SEEA EA implementation in the EU

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Eurostat

International workshop on Earth Observation for SEEA compliant Natural Capital Accounting – 23 May 2024

Content

- Ecosystem accounts regulation - implementation
- Earth observation for ecosystem accounting

Background ecosystem accounts in the ESS

- Environmental accounts are an important data source for environmental and sustainability policies in the EU, in particular for the European Green Deal
- Natural capital accounting plays a key role in the biodiversity strategy 2030 of the EU

=> An extension of the European environmental accounts is necessary, including ecosystem accounts

- Amendment of Regulation (EU) No 691/2011 on European environmental accounts

Ecosystem accounts – uses in the EU

- Range of current and future applications. These new statistics give recognition to the benefits co-produced by nature, in coherence with macroeconomic statistics (GDP)
  - Study the effect of natural capital depletion on resilience and competitiveness of the EU economy
  - Assess the risks in company loans from depletion of natural capital
- Proposal for a **Nature Restoration Law**: a) area based restoration targets of ecosystems; b) condition indicators describing the status of ecosystems
- **Convention on biodiversity**: Global Biodiversity Monitoring Framework
- **Climate change**
  - The extent and condition of ecosystems and the provision of many ecosystem services is affected by climate warming e.g. changes of crop and timber provision
  - Ecosystems/nature based solutions e.g. increasing urban green to reduce air pollution and urban heat islands
  - LULUCF monitoring also requires the assessment of the extent of ecosystems and their carbon storage

Module ecosystem accounts in a nutshell

Ecosystem types
Settlements
Cropland
Grassland
Forest and woodland
Heathland and shrub
Sparsely vegetated
Inland wetlands
Rivers and canals
Lakes and reservoirs
Marine inlets/transitional
Coastal
Marine

Extent accounts:

- Opening area
- Additions
- Reductions
- Closing area
- Conversion matrix

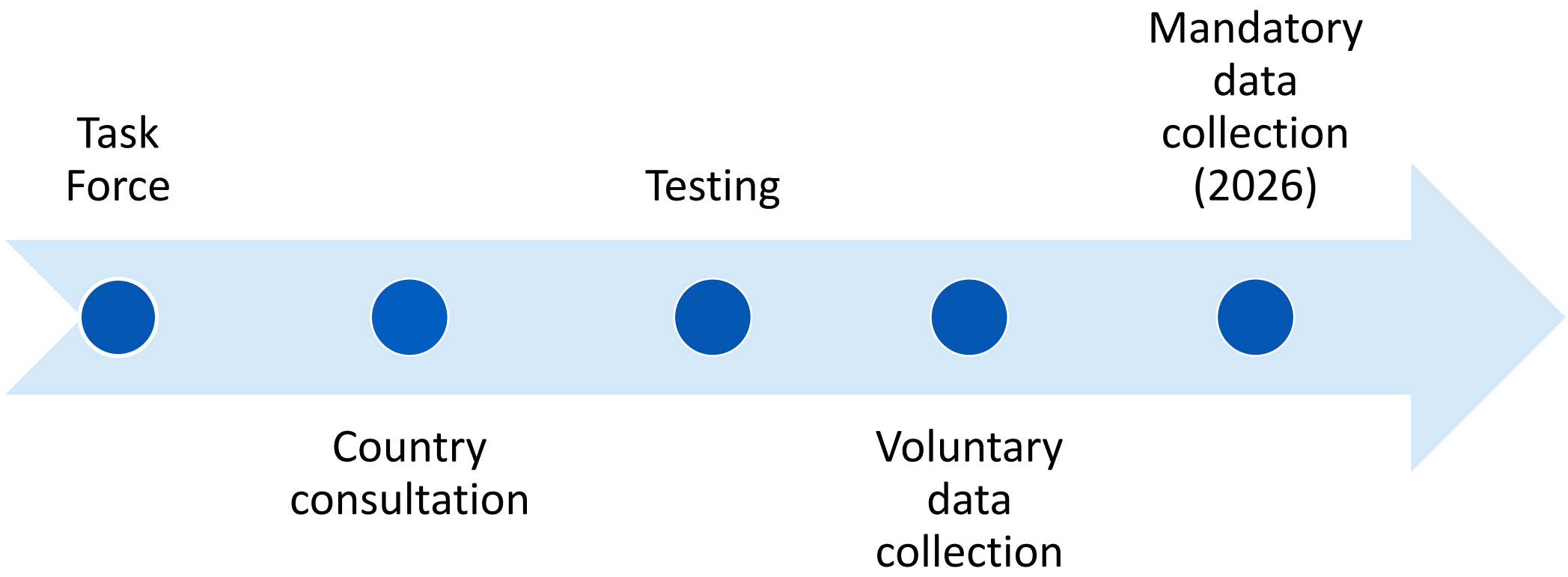
Services accounts:

- Crop provision
- (Crop) Pollination
- Wood provision
- Air filtration
- Global climate regulation
- Local climate regulation
- Nature-based tourism

Condition accounts:

- Green areas in cities and adjacent towns and suburbs
- Concentration of PM in cities
- Soil organic carbon (Cropland and Grassland)
- Common farmland bird index (Cropland and Grassland)
- Common forest bird index
- Dead wood (Forest and woodland)
- Artificial impervious area cover (Coastal area)

Implementation of the legal module



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Development stage of guidance notes

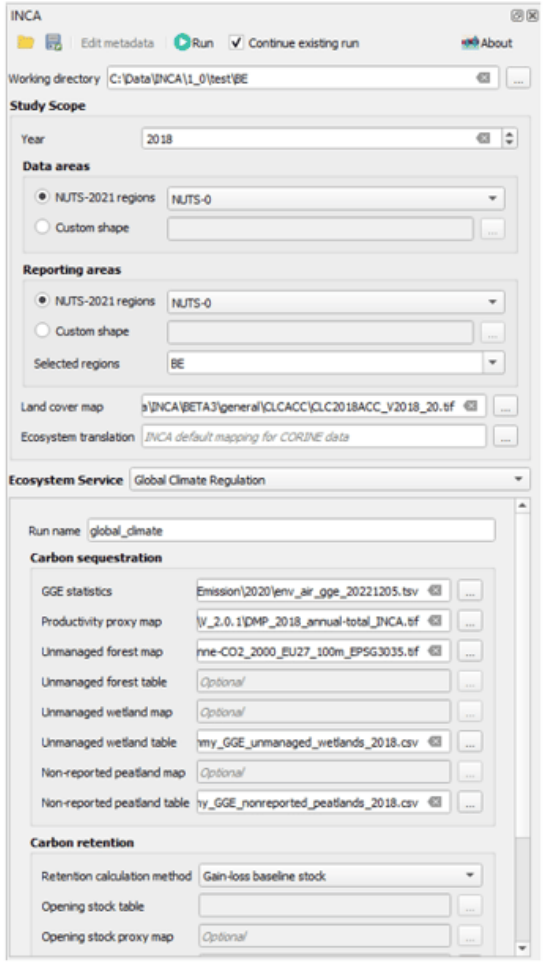
- Ecosystem extent accounts – voluntary data collection stage
- Ecosystem services ‘batch 1’ (crop provision, wood provision, nature-based tourism, global climate regulation) – endorsement stage
- Ecosystem services ‘batch 2’ (local climate regulation, air filtration, crop pollination) – testing stage
- Ecosystem condition accounts – task force stage

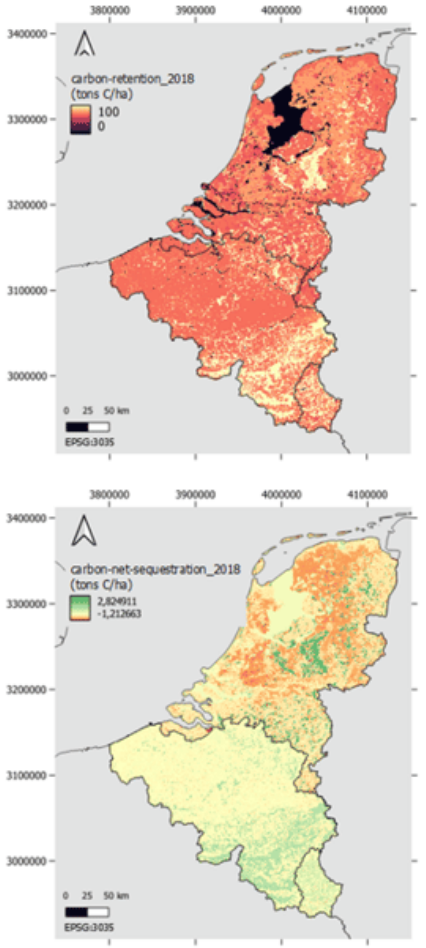
GIS tool for ecosystem services accounts

Version 2.1 released

- Critical for the implementation of the regulation
- Includes all mandatory ecosystem services
- Pre-processed EU-wide default input data for all services available

Download link and documentation
https://ecosystem-accounts.jrc.ec.europa.eu/inca-tool





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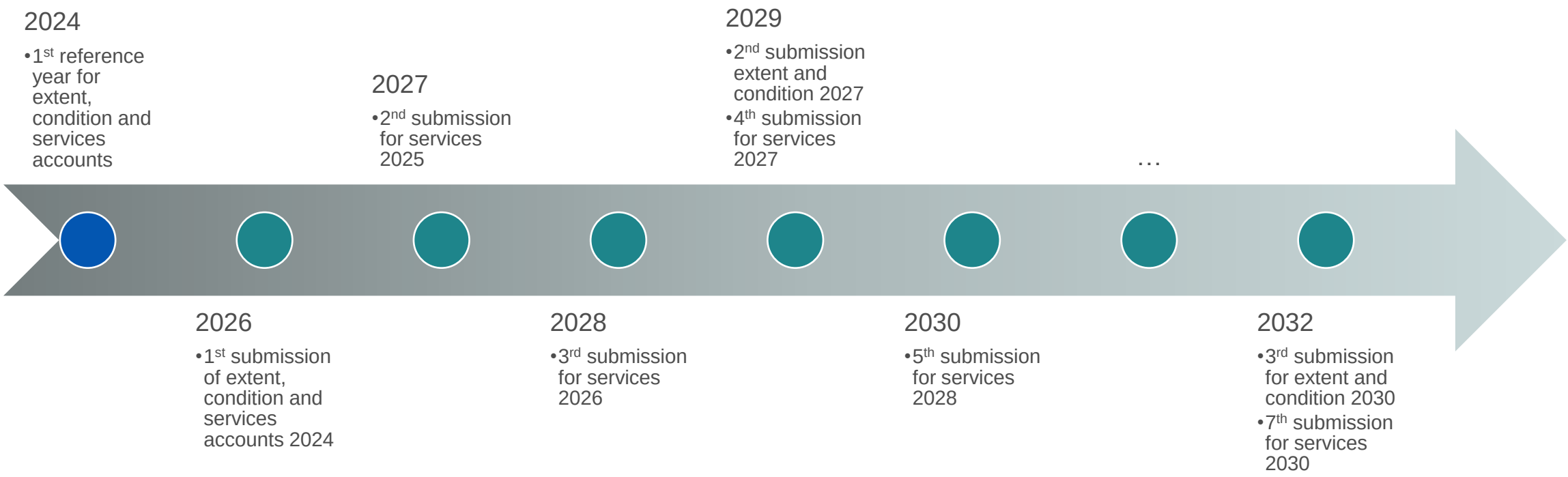
Time line of mandatory reporting



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Other preparatory work

- ESTP course ‘Introduction to experimental ecosystem extent and services accounting based on SEEA-EA’ - The Hague, NL; **5-7 November 2024**; (application deadline: **9 September**)
- 2024 European Green Deal **grants** (application deadline: **25 July**)
- Workshops presenting **results of earlier grants** (country presentations) including on ecosystems: **7, 12, and 14 June** (online)
- **Further webinars** on the legal module accounts (our partners JRC and EEA; Q3-Q4 2024)

Earth observation for ecosystem accounts

EO strategy of the European Statistical System

- Warsaw memorandum of the ESS on earth observation for statistics adopted in 2021
- More frequent, timelier, cheaper, better comparable, more spatial detail
- Scalable (from local to global)

=> European strategy for using Earth Observation in different statistical domains.

- Ecosystem accounting mentioned in the Warsaw memorandum
- Using EO for ecosystem accounting also key project in the ESS agenda on innovation

Earth Observation in the legal proposal

Section 1

OBJECTIVES

Ecosystem accounts present data on the extent and condition of ecosystem assets and the services they provide to society and the economy. The data are in line with the SEEA Ecosystem Accounting and compatible with the data reported under the European System of Accounts.

Ecosystem accounts use existing information where possible, including from earth observation, environmental reporting and other data sources.

Potential application of EO in the legal proposal

a) Provisioning services:

1. **crop provision**
2. pollination
3. **wood provision**

b) Regulating and maintaining services

4. **air filtration (PM adsorbed)**
5. **global climate regulation (net sequestration and storage of carbon)**
6. **local (i.e. urban) climate regulation (reduction of temperature)**

c) Cultural services

7. nature-based tourism (overnight stays)

d) Condition indicators

1. **green areas in cities and adjacent towns and suburbs**
2. **concentration of particulate matter with a diameter up to 2.5 µm in cities**
3. soil organic carbon stock in topsoil
4. common farmland bird index
5. dead wood
6. **tree cover density**
7. **share of artificial impervious area cover**

Relevant Copernicus services

Land Monitoring Service

- Ecosystem extent
- Green space
- Soil sealing
- Land surface temperature
- Crop types
- Plant productivity
- Tree cover
- Leaf area index
- …

Atmosphere Monitoring Service

- Air quality

Challenges for EO in ecosystem accounts

- Data quality insufficient (timeliness, resolution, periodicity, …)
- Data availability is continuously changing/improving due to new developments
- Uncertainty in NSOs, different level of preparedness in Member States:
  - Using earth observation information for statistics is a totally new area for many statistical offices
  - is recognised as a big opportunity
  - but also comes with many challenges such as specific software, volume of data, data preparation, specific IT, human resources (skills, availability)

Opportunities for EO from implementing ecosystem accounts

- Ecosystem accounts may be a front-runner in promoting the use of EO for other types of statistics
- The formal system of accounts is a good opportunity for standardisation and operationalisation of EO information
- In the EU, unique situation that we also have an EU wide comparable land cover/land use data in-situ data source: **LUCAS** => use of in-situ and EO together may improve further the quality and range of indicators of ecosystem accounts.

Key messages

- EO community and ecosystem accounting experts should talk to each other regularly and learn from each other
- Need for account ready data should be recognised and fulfilled by producers of EO data
- Keep the products stable over time and respect international standards

References

- Draft regulation https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2022:329:FIN
- INCA platform https://ecosystem-accounts.jrc.ec.europa.eu/
- CIRCABC site of the task force https://circabc.europa.eu/ui/group/922b4700-1c83-4099-b550-763badab3ec0
- Eurostat website on environmental accounts https://ec.europa.eu/eurostat/web/environment/overview

Thank you

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