European Commission

The INCA project

Designing and implementing an integrated accounting system for ecosystems and their services to inform decision making in the EU

Research and Innovation

Knowledge Innovation Project on an Integrated system of Natural Capital and ecosystem services Accounting for the European Union (INCA)

Why the INCA project?

The INCA project addresses key policy objectives of the EU 7th Environment Action Programme and the EU Biodiversity Strategy to 2020 – to establish a sound method for natural capital accounting (NCA) with a strong focus on ecosystems and the services they deliver. This is essential as:

- Natural capital underpins the economic prosperity and well-being of EU citizens
- Existing knowledge to manage EU's natural capital wisely and sustainably is insufficient
- Sound methods to measure natural capital and its economic value need to be established

Who are the INCA partners?

INCA is a joint project of Eurostat, DG Environment, DG Research and Innovation and the Joint Research Centre of the European Commission and the European Environment Agency. The project runs from 2016 to 2020.

INCA and the SEEA EEA

The UN System of Environmental-Economic Accounting – Experimental Ecosystem Accounting (SEEA EEA) provides a framework for NCA that is specifically focused on ecosystems and their services. INCA supports the development of the SEEA EEA by testing its implementation in the EU.

INCA partners have been closely involved in the development of the SEEA EEA since its inception. The outcomes from INCA are supporting the SEEA EEA revision process, which aims to achieve an internationally agreed statistical standard for ecosystem accounting.

INCA accounts

INCA uses the SEEA EEA handbook as working guidance to develop pilot ecosystem extent, ecosystem condition and ecosystem services accounts at EU level.

Ecosystem extent accounts

These accounts delineate ecosystems and changes in the areas they cover. INCA uses a three-tier approach to develop these accounts, which build mainly on the accounting layers of CORINE Land Cover from 2000 to 2018.

The tier I ecosystem extent accounts focus on the nine broad ecosystem types adopted by the EU's Mapping and Assessment of Ecosystems and their Services (MAES) initiative led by DG Environment. Drawing on these accounts, Figure 1 illustrates changes in ecosystem extent inside and outside of EU Natura 2000 protected areas

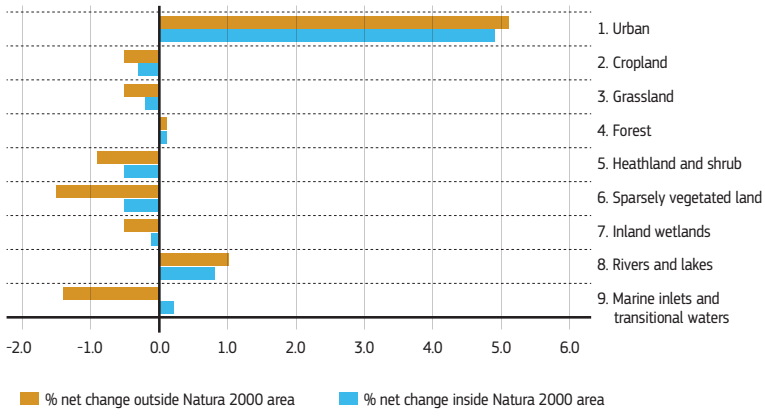

Figure 1: *Net changes in ecosystem extent inside and outside of Natura 2000 areas (2000 to 2012)*

between 2000 and 2012. This is an example of policy application, as it reveals that reductions in the extent of semi-natural ecosystem are lower in Natura 2000 areas over this accounting period.

Tier II focuses on specific ecosystems of particular conservation or policy interest (e.g. agro-forestry ecosystems). Tier III (to be developed) will use the EU Nature Information System habitat classification to achieve a more ecologically detailed tracking of ecosystems in Europe.

Ecosystem condition accounts

These accounts present information on state and pressure indicators derived from the EU MAES ecosystem condition framework. Pilot accounts are being established for water quality, species trends, nutrient pressure and ecosystem seafloor ecological integrity.

Ecosystem services accounts

INCA is developing ecosystem services accounts in both physical and monetary terms, matching the years of the ecosystem extent accounts (2000, 2006 and 2012). To do this, INCA uses a combination of official statistics and spatial modelling to derive actual flows of selected ecosystem services (i.e. their supply by ecosystems and use by economic units).

The table below presents the monetary supply (top) and use (bottom) of six ecosystem services accounted for by INCA so far. Woodland and forest are the ecosystems supplying the highest monetary value for the services assessed. The main users of these ecosystem services are households, with a monetary value of about 62 billion euro in 2012. This supports the economic case for public investment in ecosystem assets in the EU.

Year 2012, million EUR	Ecosystem type								TOTAL
Ecosystem service	Urban	Cropland	Grassland	Heathland and shrub	Woodland and forest	Sparsely vegetated land	Wetlands	Other ecosystems	
Crop provision		20 560							20 560
Timber provision					14 540				14 540
Global climate regulation	20	150	850	20	13 330	20	0	NA*	14 390
Flood control	90	1 020	3 130	360	11 390	0	330	NA*	16 320
Crop pollination		9 720							9 720
Nature-based recreation	80	4 070	7 480	3 100	30 720	1 350	2 300	1 300	50 400
TOTAL	190	35 520	11 460	3 480	69 980	1 370	2 630	1 300	125 930
Value (EUR/km²)	880	22 090	22 610	19 250	44 010	23 410	26 890	14 530	28 740

*NA: Not available

Year 2012, million EUR	Ecosystem type						TOTAL
Ecosystem service	Agriculture	Forestry	Industry	Services	Households	Global society	
Crop provision	20 560						20 560
Timber provision		14 550					14 550
Global climate regulation						14 400	14 400
Flood control	800	0	2 400	1 380	11 730		16 310
Crop pollination	9 720						9 720
Nature-based recreation					50 390		50 390
TOTAL	31 080	14 550	2 400	1 380	62 120	14 400	125 930

Table: *Monetary supply and use accounts for selected ecosystem services in the EU, 2012.*

Using accounts to inform decision making

The ultimate ambition for INCA is to establish a set of regularly compiled ecosystem accounts to assist policy makers and planners achieve multiple environmental, social and economic objectives for the EU. For example, by:

- Informing integrated land-use planning that better considers biodiversity and ecosystem services
- Delivering systematic information that reflects the full value of ecosystems
- Informing integrated sectoral planning based on realising multiple benefits from ecosystems

Establishing a shared Geospatial Data Platform

Ecosystem accounting and assessment use multiple geospatial data to describe the extent and condition of ecosystems and flows of ecosystem services. Consequently, developing a shared geospatial data platform is a key objective of INCA and MAES to support the integration of multiple ecosystem data, as illustrated in Figure 2.

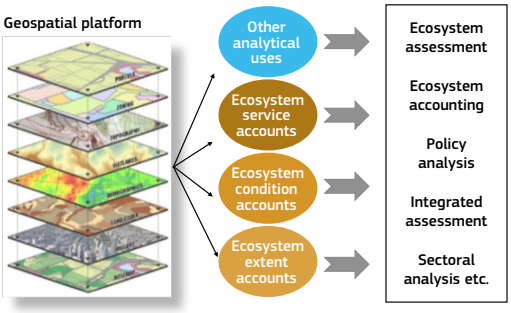

Figure 2: Geospatial platform and its applications

Supporting NCA in EU Member States, Europe and worldwide

Responsibility for the implementation of statistical standards rests primarily with EU Member States. To support development work at Member State level, Eurostat provides grants on ecosystem accounting to national statistical offices.

The EU supports the mainstreaming of natural capital in policies and in business decision making, funding two ongoing research projects MAIA (Mapping and Assessment for Integrated ecosystem Accounting) and We Value Nature.

The EU is also funding the Natural Capital Accounting and Valuation of Ecosystem Services project that aims to assist Brazil, China, India, Mexico and South Africa to advance in ecosystem accounting.

For further information on activities of the European Commission and the European Environment Agency on natural capital accounting visit
http://ec.europa.eu/environment/nature/capital_accounting/index_en.htm
Coming soon: INCA viewer – visit https://inca.ec.europa.eu/
Comments and questions are welcome at ESTAT-ECOSYSTEMS@ec.europa.eu

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