de0b?t=1772625453871. On 13 April 2026.

Randen, T. & Grimsrud, K. 2025. Ecosystem accounting in decision making at multiple governmental and geographical levels. Paper for the 31st London Group Meeting, Tallinn, September 2025. https://seea.un.org/sites/seea.un.org/files/randen_et_al.pdf. On 13 April 2026.

Regulation (EU) 2024/3024 of the European Parliament and of the Council of 27 November 2024 amending Regulation (EU) No 691/2011 as regards introducing new environmental economic account modules. http://data.europa.eu/eli/reg/2024/3024/oj. On 13 April 2026.

Regulation (EU) No 691/2011 of the European Parliament and of the Council of 6 July 2011 on European environmental economic accounts (Text with EEA relevance). http://data.europa.eu/eli/reg/2011/691/oj. On 26 May 2026.

Rokicki, B. et al. 2024. Gross Ecosystem Product in macroeconomic modelling. Publications Office of the European Union, Luxembourg. doi:10.2760/57602, JRC138106. https://dx.doi.org/10.2760/57602. On 13 April 2026.

Schenau, S. 2025. SEEA ecosystem accounting in the Netherlands – Policy applications. Workshop presentation, 30 October 2025.

SISU 2023. Themes. Web page. https://sisu-stn.fi/en/themes/. On 13 April 2026.

Sitra 2024. Luontopääoma kartalle ja euroiksi – Ekosysteemitilinpito vastuullisen talouspolitiikan työkaluna. Sitra working paper. https://www.sitra.fi/julkaisut/luontopaaoma-kartalle-ja-euroiksi/. On 13 April 2026.

TNFD 2023. Recommendations of the Taskforce on Nature-related Financial Disclosures. https://tnfd.global/wp-content/uploads/2023/08/Recommendations_of_the_Taskforce_on_Nature-related_Financial_Disclosures_September_2023.pdf. On 13 April 2026.

Turpie, J.K. et al. 2021. The potential costs and benefits of addressing land degradation in the Thukela catchment, KwaZulu-Natal, South Africa: NCAVES project report. https://seea.un.org/content/potential-costs-and-benefits-addressing-land-degradation-thukela-catchment-kwazulu-natal. On 13 April 2026.

UNEP-WCMC 2025. Indicators for the Kunming – Montreal Global Biodiversity Framework. https://www.gbf-indicators.org/. On 13 April 2026.

United Nations 2026. Results of the 2025 Global Assessment of Environmental-Economic Accounting and Supporting Statistics. https://unstats.un.org/UNSDWebsite/statcom/session_57/documents/BG-3f-Global_Assessment_2025_UNSC-E.pdf. On 13 April 2026.

United Nations et al. 2024. System of Environmental-Economic Accounting—Ecosystem Accounting (SEEA EA) (pdf). https://seea.un.org/sites/seea.un.org/files/documents/EA/seea_ea_f124_web_12dec24.pdf. On 13 April 2026.

United Nations 2022. Implementation strategy for the SEEA Ecosystem Accounting. https://seea.un.org/sites/seea.un.org/files/documents/EA/seea_ea_implementation_strategy_march_2022.pdf. On 13 April 2026.

United Nations 2021. Policy Scenario Analysis using SEEA Ecosystem Accounting. https://seea.un.org/content/policy-scenario-analysis-using-seea-ecosystem-accounting. On 13 April 2026.

United Nations et al. 2014. System of Environmental-Economic Accounting 2012 – Central Framework (pdf). https://seea.un.org/content/seea-central-framework. On 13 April 2026.

UNSD 2020. Using the SEEA EA for Calculating Selected SDG Indicators. United Nations Statistics Division, Department of Economic and Social Affairs, New York. https://seea.un.org/content/using-seea-ea-calculating-selected-sdg-indicators. On 13 April 2026.

Vihervaara et al. 2024. Suomen ekosysteemiobservatorio – kansallinen toiminta-malli luontotiedon tuotantoon, synteesiin ja käyttöön. Suomen ekosysteemi-observatorio -hankkeen loppuraportti. Reports of the Finnish Environment Institute 15 2024. https://helda.helsinki.fi/items/2eeda217-b629-4e77-b14b-2e37e93b21bf. On 13 April 2026.

Virtanen et al. 2024. Marine ecosystem extent and condition pilot accounts for Finland. One Ecosystem 9: e138839. https://doi.org/10.3897/oneeco.9.e138839. On 13 April 2026.

World Bank 2025. Mainstreaming Nature into World Bank Macroeconomic Models: Overview Report. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099092925102517266. On 13 April 2026.

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