EUROPEAN STATISTICAL SYSTEM

Development of ecosystem accounting for the European Statistical System

Innovating environmental statistics through new technologies and models

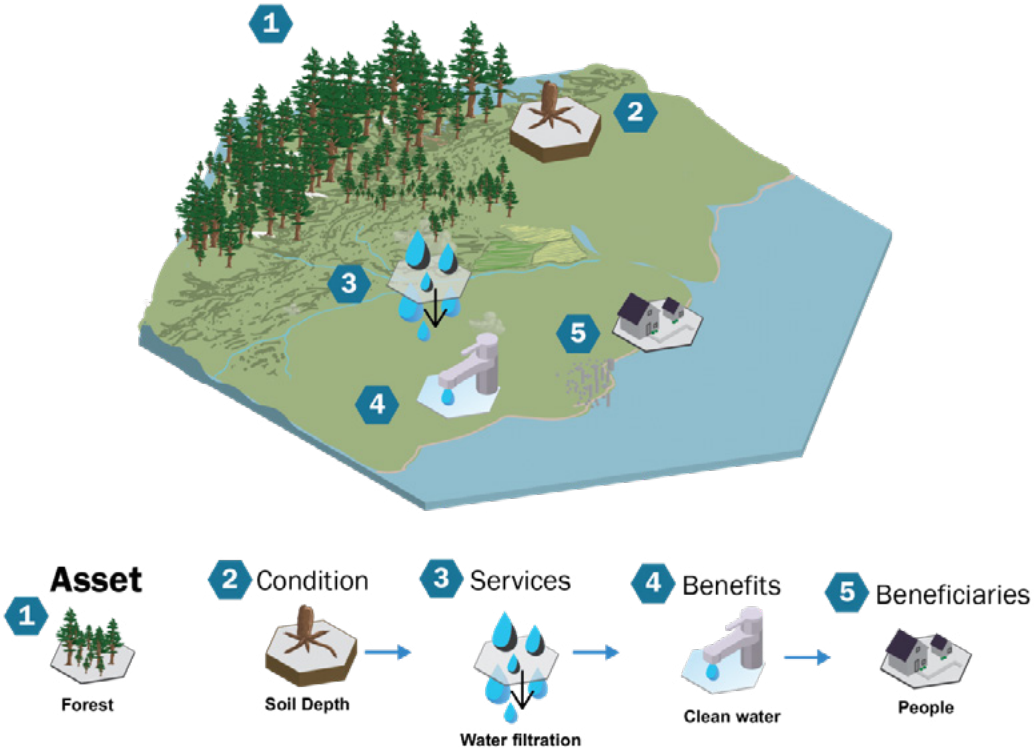
The project

The European Statistical System (ESS) Innovation Agenda focuses on innovative projects that recognise the need for new statistical solutions and business ideas that deliver real value through timelier and more detailed statistics.

In this context, the 'Development of ecosystem accounting for the European Statistical System' project aims to innovate environmental statistics by leveraging digital technologies, applying new technologies and models and expanding data sources. Such data and models might relate to the drivers, pressures and impacts of our economies and societies on the environment. Information from ecosystem accounts can be used to support policies on climate change, the circular economy, sustainable development, biodiversity and natural capital, among others.

The project aims to develop the production of European ecosystem accounts, a statistical framework for organising data, tracking changes to and the condition of ecosystems, measuring ecosystem services and linking this information to economic and other human activity. These statistics also quantify the ecosystems' extent, condition and contributions to the benefits for society, beyond their recording in gross domestic product (GDP) and other conventional statistics.

How does it work – the example of water filtration



The motivation

Based on the UN System of Environmental-Economic Accounting – Ecosystem Accounting (SEEA EA), the project aims to produce EU-wide ecosystem accounts and develop methodologies and models to support European statistical offices in their compilation.

In doing so, it seeks to enhance the quality of European ecosystem accounts and contribute to the broader goals of the ESS Innovation Agenda. The project aims to contribute to Europe's leadership role in the measurement of natural capital beyond GDP, with the implementation of the international standard SEEA EA.

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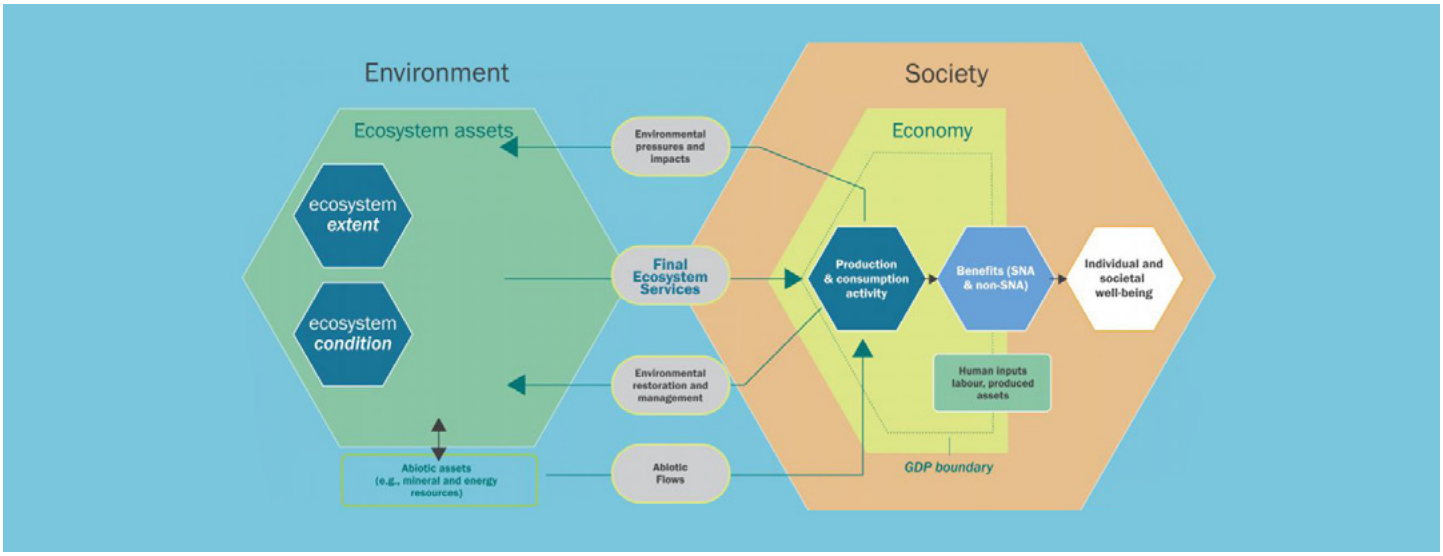
Conceptual framework of ecosystem accounting



This project was inspired by several Eurostat-led initiatives:

- The global effort that led to the publication of the UN Technical Recommendations in support of SEEA EEA in 2017. This was a milestone in the development of methodologies for environmental data collection.
- The global effort that led to the United Nations Statistics Division adoption in 2021 of the SEEA EA.
- The Commission adoption in 2022 of COM/2022/329 final, amending Regulation (EU) 691/2011 on European environmental accounts.
- The entry into force of the Regulation (EU) 2024/3024 of the European Parliament and of the Council amending Regulation (EU) No 691/2011 as regards introducing new environmental economic accounts modules (on 26 December).

The methodology

In 2015, Eurostat started the European Commission project 'Integrated natural capital accounting' (INCA), together with the European Commission Joint Research Centre (JRC), the EC Directorate-General for Environment (DG ENV), the European Environment Agency (EEA) and the Directorate-General for Research and Innovation (DG RTD). The project aimed to produce experimental, EU-wide ecosystem accounts and develop methodologies and models.

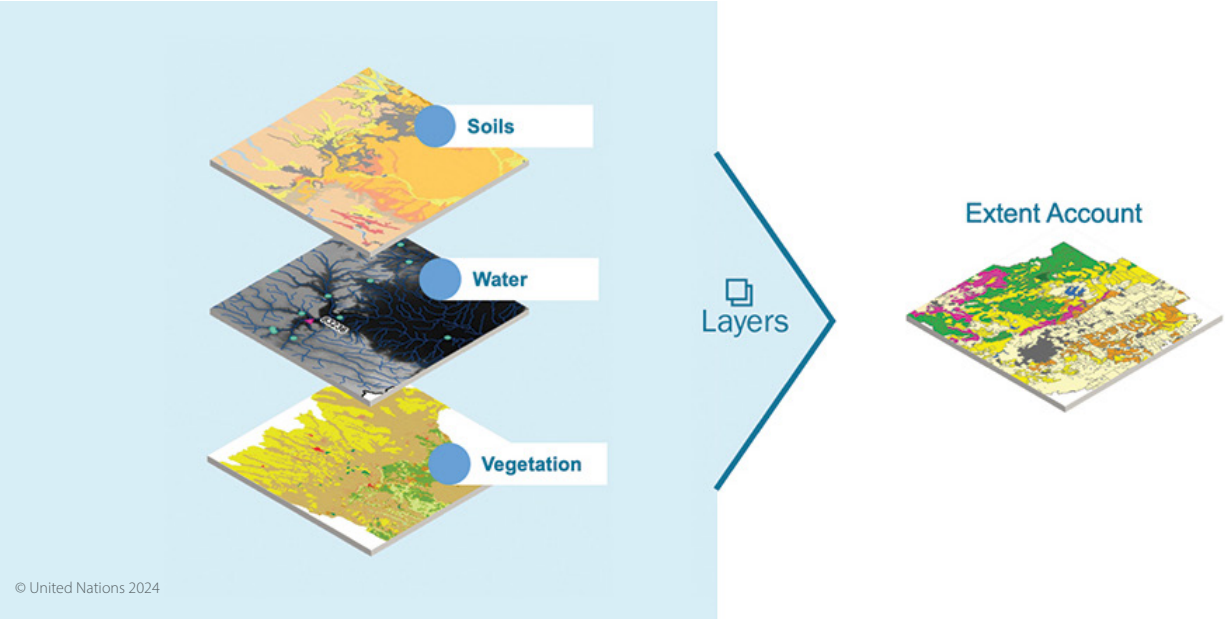
INCA worked as a proof of concept and delivered experimental data for 2000–2018 on the extent of ecosystems by the EEA and a range of ecosystem services such as crop pollination and carbon sequestration by the JRC. This data is still maintained and continues to be collected until it will be replaced by data transmissions from Member States.

Following on from this, Eurostat aims to support National Statistical Institutes with the production of European ecosystem accounts statistics by using innovative techniques. Thus, the project has progressed to the point of scaling and deploying, which involves the following activities:

- The project focuses on developing methodologies and compilation guides needed by Member States to produce the required environmental data. These guides are to be merged into a Eurostat handbook to be published in 2026.
- Voluntary data collections in 2023, 2024, and 2025 will allow Eurostat and Member States to establish and test their production systems and gradually improve data availability.
- Following the entry into force of the amended Regulation (EU) No 691/2011 (on introducing new environmental economic accounts modules) the deadline for mandatory transmissions of data on ecosystem accounts from Member States is end of 2026.
- Eurostat has been supporting Member States with grants in the development of national production systems and the integration of national data sources for all three types of accounts.
- The JRC is continuing to develop methodologies for ecosystem services beyond those that Member States are expected to report to Eurostat, such as flood control.

Technologies and methodologies involved:

- Biophysical models, e.g. on the cooling effect of trees in cities during hot summer days.
- Earth observation and other geospatial data from the Copernicus programme on land cover, land use, surface temperature and pollution distribution.
- Mapping techniques such as re-sampling, spatial disaggregation, spatial zoning, spatial interpolation and spatial regression.
- Other data and statistics such as nights spent in tourist accommodation establishments, material flow accounts and forest accounts.



The timeline

- **Project initiation:** 2015
- **Voluntary ESS data transmission to Eurostat:** 2023, 2024, 2025
- **Mandatory ESS data transmission to Eurostat under amended Regulation (EU) 691/2011:** By the end of 2026
- **Publication of data by Eurostat:** Mid 2027

The team

The project team is under the guidance of Eurostat.

- **Project owner:** ESS Directors of environmental statistics and accounts (DIMESA)
- **Service provider:** Eurostat Unit E.2 is leading the project. All Member States are involved in the mandatory transmissions and some Member States participate in an associated Eurostat task force. The JRC, DG ENV, the European Environment Agency and the research community are involved as external partners and researchers.
- **Contact:** ESTAT-ECOSYSTEMS@ec.europa.eu

More information

Links to project websites:

- EC JRC INCA Platform (Integrated system for Natural Capital Accounting)
- Eurostat statistics explained article on Ecosystem accounts – measuring the contribution of nature to the economy and human wellbeing

Links to related activities:

- United Nations Technical recommendations in support of SEEA EEA
- United Nations et al. (2021). System of Environmental-Economic Accounting— Ecosystem Accounting (SEEA EA). Available at: https://seea.un.org/ecosystem-accounting.

EU legislation:

- 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