INTEGRATING ENVIRONMENTAL AND ECONOMIC ACCOUNTING TO SUPPORT DECISION MAKING PROCESSES IN EUROPE

Alessandra La Notte

Joint Research Centre of the European Commission

INTEGRATED ACCOUNTING FOR DECISION MAKING

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Objective: to develop a system of natural capital accounting for Europe, consistent with System of integrated Environmental and Economic Accounts – Experimental Ecosystem Accounts (SEEA EEA by UNSD)

INCA partners

Eurostat:
Coordination of INCA, data provider, SEEA EEA alignment/ testing

European Environment Agency:
Developing shared data platform and ecosystem extent and condition accounts, data provider

DG Environment:
Provides policy context, manages MAES, principal user of INCA outputs

EC Joint Research Centre:
expertise in modelling ecosystem services, developing ecosystem services accounts

DG Research and Innovation:
Coordination between INCA and EU research activities

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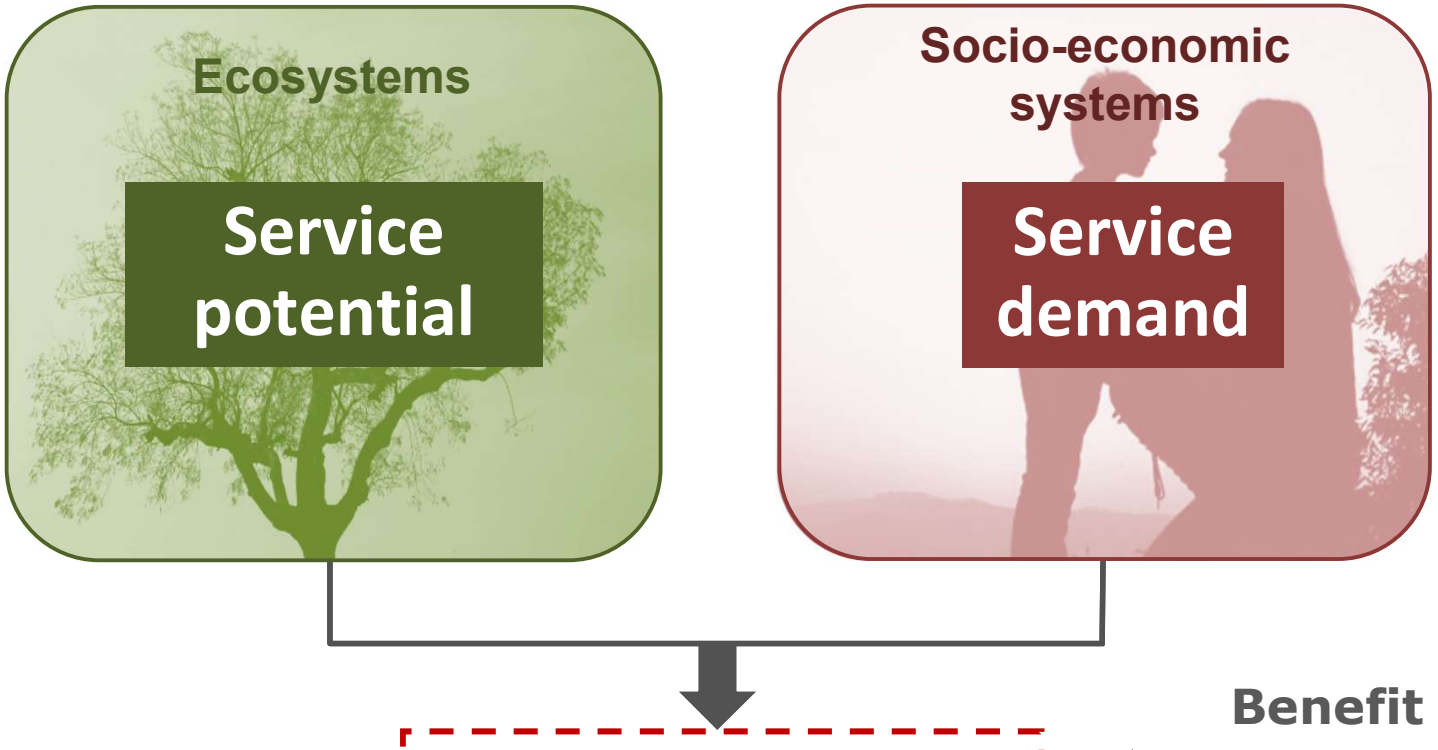

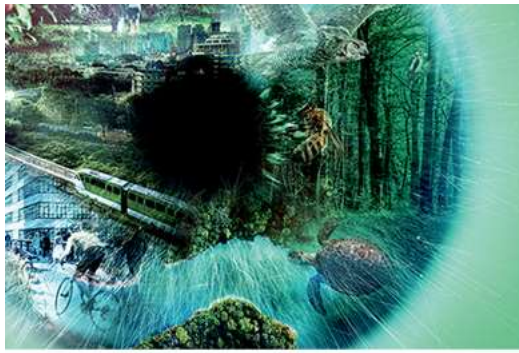

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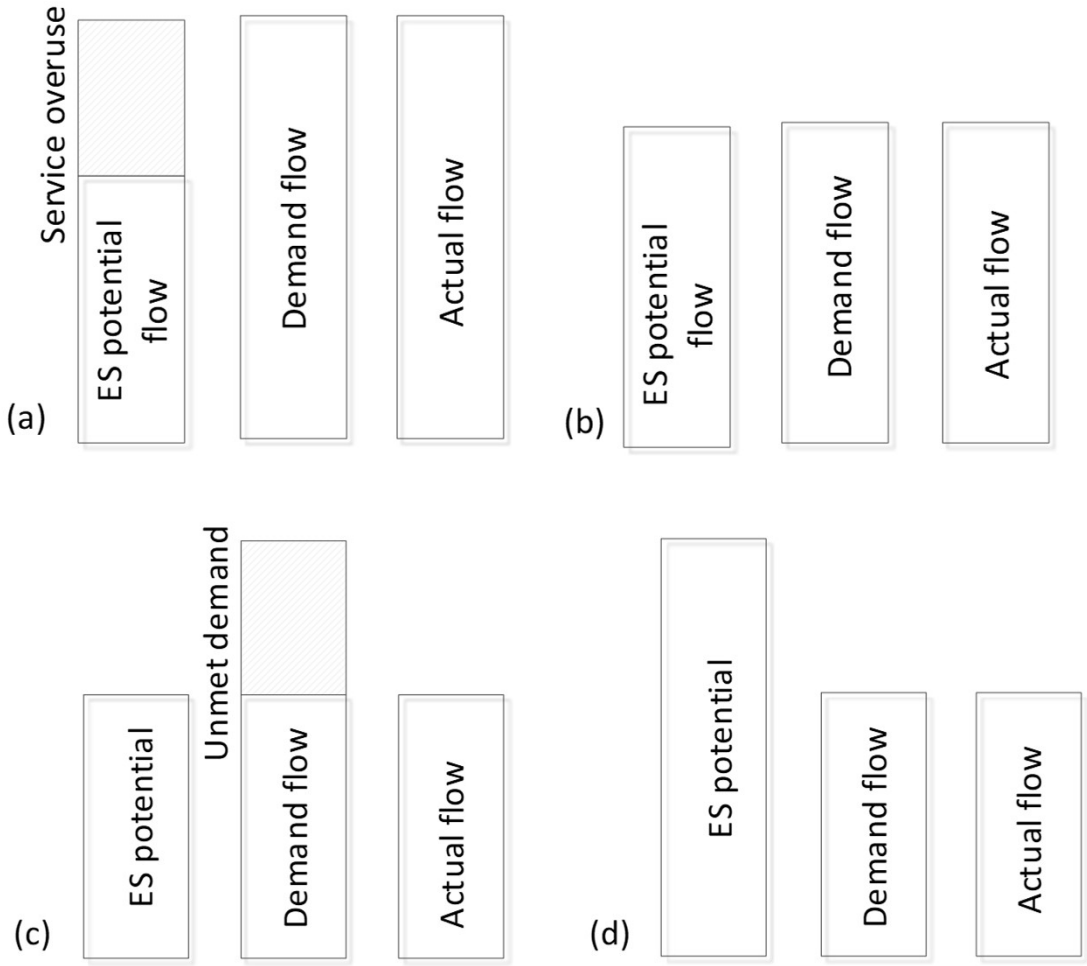

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How to use the accounts:

- no further processing -> descriptive analysis
  (e.g. nature-based recreation)
- moderate processing -> indicators and scoreboards
  (e.g. crop provision)
- intensive processing ->integration with economic modelling
  - multiregional input-output analysis (e.g. water purification)
  - computable general equilibrium models (e.g. pollination)

Other applications:

- intergration into the EU taxonomy for sustainable finance
  (e.g. flood control)

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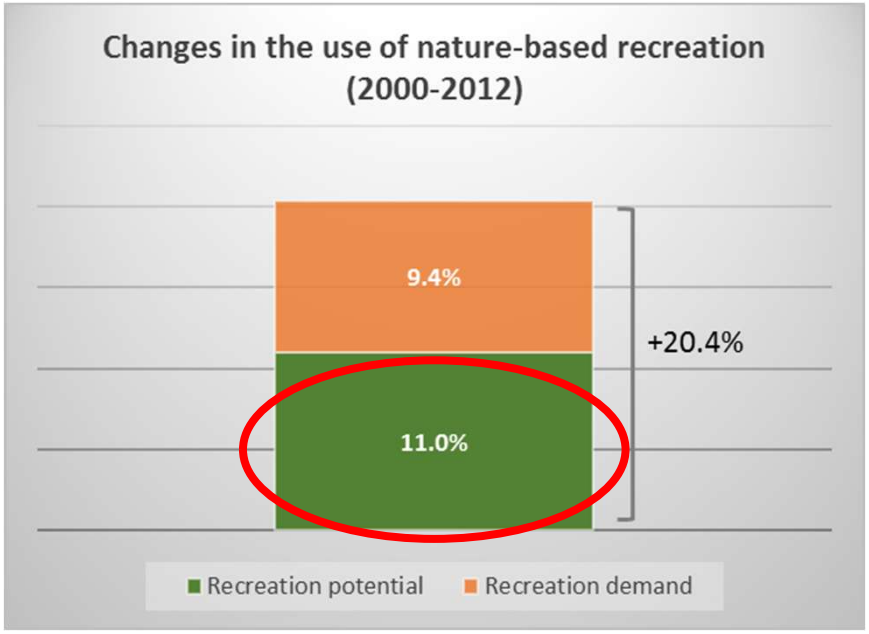
no further processing: descriptive analysis (example -> nature-based recreation)

What is the value of the ecosystem service in the EU?

~ 50 billion euro (2012)

How did it change over time?



Annual change +1.7%

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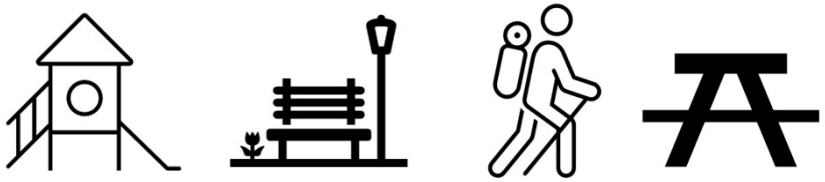
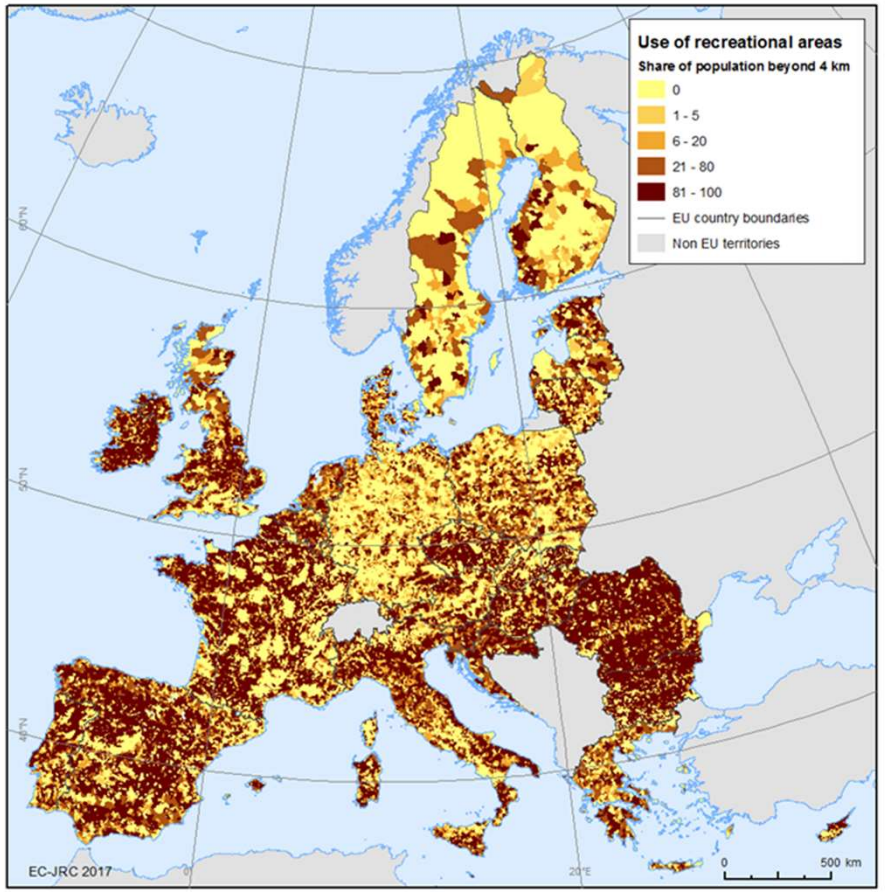
no further processing: descriptive analysis (example -> nature-based recreation)

How can it be enhanced?

‘Green planning’ peri-urban areas



41% of the population in 2012 cannot enjoy nature-based recreation on a daily basis



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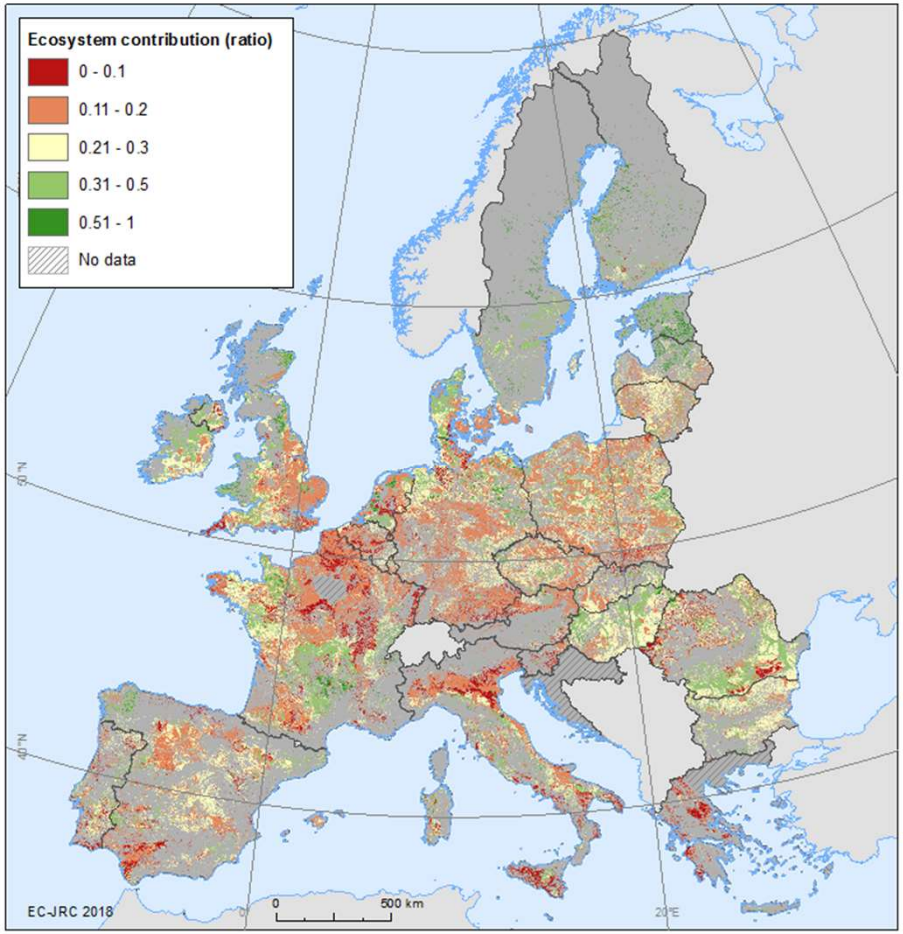
moderate processing: indicators and scoreboards (example -> crop provision)

How to assess sustainability in agricultural production?

Selected products*	Ecosystem Types EC		Other	Type of economic unit*		Flows from the rest of the world		Food Availability	
	Cropland E (t)			Supply Agricultural Industry (ISIC A 01)	Use Crop processed (t)	Imports (t)	Exports (t)	Food (t)	Food supply (Kcal/capita/day)
Wheat									
Barley									
Oats									
Maize (corn)									
Potatoes									
Sugar beet									
Rapeseed or colza seed									
Sunflower seed									

Natural Capital Input component — Market component — Nutrition component

ECOSYSTEM **ECONOMY** **SOCIETY**



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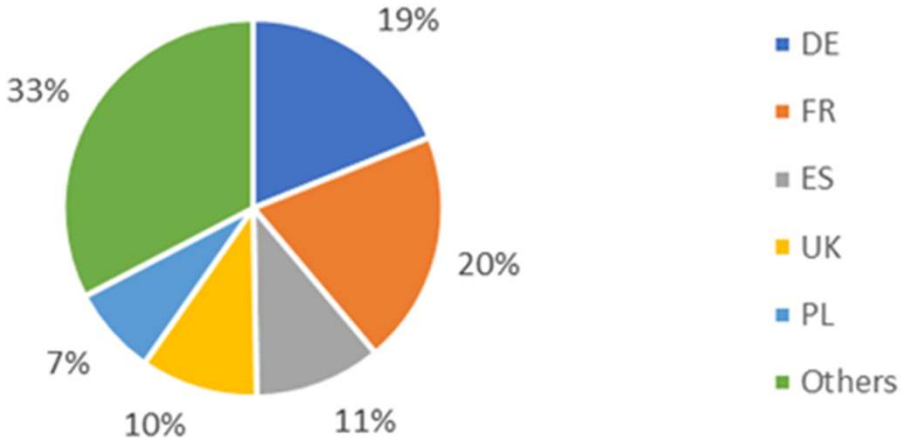
moderate processing: indicators and scoreboards (example -> crop provision)

How to assess sustainability in agricultural production?

	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



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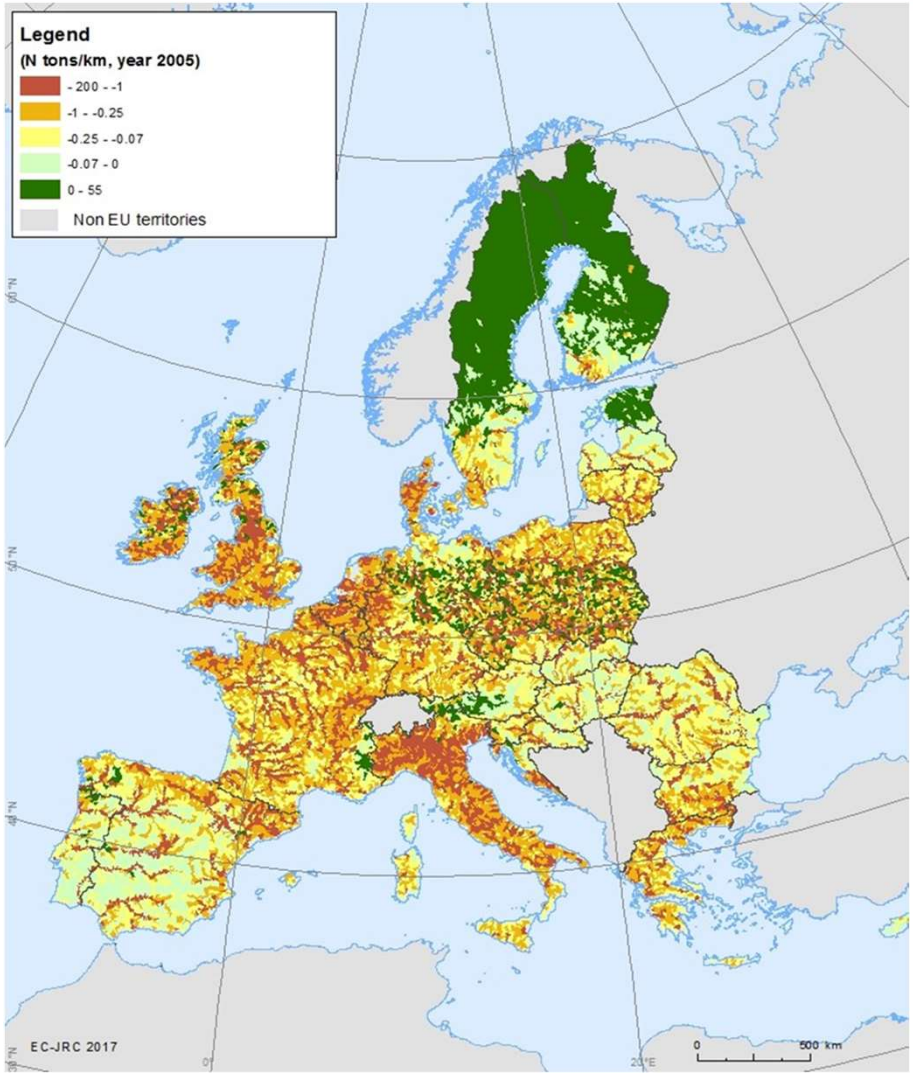
intensive processing: economic modelling
(example -> water purification)

Drivers of ecosystem degradation: production

from production accounts to consumption-based accounts: multi-regional input-output analysis



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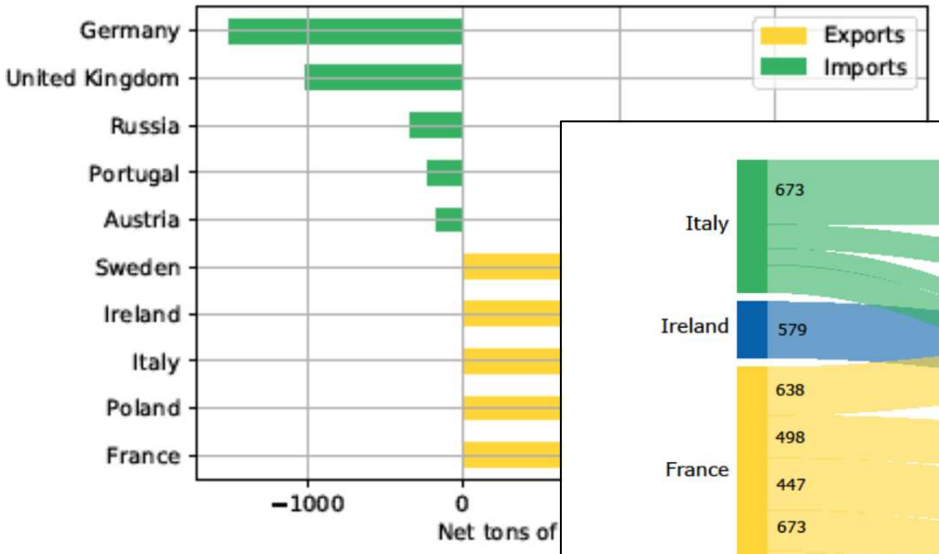

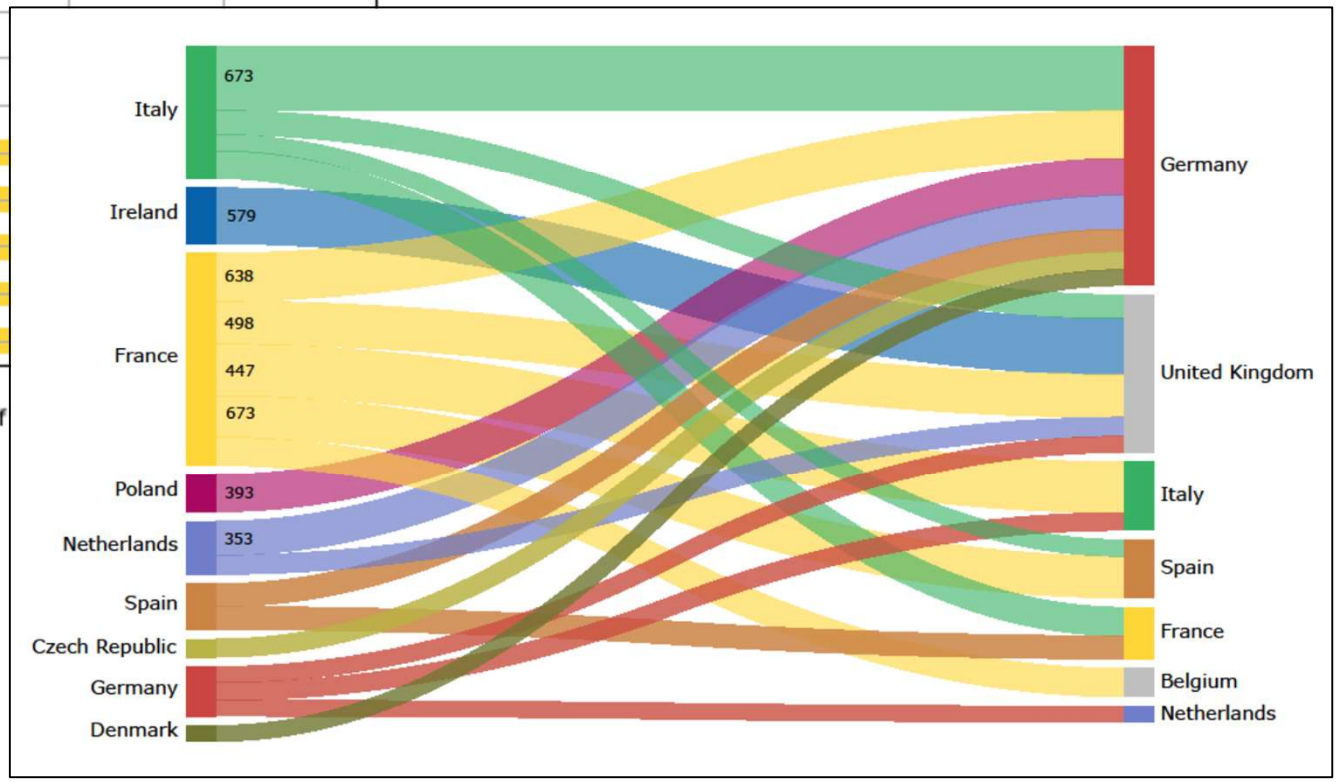

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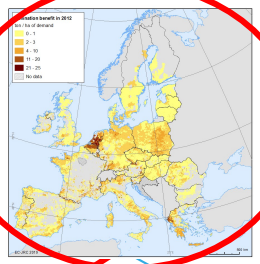
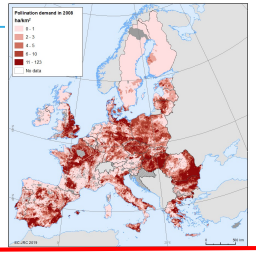
intensive processing: economic modelling (example -> pollination)

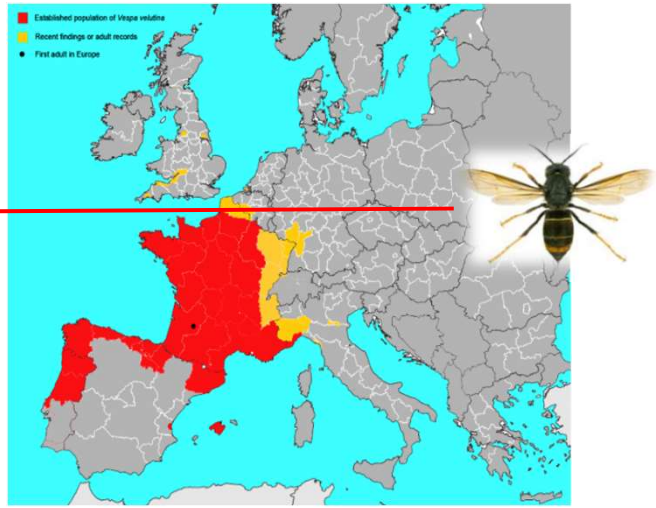
ES Potential

ES Actual flow



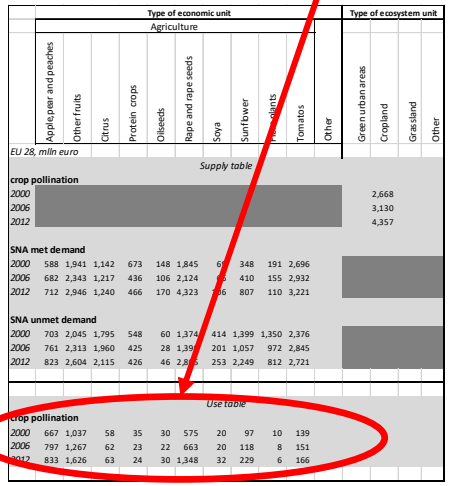


ES Demand



SNA benefits

Non-SNA benefits



What are the economic impact of ecosystem degradation (e.g. invasive alien species)?

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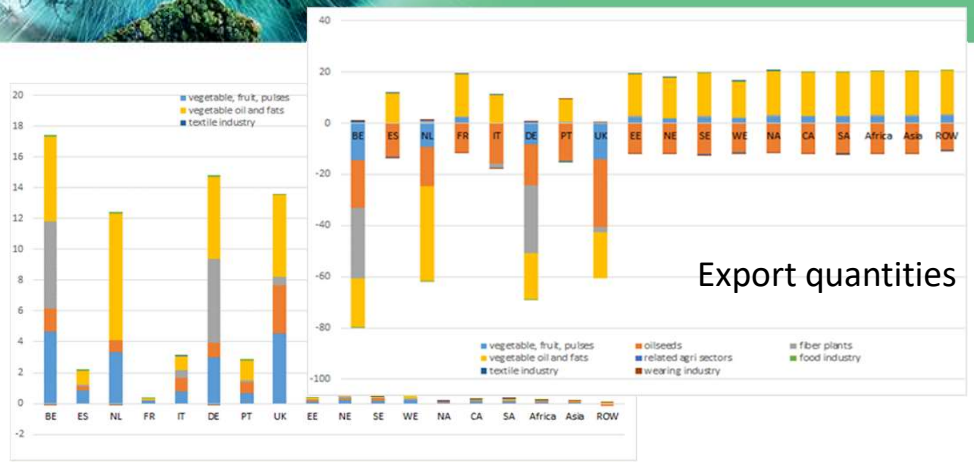
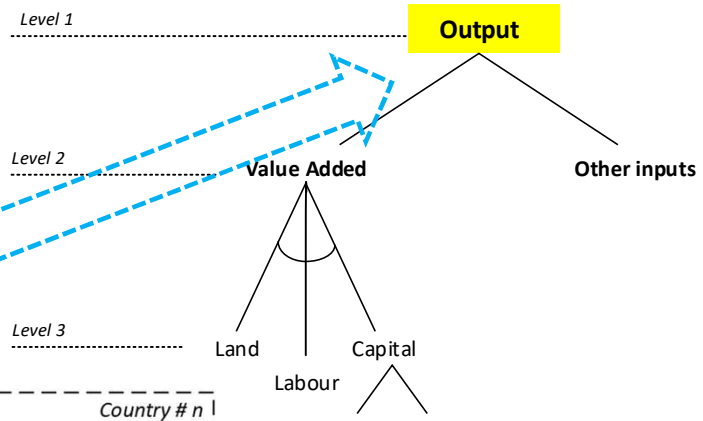
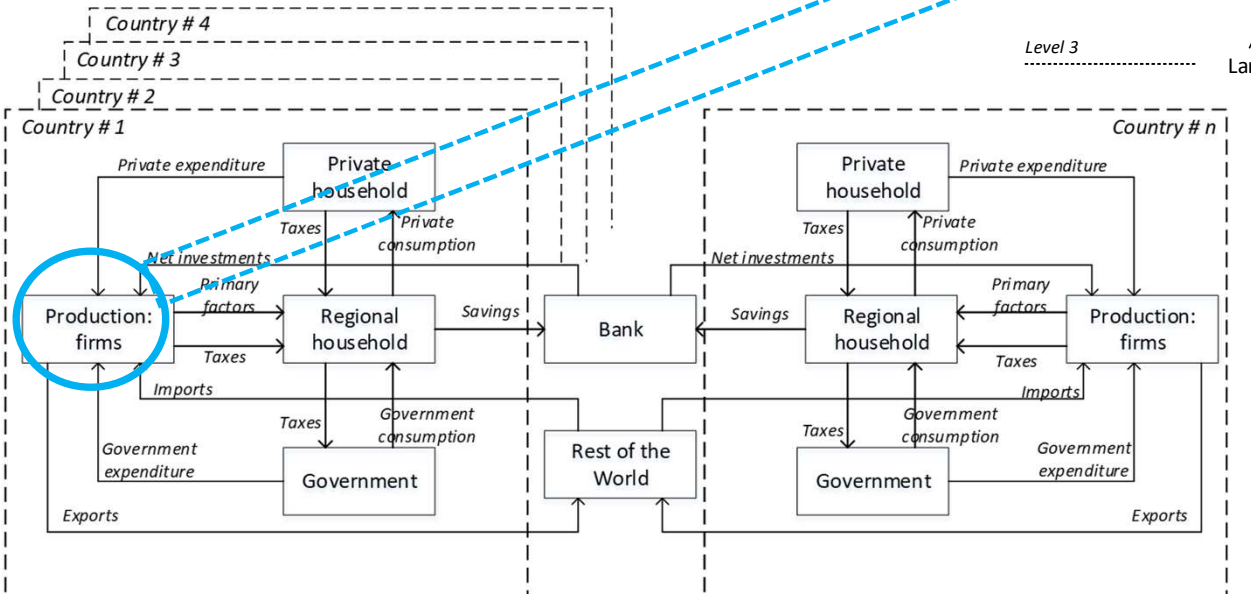


Export quantities

intensive processing: economic modelling (example -> pollination)



Production structure



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linkage to taxonomy: prove environmental sustainability and justify the reduction of risk (example -> flood control)

How to assess an investment?

supply table

	Ecosystem units								
	urban	cropland	grassland	forest & woodland	heathland & shrub	sparse vegetation	wetland	rivers and lakes	shelf and open ocean
ECOSYSTEM SERVICES									

use table

	Economic units													
	agriculture	forestry	fisheries	mining and quarrying	manufacturing	construction	transportation and accomodation and food services	electricity, gas supply	water collection, treatment, supply	other industries	households	global society
ECOSYSTEM SERVICES												

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ECOSYSTEM SERVICES

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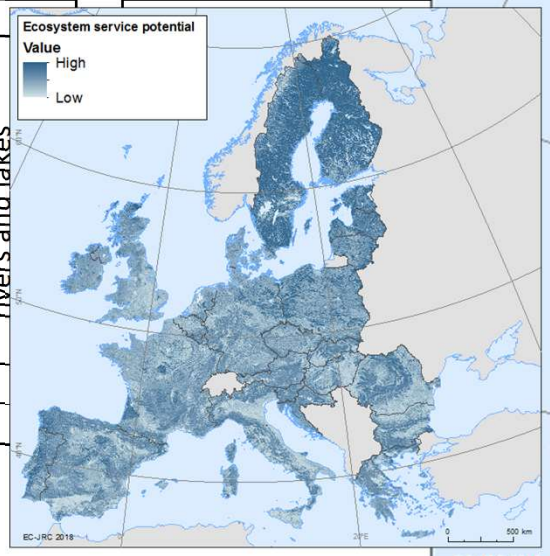

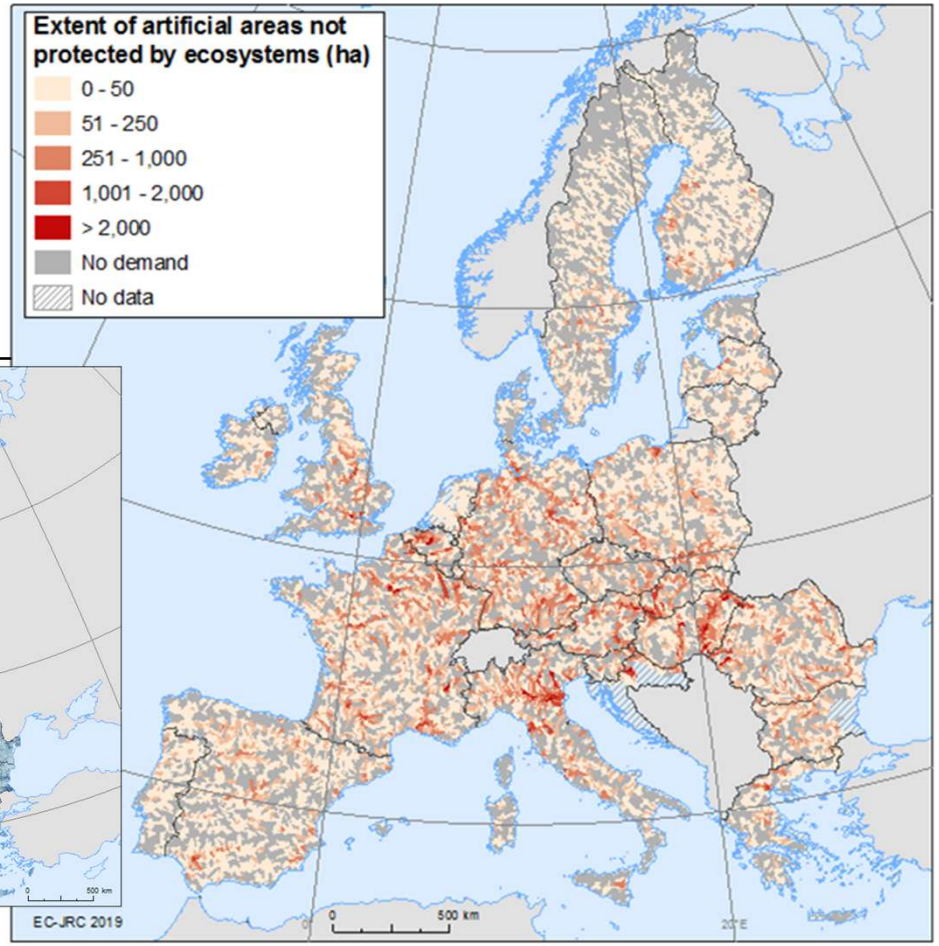

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Beyond the economic boundaries to account for ecosystem services

Alessandra La Notte*, Sara Vallecillo, Alexandra Marques, Joachim Maes

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ECOSYSTEM HEALTH AND SUSTAINABILITY
https://doi.org/10.1080/20964129.2019.1634979

RESEARCH ARTICLE

The theoretical frameworks behind integrated environmental, ecosystem, and economic accounting systems and their classifications

Alessandra La Notte[a,*], Charles Rhodes[b]

Adjusted macroeconomic indicators to account for ecosystem degradation: an illustrative example

Alessandra La Notte and Alexandra Marques

European Commission, Joint Research Centre (

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How ecosystem services are changing: an accounting application at the EU level

Sara Vallecillo[a,*], Alessandra La Notte[a], Silvia Ferrini[b,c], Joachim Maes[a]