

# Application and implementation of ecosystem accounting in Europe

#### Outcomes of the INCA project with a focus on Ecosystem Services accounts and their possible uses

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### What is INCA

<u>Eurostat:</u> Coordination of INCA data provider, SEEAE alignment/ testing	, European E <u>Agency:</u> Developing s platform and extent and c accounts, da	invironment shared data ecosystem ondition at	
<u>DG Environment:</u>	INCA partners	<u>Centre:</u> Operation of information systems, expertise in modelling ecosystem	
principal user of INC outputs	DG Research and <u>Innovation:</u> Coordination betwee INCA and EU resea activities	services, developing ecosystem services unts een arch	



#### **Outcomes of INCA**





#### ...specifically on Ecosystem Services accounts



#### one example: crop pollination



# is the increase in actual flow always ecologically good?





#### ...still on Ecosystem Services









## ...still crop pollination





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#### Uses of Ecosystem Services accounts

- which are the ecosystems that provide more services?
- which are the economic units that receive more service?
- how is the trend of ecosystem services?
- where are the main providers of services for the global society?
- how to assess sustainability in agriculture?
- which are the driving pressures?

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- what are the economic impacts of changes in ecosystem services?
- does INCA contributes to international reference frameworks?



#### Official Supply (ecosystems) and Use (economic units) tables



Attention: to calculate ES as % of GDP -> tricky



## Trends in ecosystem services flows: three examples



# Where are the main providers of global ecosystem services?



ES services provided to domestic economic sectors and households 11 (€/km2/year)



#### How to assess sustainability in agricultural production?

#### from agricultural statistics...

33% 7% 10% 11%



...to building a sustainability scoreboard

	Mkt Indicator	Food Indicator	EcoCon Indicator
Austria	14.37	2.20	43.94
Belgium	5.20	1.54	12.63
Bulgaria	83.35	4.82	34.10
Czechia	53.33	1.54	47.52
Germany	22.94	2.20	31.12
Denmark	43.53	1.00	55.27
Estonia	81.18	26.48	90.76
Greece	16.29	2.85	1.00
Spain	27.29	1.17	28.73
Finland	28.20	22.54	54.97
France	10.70	4.82	22.77





from water purificationproduction accounts...

## Which are the driving pressures?

...to consumption-based [embedded water purification] accounts through MRIO analysis



#### What are the economic impacts of changes in ES?



## What are the economic impacts of changes in ES?



#### Where to restore habitats...

500 km



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flood control

#### Where to restore habitats...

#### ...to adapt to CC extreme events?



nature-based recreation

#### ...to improve quality of life?



#### Indicators for the Post-2020 Global Biodiversity Framework

INCA indicators	Post-2020 Biodiversity Framework
Habitat and species maintenance:	Target 3. By 2030, ensure active management actions to enable wild species of
ES actual flow to monitor changes with respect to species supported by suitable habitats	fauna and flora recovery and conservation, and reduce human-wildlife conflict by [X%]
Water purification: ES overuse with respect to different sustainability thresholds	Target 6. By 2030, reduce pollution from all sources, including reducing excess nutrients [by $x$ %], biocides [by $x$ %], plastic waste [by $x$ %] to levels that are not harmful to biodiversity and ecosystem functions and human health.
Carbon sequestration: ES actual flow by ecosystems with respect to the role of uptake and emissions Flood control: ES unmet demand	Target 7. By 2030, increase contributions to climate change mitigation adaption and disaster risk reduction from nature-based solutions and ecosystems based approaches, ensuring resilience and minimizing any negative impacts on biodiversity
Crop provision: ES actual flow with respect to ecosystem contribution from cropland	Target 9. By 2030, support the productivity, sustainability and resilience of biodiversity in agricultural and other managed ecosystems through conservation and sustainable use of such ecosystems, reducing productivity gaps by at least [50%]
Flood control: ES actual flow with respect to Ecosystem Potential to monitor the increase of NBS	Target 10. By 2030, ensure that, nature based solutions and ecosystem approach contribute to regulation of air quality, hazards and extreme events and quality and quantity of water for at least [XXX million] people
Nature-based recreation: ES actual flow with respect to Ecosystem Demand (i.e. resident households)	Target 11. By 2030, increase benefits from biodiversity and green/blue spaces for human health and wellbeing, including the proportion of people with access to such spaces by at least [100%], especially for urban dwellers



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#### Indicators for the SDGs

INCA indicators	Sustainable Development Goals
Crop provision: ES actual flow (ref ecosystem contribution ratio)	2.4 by 2030 ensure <b>sustainable food production</b> systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters, and that progressively improve land and soil quality
Synergies b/w crop provision and other ES	
Water purification accounts:	6.3 by 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of
ES overuse (with respect to specific sustainability thresholds)	hazardous chemicals and materials, halving the proportion of untreated wastewater, and increasing recycling and safe reuse by x% globally
Processed variables from INCA to be	8.4 improve progressively through 2030 global resource efficiency in consumption and production, and
bridged with MRIO tables	endeavour to <b>decouple economic growth from environmental degradation</b> in accordance with the 10- year framework of programmes on sustainable consumption and production with developed countries taking the lead
ES accounts linked to the EU Taxonomy	8.10 strengthen the capacity of domestic financial institutions to encourage and to expand access to <b>banking, insurance and financial services</b> for all
Water purification by the Urban ET:	11.6 by 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality, municipal and other waste management
Nature-based recreation by the Urban ET	11.7 by 2030, provide universal access to safe, inclusive and accessible, green and public spaces, particularly for women and children, older persons and persons with disabilities
Urban accounts with respect to ES	11.a support positive economic, social and environmental links between urban, peri-urban and rural areas
accounts for FUA	by strengthening national and regional development planning
Urban accounts with respect to ES	11.b by 2020, increase by x% the number of cities and human settlements adopting and implementing
accounts for FUA	integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate
	change, resilience to disasters, develop and implement in line with the forthcoming Hyogo Framework holistic disaster risk management at all levels

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INCA indicators	Sustainable Development Goals
Crop and timber provision:	12.2 by 2030 achieve sustainable management and efficient use of natural resources
ES overuse (ref specific sustainability thresholds)	
Carbon sequestration:	13.2 integrate climate change measures into national policies, strategies, and planning
Combined presentation with CO2 emission by	
combined presentation with CO2 emission by	
Monitor over time the Supply table by EI	15.1 by 2020 ensure conservation, restoration and sustainable use of terrestrial and inland
	freshwater ecosystems and their services, in particular forests, wetlands, mountains and
	drylands, in line with obligations under international agreements
Monitor over time the ET "Woodland and forest" on	15.2 by 2020, promote the implementation of sustainable management of all types of forests,
the Supply table	halt deforestation restore degraded forests and increase afforestation and reforestation by x%
ES upmot domand for:	15.3 by 2020, combat desortification, and restore degraded land and soil, including land
Lo uninet demand for.	15.5 by 2020, combat desertification, and restore degraded land and soll, including land
Flood control and Soil retention	affected by desertification, drought and floods, and strive to achieve a land-degradation neutral
	world
Habitat and species maintenance:	15.5 take urgent and significant action to reduce degradation of natural habitat, halt the loss of
EC notontial flow with respect to encodes not	biodiversity, and by 2020 protect and prevent the extinction of threatened species
ES potential now with respect to species not	
supported by suitable habitats	
Synergies b/w HSM and other FS	
Cron pollination:	15.8 by 2020 introduce measures to prevent the introduction and significantly reduce the
	impact of investive clien energies on land and water approximation and softmetally reduce the
Processed variables from INCA to be bridged with	impact of invasive alien species on land and water ecosystems, and control of eradicate the
CGE	
Bridging INCA to GTAP to assess economic	17 14 enhance policy coherence for sustainable development
impacts of changes in FS flows	
Environmentally Adjusted NVA	17.10 by 2030, build on existing initiatives to develop measurements of progress on
	The by 2000, build off existing initiatives to develop measurements of progress off
	sustainable development that <b>complement GDP</b> , and support statistical capacity building in
	developing countries
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# Thank you

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