Integrated system for natural capital and ecosystem services accounting in the EU

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Natural capital is not yet ‘conserved and enhanced’

Source: EEA. SOER 2015 Synthesis report.

Improving trends dominate
Trends show mixed picture
Deteriorating trends dominate

Terrestrial and freshwater biodiversity
Land use and soil functions
Ecological status of freshwater bodies
Water quality and nutrient loading
Air pollution and its ecosystem impacts
Marine and coastal biodiversity
Climate change impacts on ecosystems

WFD
MSFD
Nature Directives
Fisheries CFP
Forestry
Agriculture CAP

Source: EEA. SOER 2015 Synthesis report.
Natural Capital – widening the knowledge base

- Protect natural capital via environmental legislation & instruments and sectoral policies
- What do planetary limits mean for the EU?
- How to account for ecosystems and their services?

- Env. monitoring & reporting, sector-related analysis
- Knowledge innovation projects to fill 7EAP knowledge gaps
- Ongoing EEA activities
- KIPs with EEA support
Managing natural capital within planetary boundaries.
Managing Natural Capital & respecting societal objectives

Planetary boundary

Conservation boundary

Safe planetary operating space

Natural Capital

Manage (service) trade-offs within limits
Accounting for natural capital and ecosystem services

Aim of ‘KIP INCA’ on EU ecosystem accounting:
- Develop integrated EU ecosystem accounting system
- Track ecosystem assets
- Track and project ecosystem service flows -> trade-offs?
- Valuation of benefits from ‘nature’

Planned outputs:
- (Options for) integrated EU ecosystem accounts
- EU data integration platform
- Information for better management of natural capital
Important: develop a shared data platform

Goal: connected data sets in a common spatial reference frame
Would have important side benefits beyond ecosystem accounting
What is the analytical value-added of ecosystem accounts?

- Tracking trends in the ecosystem asset, i.e. extent and condition of ecosystems?
- Understanding current and future supply of ecosystem services (by ecosystem & beneficiaries)?
- On that basis develop a more complete national ‘wealth accounting’, a green GDP?
- Use accounting for understanding linkages, e.g. which sectors cause ecosystem degradation?
- Develop market approaches for managing ecosystems and integrating them into public + business planning?
Natural Capital – taking a systemic perspective

- Nature legislation
- Reducing pollution
- Resource efficiency
- Greening sectoral policies & EU programmes
- Consuming within limits & nature-based economy

Protecting natural capital
Implementing the acquis
Reforming sectoral policies
Transitioning to a green economy

Managing natural capital
Knowledge Innovation Project on Integrated System for Natural Capital and Ecosystem Services Accounting in the EU

- Project developed by a partnership of European Commission services (DG ENV, DG JRC, DG ESTAT, DG RTD) and EEA
- Objective to strengthen the knowledge base for the implementation of the 7th EAP
- Knowledge Innovation Projects (KIPs) have the ambition to address gaps in environmental knowledge, using an innovative approach
- Feasibility and design phase until mid-2016, then if "go ahead" implementation phase until 2020
Eurostat (leader in phase 1):
- Experience with geospatial-statistical data integration
- Operates LUCAS
- Lead service for geospatial information in the EU
- Statistics on land use/land cover, forest, agriculture
- Environmental-Economic Accounts (SEEA)

DG Environment:
- Provides policy context and is the principal user of KIP INCA outputs
- Responsible for MAES
- Follows Natural Capital Accounting initiatives (private and global)
- "owns" administrative reporting obligations

KIP INCA partners

DG RTD:
- Runs research programs on ecosystem services and biodiversity, e.g. ESMERALDA
- Coordination between INCA and research activities

EEA:
- Principal information provider on the state of environment in Europe
- Long-term experience in ecosystem accounting, involved in MAES
- Operates data centres on water and biodiversity
- Responsible for CORINE land cover and Copernicus data
- The main data processing partner

EC Joint Research Centre:
- Operates data centres on forest and soil and information systems on agriculture, ecosystems and water
- Big modelling experience on ecosystem services
Where does KIP INCA fit in?

• KIP INCA aims to develop a shared data platform to record the extent, condition and trends in ecosystems and their services.
• KIP INCA uses a fit-for-purpose approach **based on existing, EU-wide data** collections (LUCAS, Copernicus, MAES, administrative data, etc.)
• KIP INCA integrates all available data and makes sure new data fit into the system (-> permanent improvement & expansion).
• KIP INCA accounts **follow UN accounting standards** (SEEA and SNA)
• KIP INCA tests SEEA–EEA (but is not limited to SEEA–EEA = innovation)
• EU Member States can link their national systems to KIP INCA.
KIP INCA structure and timeline

Two phases:

**Phase 1:** Feasibility and design phase (mid 2015 – mid 2016)
-> Mid 2016: go/no go decision by Directors General

**Phase 2:** Implementation phase (2016 – 2020)
Expected outcomes of KIP INCA, Phase 1

- A blueprint for the future EU ecosystem accounting system including the sets of tables and accounts, the input data layers, some mock-up accounts for illustration and a description of the limitations

- A dialogue with stakeholders (EU member states, researchers, policy makers, other users), e.g. at the MAES delivery workshop in December 2015

- A reliable estimate of necessary resources

- An implementation plan until 2020

- A plan for improving the data sources
KIP INCA timeline – 'to do list' for Phase 1

Data:
• Review existing and planned EU-wide data collections
• Test the integration of these data sources
• Propose changes to existing data collections and models
• Define minimum data quality standards

System design:
• Test modelling approaches
• Understanding the uncertainties including error propagation, reducing complexity
• Design a prototype system of (physical) ecosystem accounts in line with UN standards

Further proposal:
• Design a plan for an integrated EU accounting system, to be presented to the EKC for approval (for Phase 2)

Resources:
• Secure necessary resources from all stakeholders
Components of SEEA-EEA to be developed under KIP-INCA

**Physical**
- **Thematic**: Land, Water, Carbon, Biodiversity
  - Extent
  - Condition

**Tools**
- Classifications, Spatial units, scaling & aggregation, Biophysical modelling
- Valuation techniques

**Monetary**
- **Asset**

**Supporting**
- SNA, I-O tables, economic production functions

**Augmented I-O Table**

**Integrated Sector Accounts and Balance Sheets**

(Source: SEEA – EEA)
A final point to consider:

Natural and social sciences decompose objects ...

... but ecosystems are more than the sum of their parts.