Ecosystem Services in the EU

Webinar Danish Network for Ecosystem Services

Thursday 28th January 14:00 – 15:00

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Policy Evolution Over Time

2015	Thematic policies, timelines and deadlines
2020/2030	Comprehensive policies (Europe 2020, 7th Environment Action Programme), or specific target
2050	Long-term visions and targets with a societal transition perspective

EEA SOER, 2015

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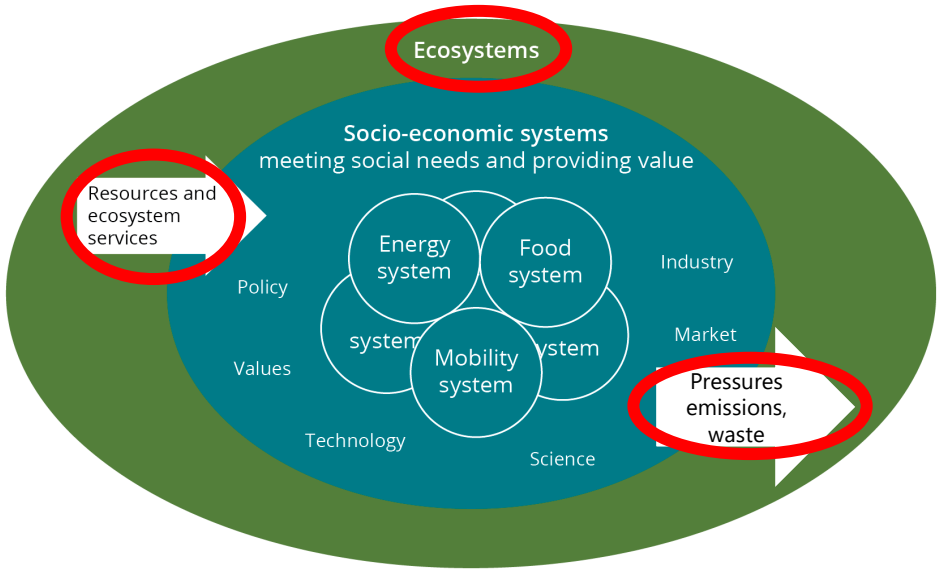
Sustainability targets and natural capital

The General Union Environment Action Programme to 2020 (7th EAP)

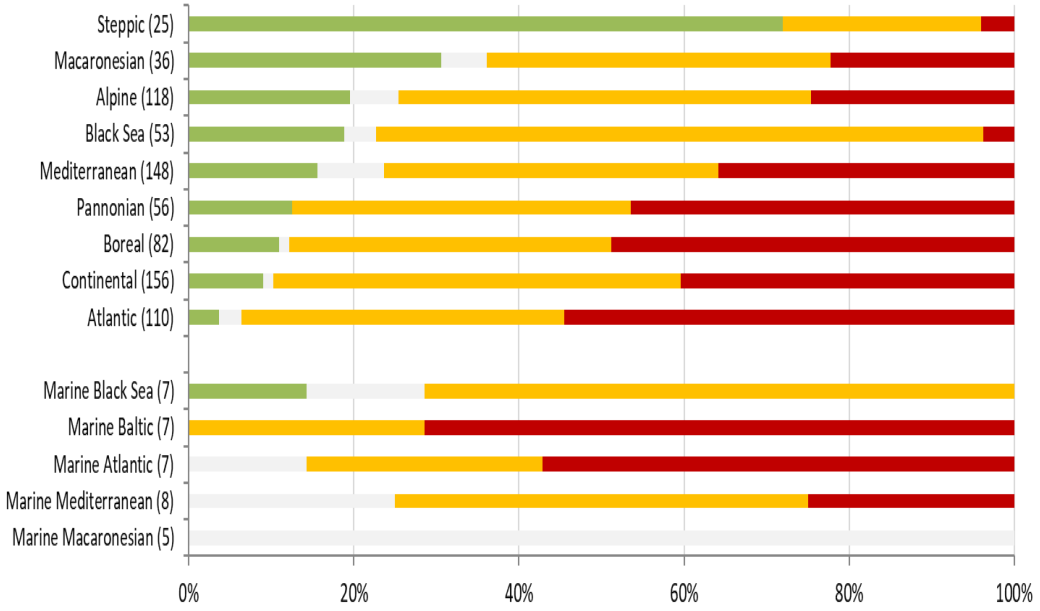
Decision No 1386/2013/EU of the European Parliament and of the Council

Strategic Target:
Living well, within the limits of our planet



Headline Target:
To protect, conserve and enhance the Union's **natural capital**

State of Nature Report (2020)
Conservation status of habitats for each biogeographic and marine region at EU level



EEA, 2020, Article 17 reports and assessments

http://ec.europa.eu/environment/pubs/pdf/factsheets/7eap/en.pdf

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EU Biodiversity Strategy to 2020

Action 5 of the Biodiversity Strategy

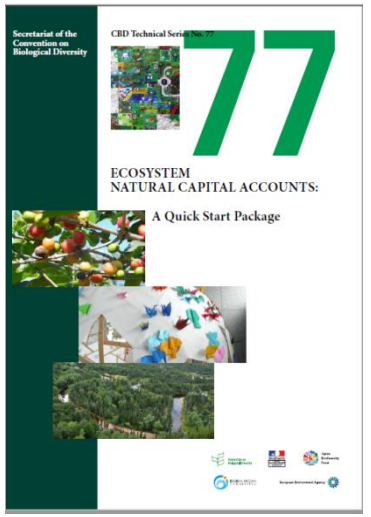
- **Improve the knowledge of ecosystems and their services in the EU**

- "Member States, with the assistance of the Commission, to map and assess the state of ecosystems and their services in their national territory by 2014, assess the economic value of such services, and promote the integration of these values into accounting and reporting systems at EU and national level by 2020"

- The working group on Mapping and Assessment of Ecosystems and their Services (**MAES**) oversees the implementation of Action 5

Implementing of International Agreements

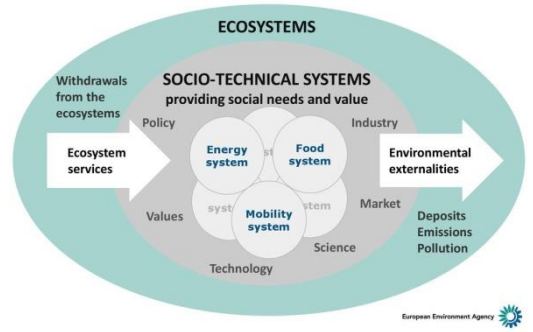
- Aichi Biodiversity Target 2 **Target 2** " By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems."
- SDG 15.9 "By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts".



Natural Capital Accounting and Ecosystem Services in the broader context

- UN Sustainable Development Goals
- EU Biodiversity Strategy 2020 including Green Infrastructure - EU contribution to CBD Aichi Targets
- LIFE Programme/Pollinators initiative
- Climate change mitigation/adaptation/LULUCF
- SOER 2020 systemic changes and natural capital

Green Economy: Living well within ecological limits



Policy integration

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Green Deal - Europe's policy agenda for sustainability

- First **climate-neutral** continent
- **Biodiversity** Strategy for 2030
- New **Circular Economy** Action Plan
- **Zero pollution** strategy
- **Farm to fork** strategy
- **Just transition**
- **Sustainable** European **Investment** Plan
- Future ready economy – new **industrial strategy**

EEA 2019: State of Environment Report (SOER2020)
https://www.eea.europa.eu/soer

8th EAP

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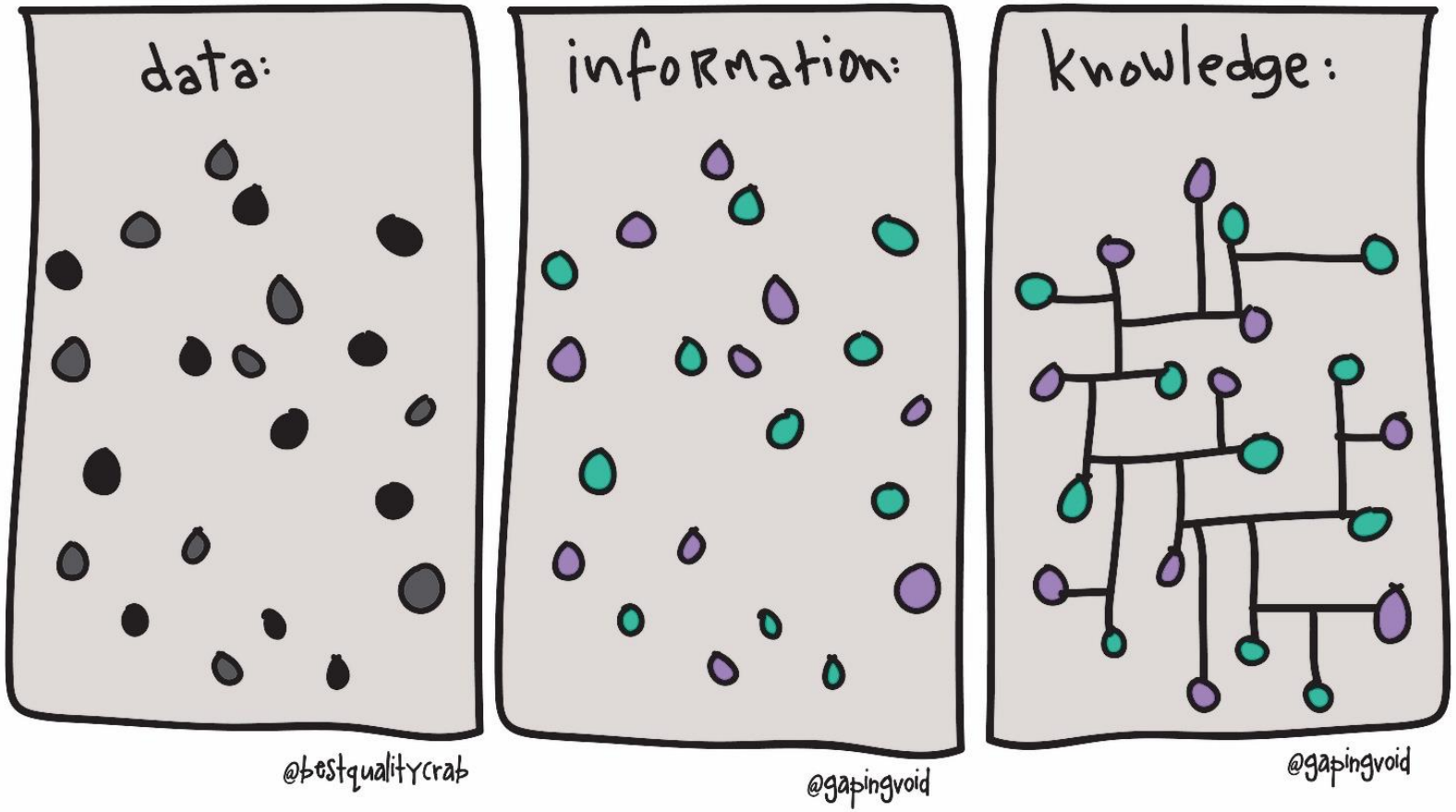
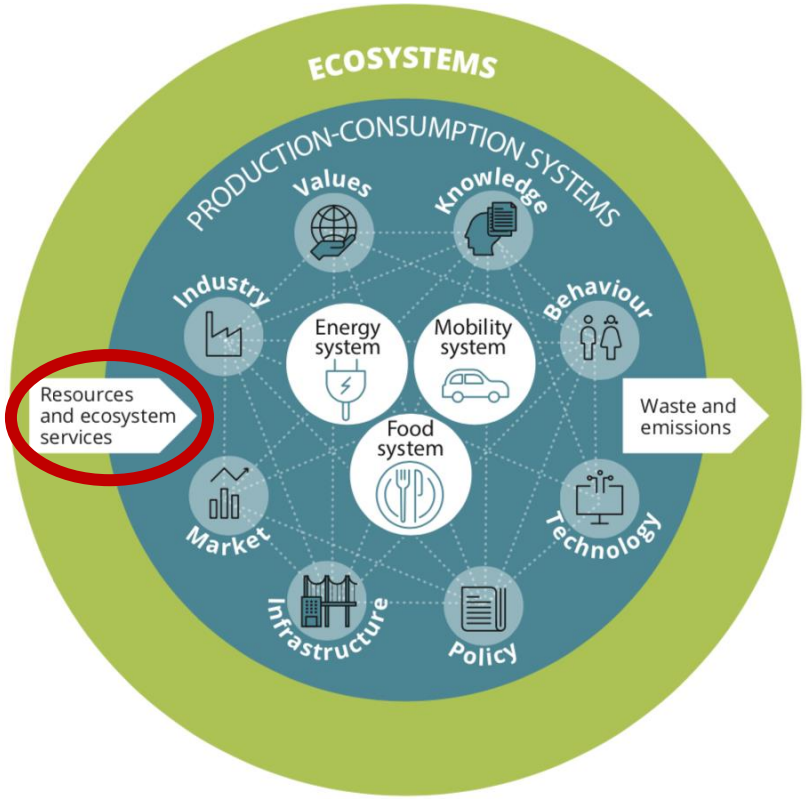
From Data to Knowledge

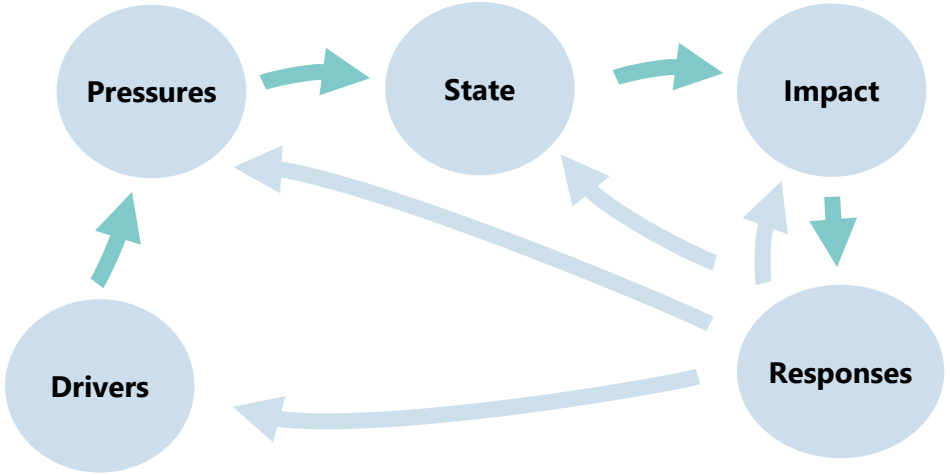


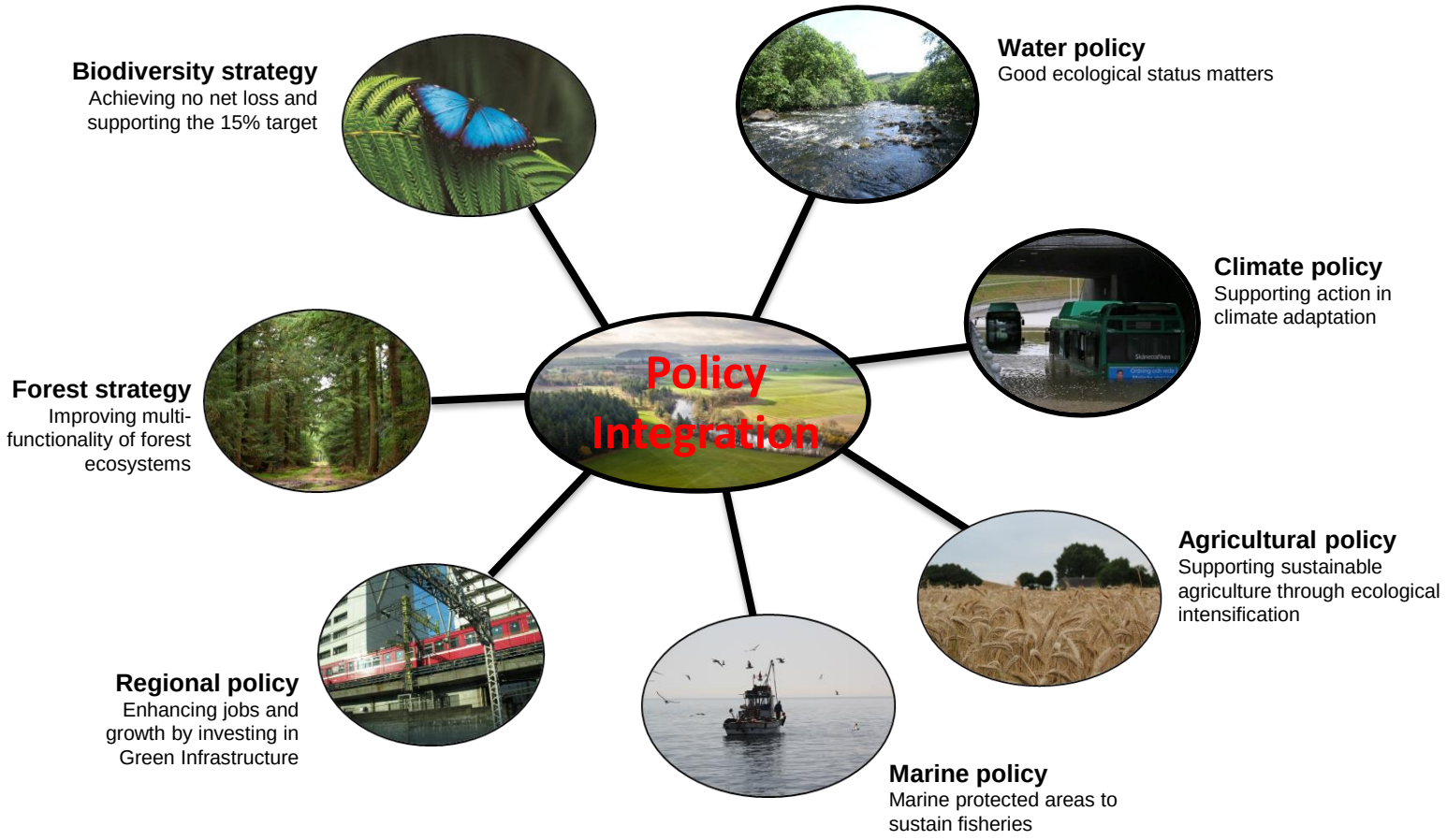


https://www.youtube.com/watch?v=mUgEgkV16Bw

Policy Streamlining and Integration

DPSIR Approach





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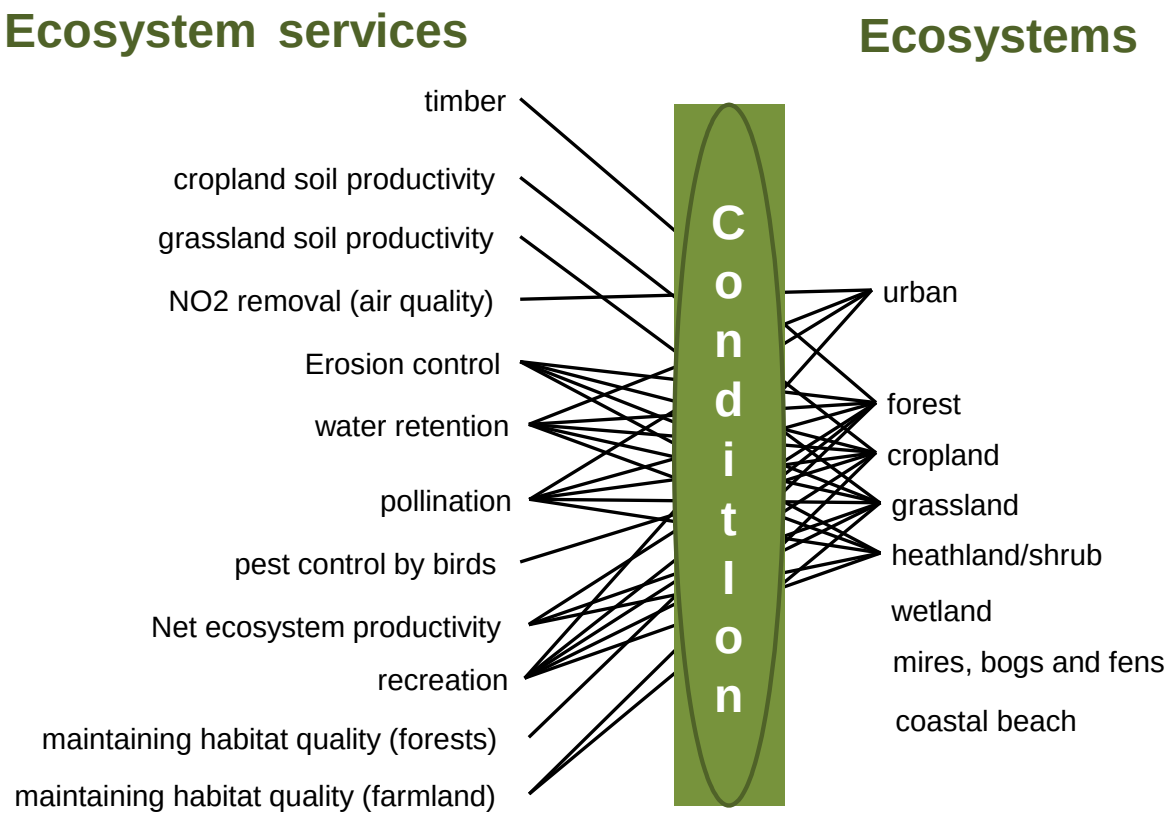
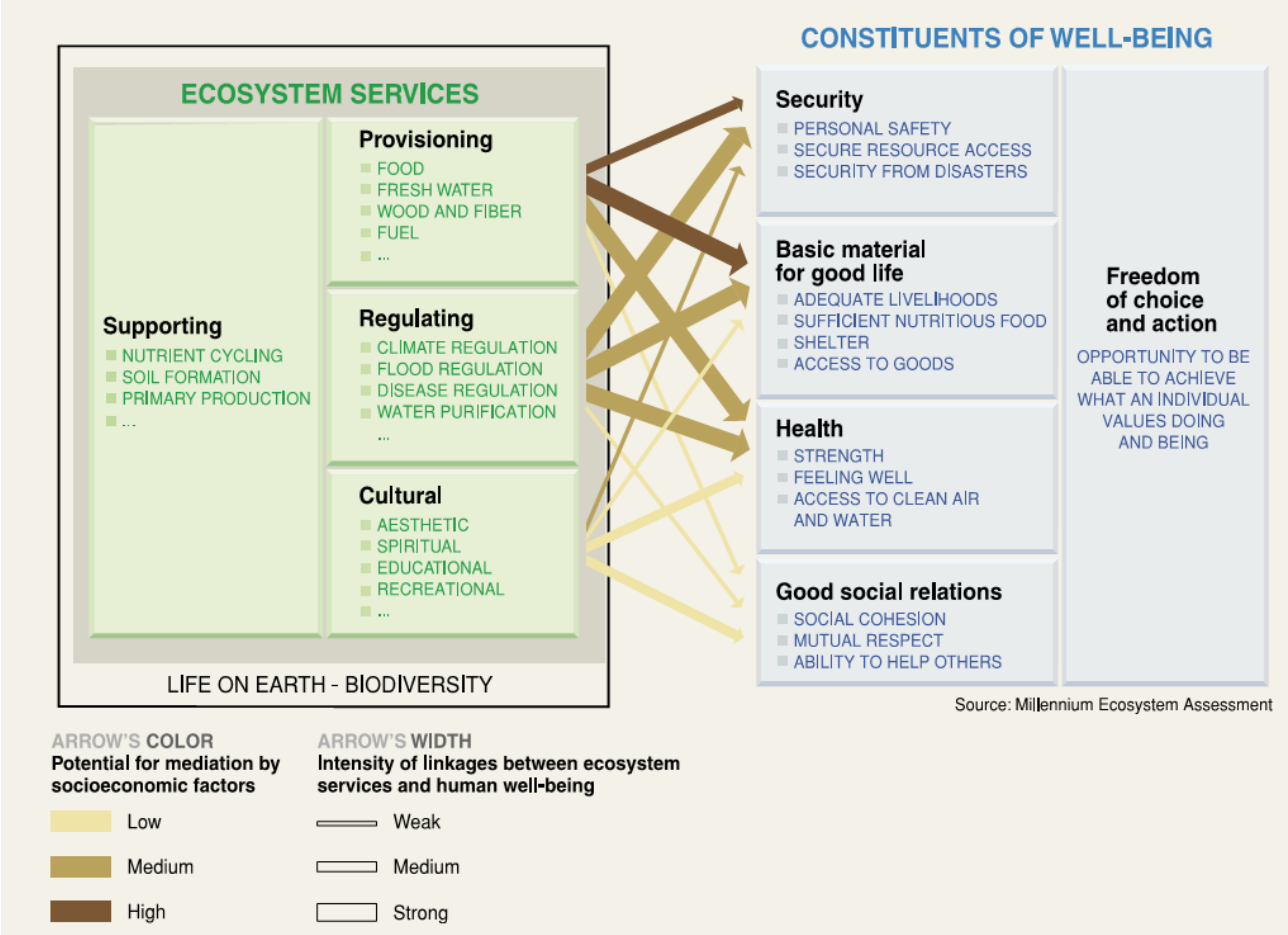
Ecosystem Multi-functionality – Multiple Services



ETC/ULS, 2015



MEA, 2005

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Health and Well-being Depends on the Portfolio of Ecosystem Services

Local climate regulation

Flood regulation

Timber production

Recreation

Carbon sequestration

Aestetic values

Habitat services

Production of food

Air purification

Water infiltration

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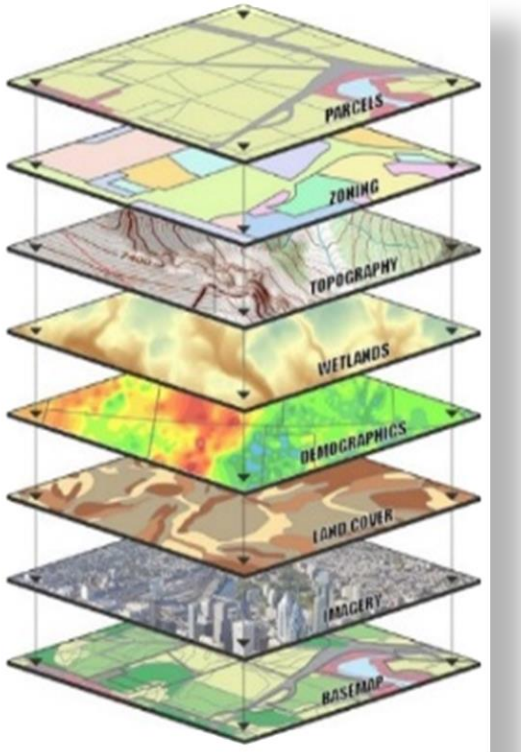
Spatial explicit information for multiple uses

Geo-spatial platform



Ecosyste

Ecosyste

Other analytical uses

Ecosystem service accounts

Ecosystem condition accounts

Ecosystem extent accounts

Ecosystem assessment

Ecosystem service assessment

Ecosystem accounting

Policy analysis

Integrated assessment

Sectoral analysis etc.

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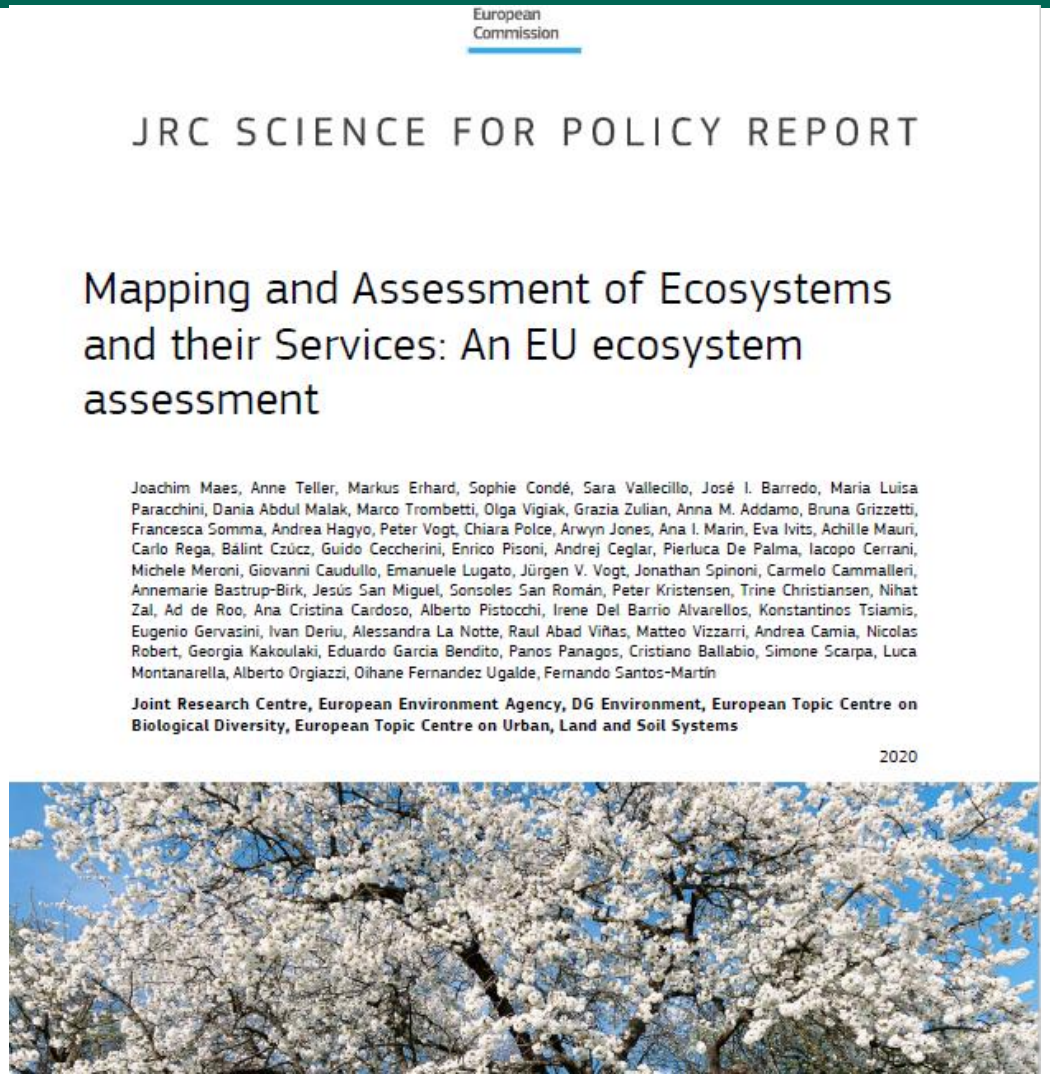
MAES Final Report

- An analysis of trends in pressures, condition and services of marine, freshwater and land ecosystems of the EU+UK using 2010 as baseline year.
- An evaluation of the 2020 biodiversity and ecosystems targets.
- A baseline for the 2030 biodiversity policy and EU nature restoration plan.



https://publications.jrc.ec.europa.eu/repository/handle/JRC120383

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Structure MAES assessment

a) Thematic ecosystem assessments

- Urban ecosystems
- Agro-ecosystems (cropland and grassland)
- Forests and other woodlands
- Heathlands, shrubs and sparsely vegetated lands
- Wetlands
- Soil

→ Rivers and lakes → Marine ecosystems (Inlets and transitional, coastal, shelf, open ocean)

b) Ecosystem services assessments

- Crop provision
- Timber provision
- Pollination
- Carbon uptake
- Erosion control
- Flood control
- Water purification
- Nature - based recreation

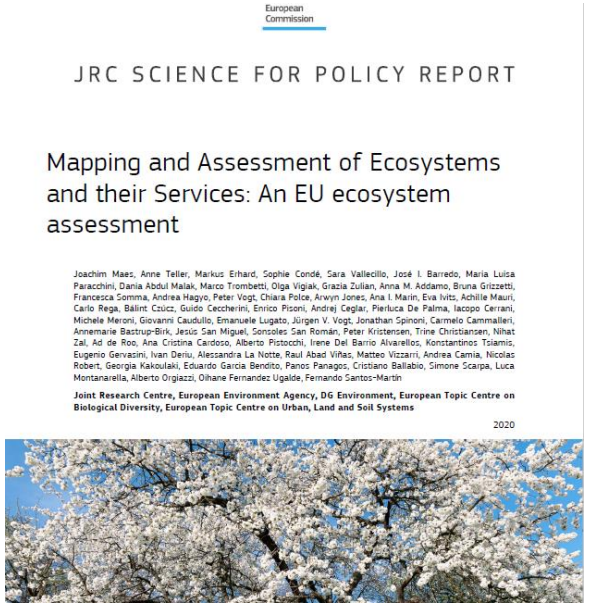
c) Integrated ecosystem assessment

Ecosystem condition and ecosystem services

d) Integrated narratives on key policy issues

- Pollinators / pollination
- Soil organic carbon
- Wetlands and flood plains
- Invasive Alien Species
- Natura 2000, (urban) GI and Restoration
- Climate change and ecosystems (after 2019)

MAES Final Report



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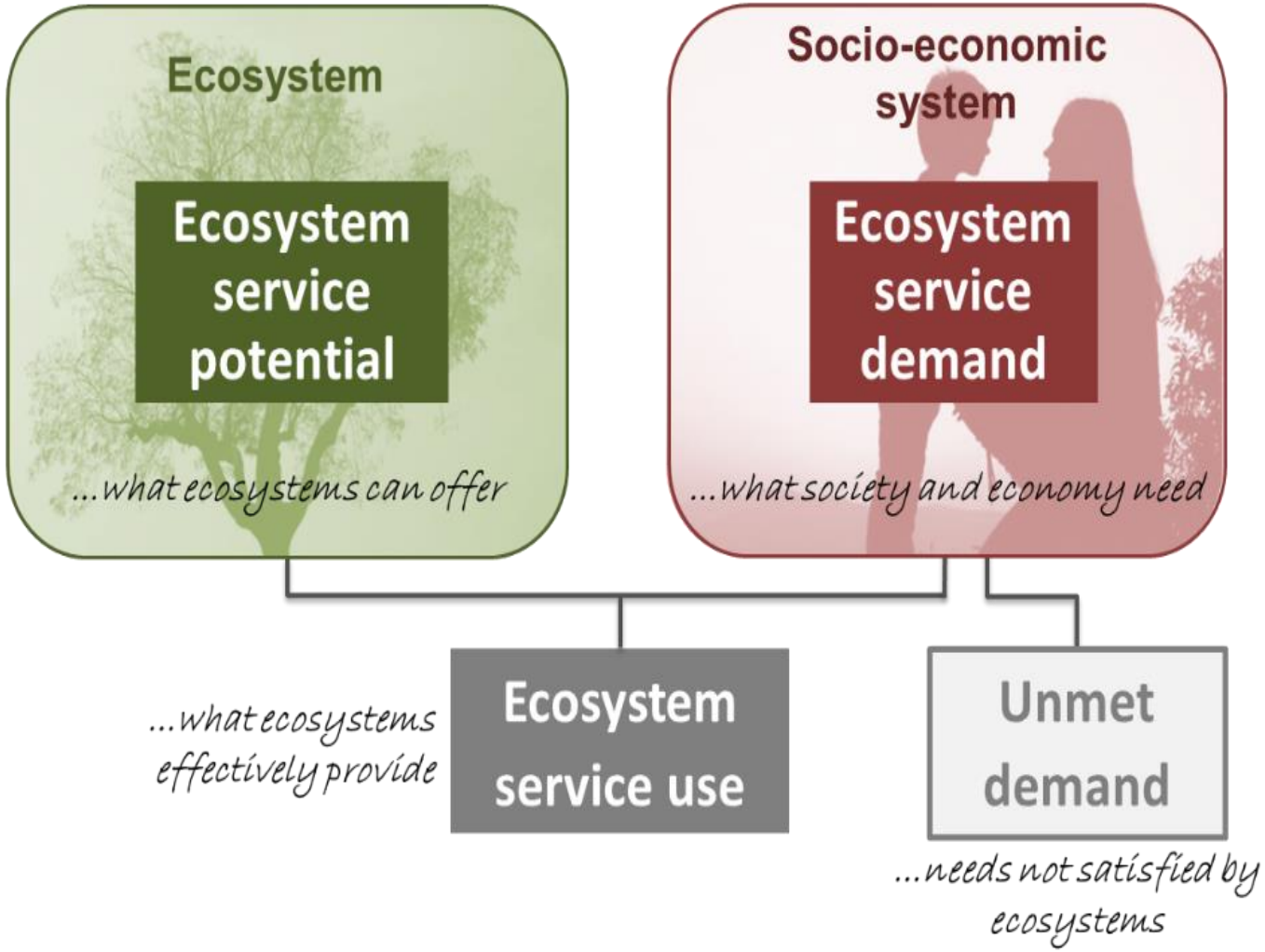
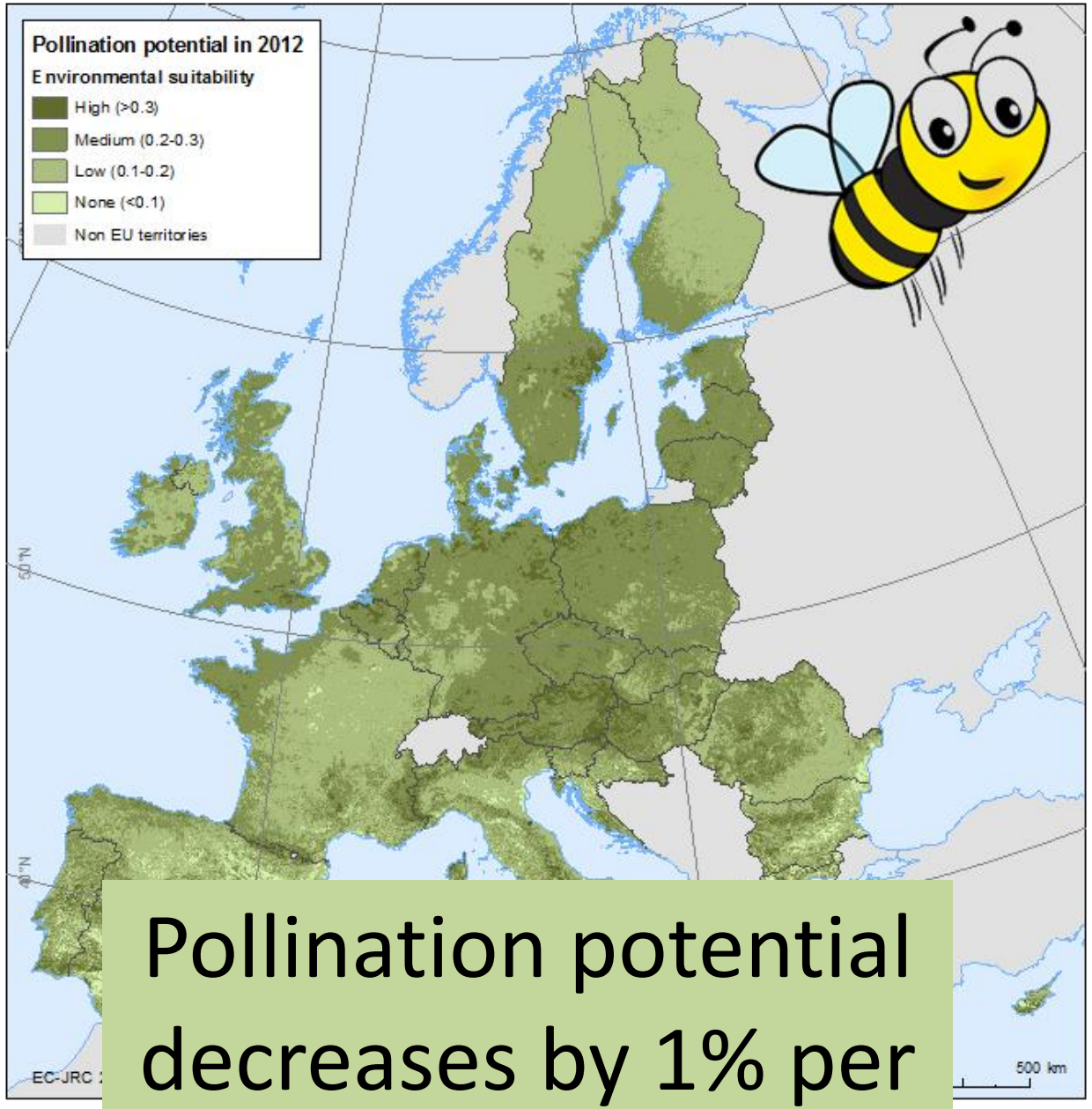
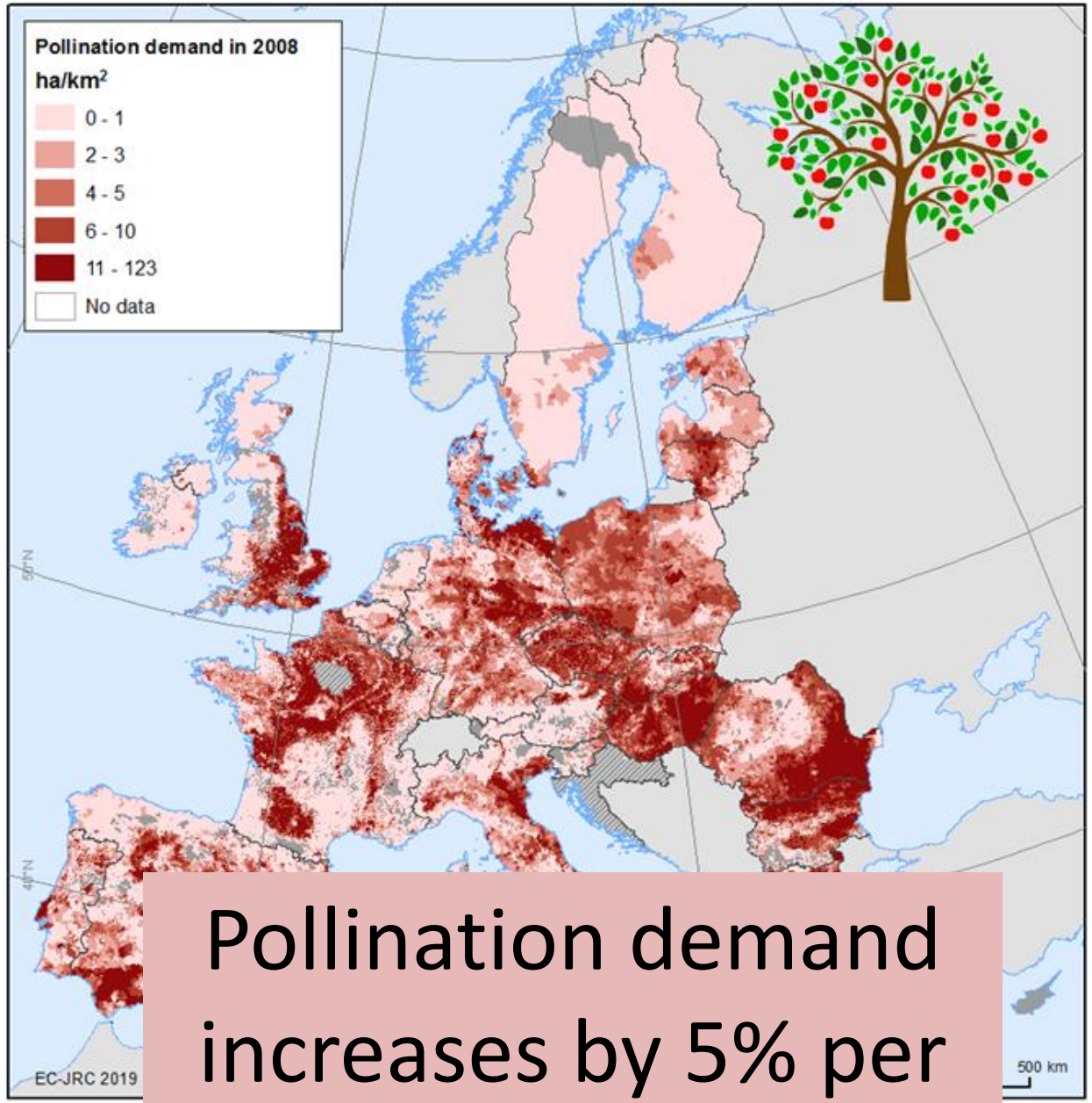
Ecosystems and Human Well-being



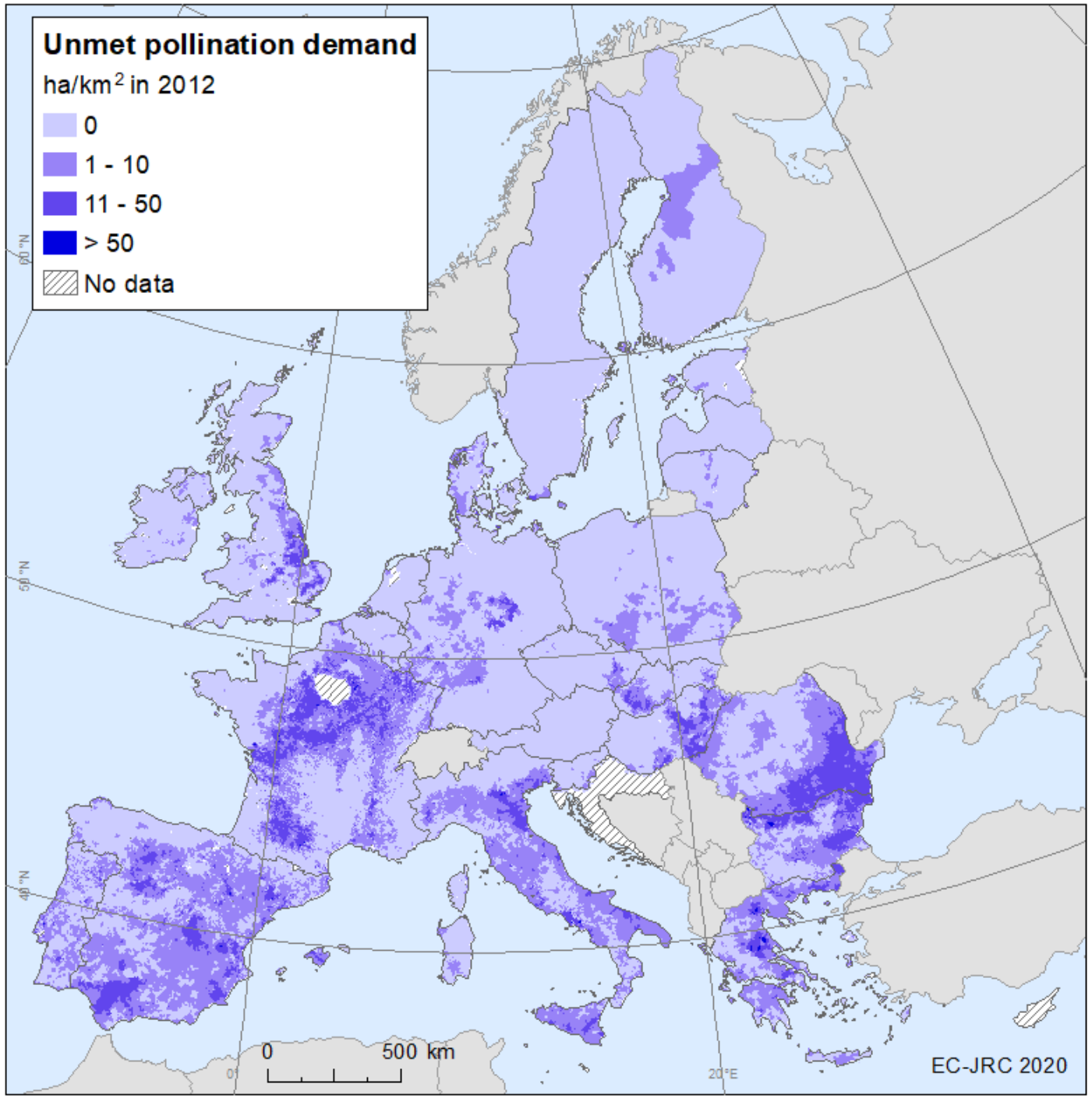
Vallecillo et al., 2020 https://publications.jrc.ec.europa.eu/repository/handle/JRC120383



Pollination potential decreases by 1% per decade

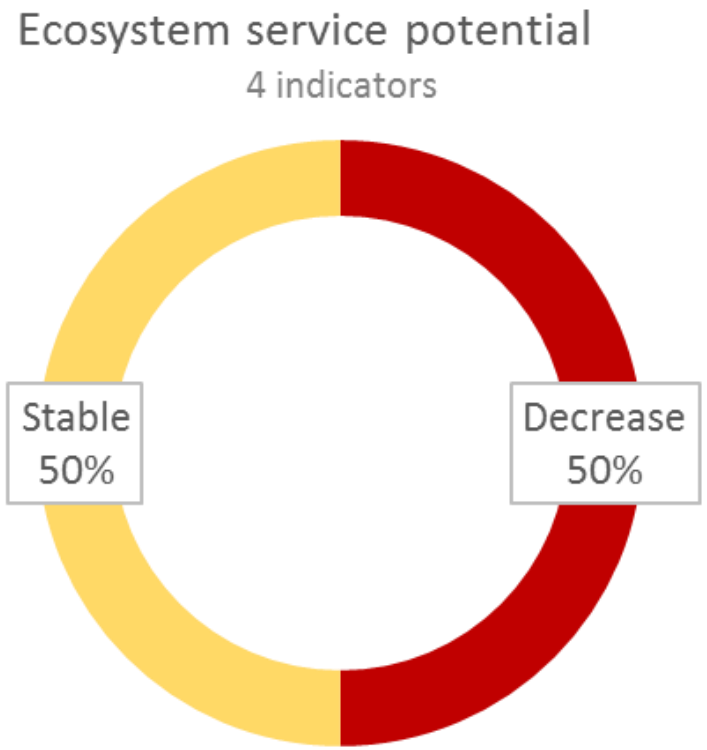


Pollination demand increases by 5% per decade

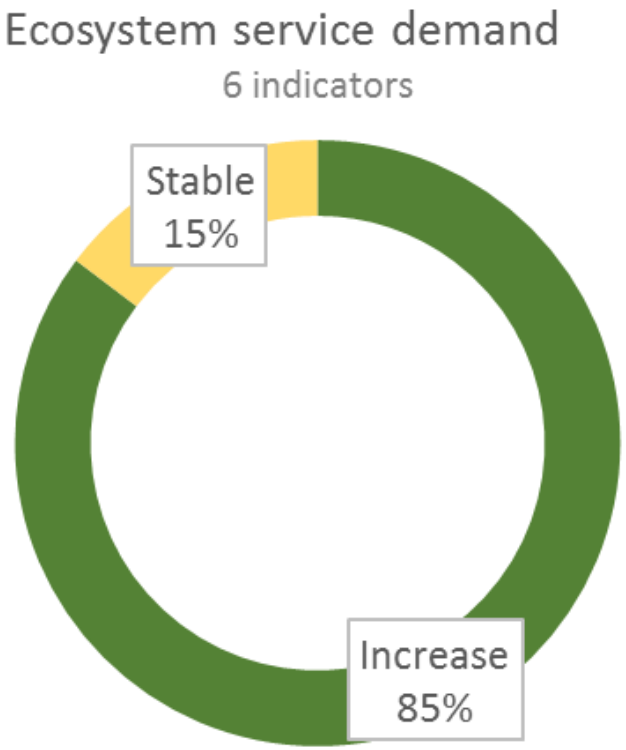


51% of the pollinator dependent crops in the EU are grown in areas with low suitability to support pollinators

Main Trends in Ecosystem Services



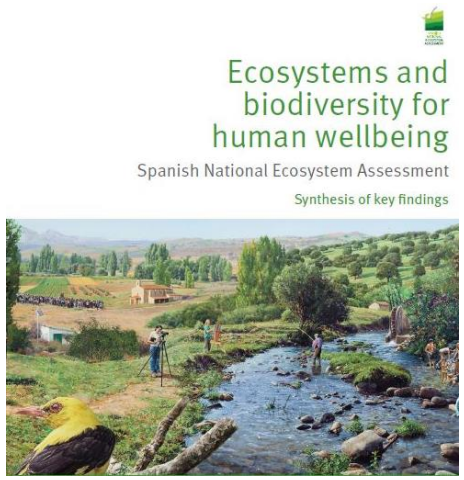
How much ecosystems can provide to people

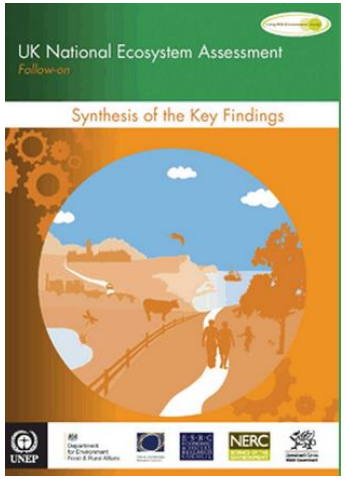


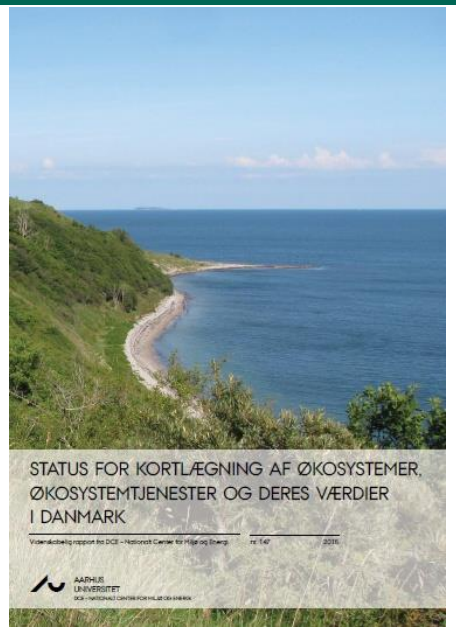
How much people take from ecosystems

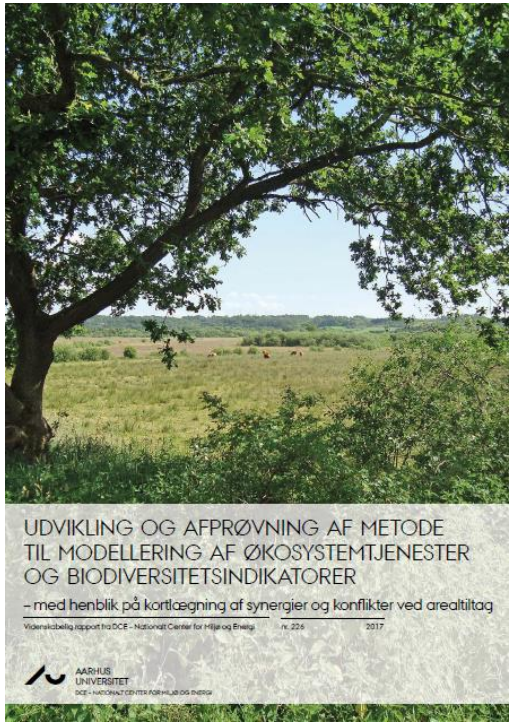
Maes et al. 2020

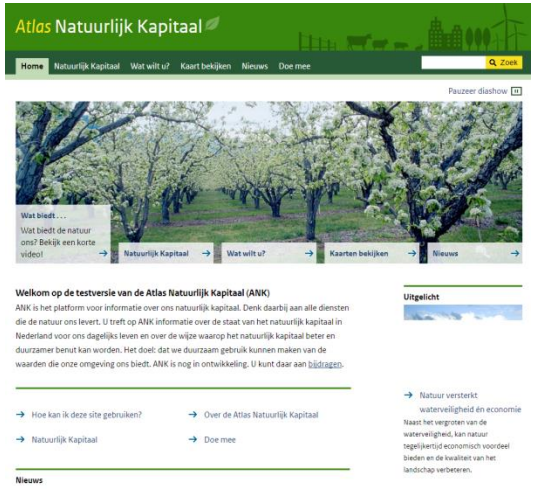
Ecosystem / Ecosystem Service Assessments Member States

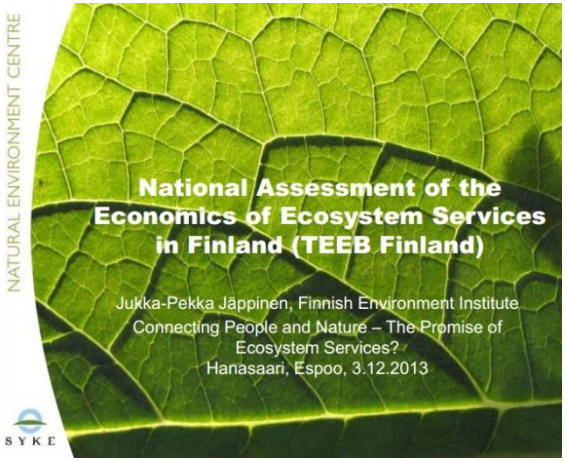












https://biodiversity.europa.eu/countries

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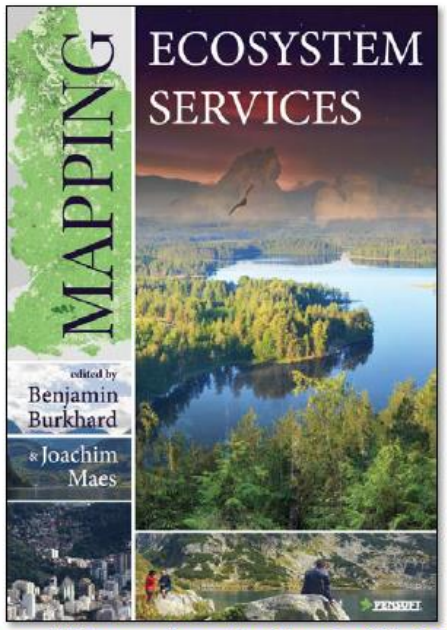
Research Projects ESMERALDA, MAIA, MOVE,...

ESMERALDA "flexible methodology"

ESMERALDA "flexible methodology" will consist of many components

Key parts could for example be:

- **Guidance documents** on how to map and assess ES on different scales, using various tiers and addressing diverse policy, societal and business questions (based on various ESMERALDA Deliverables, e.g. D3.4, D4.4, D5.4)



http://ab.pensoft.net/articles.php?id=12837

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ESMERALDA Project Results: http://esmeralda-project.eu/documents/3/

Assessing Ecosystems and their Services in LIFE Projects

AVAILABLE ONLINE ALSO FOR NEW APPLICANTS

Courtesy: Silvia Donato, EASME

The Ecosystem Service Matrix in LIFE Beneficiaries

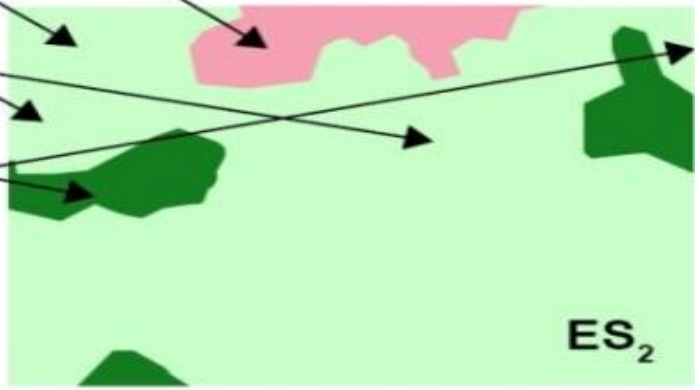
Map with geospatial units

Not relevant	0
Very low	1
Low	2
Medium	3
High	4
Very high	5

Scale for ranking ES supply, flow or demand

	ES_1	ES_2	ES_N
U_1	0	0	X
U_2	2	1	X
U_3	2	1	X
U_4	1	1	X
U_5	5	5	X
U_6	2	1	X

ES matrix linking geospatial units with ES rankings



ES ranking based on different ES quantification methods

Courtesy: Silvia Donato, EASME

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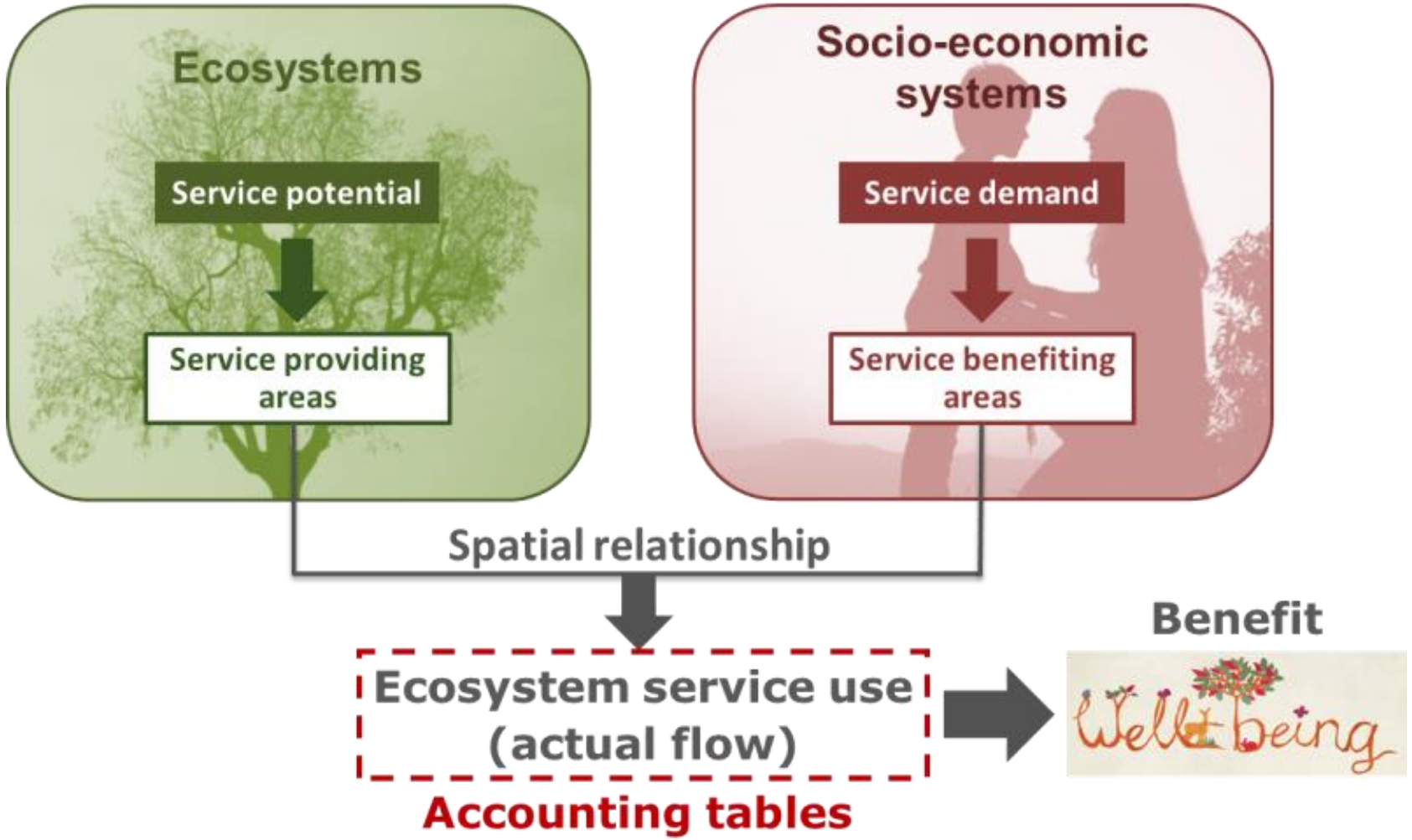
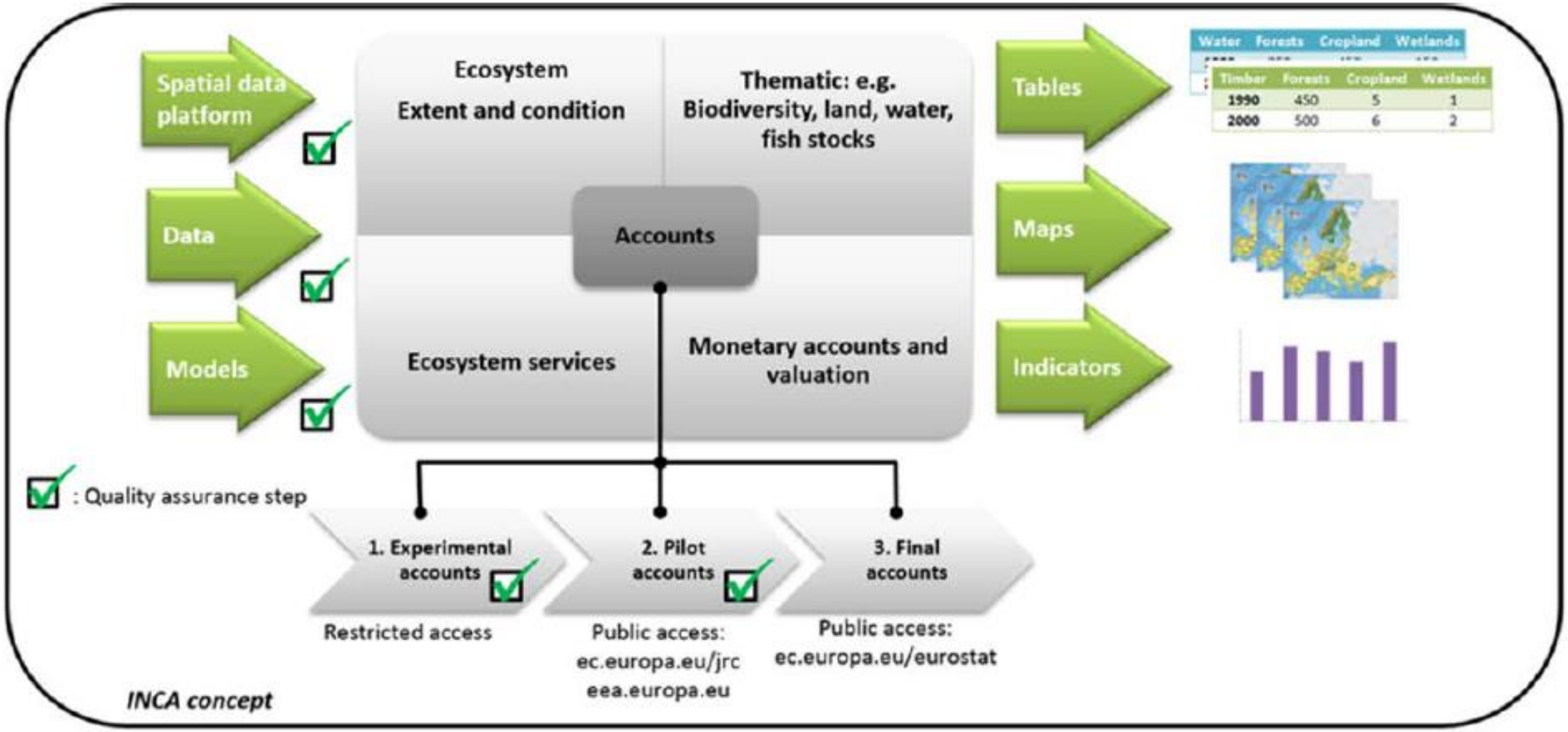
Ecosystems and Human Well-being

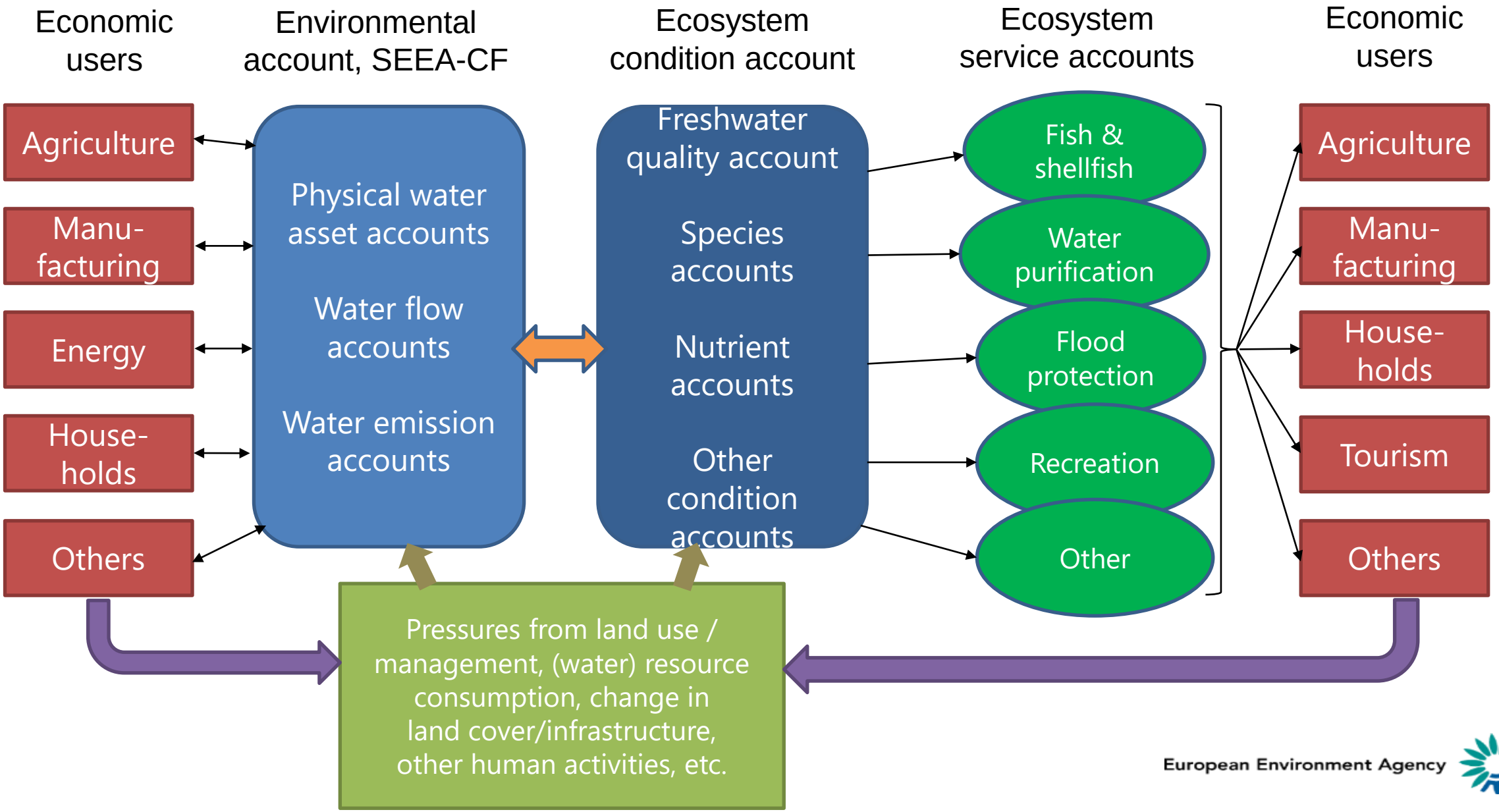


Conceptual approach for developing ecosystem services accounts used in INCA (Vallecillo et al. 2018)

KIP INCA : Knowledge & Information Partnership for Integrated Natural Capital Accounting in 2020



Integrated analysis based on accounts e.g. freshwater system



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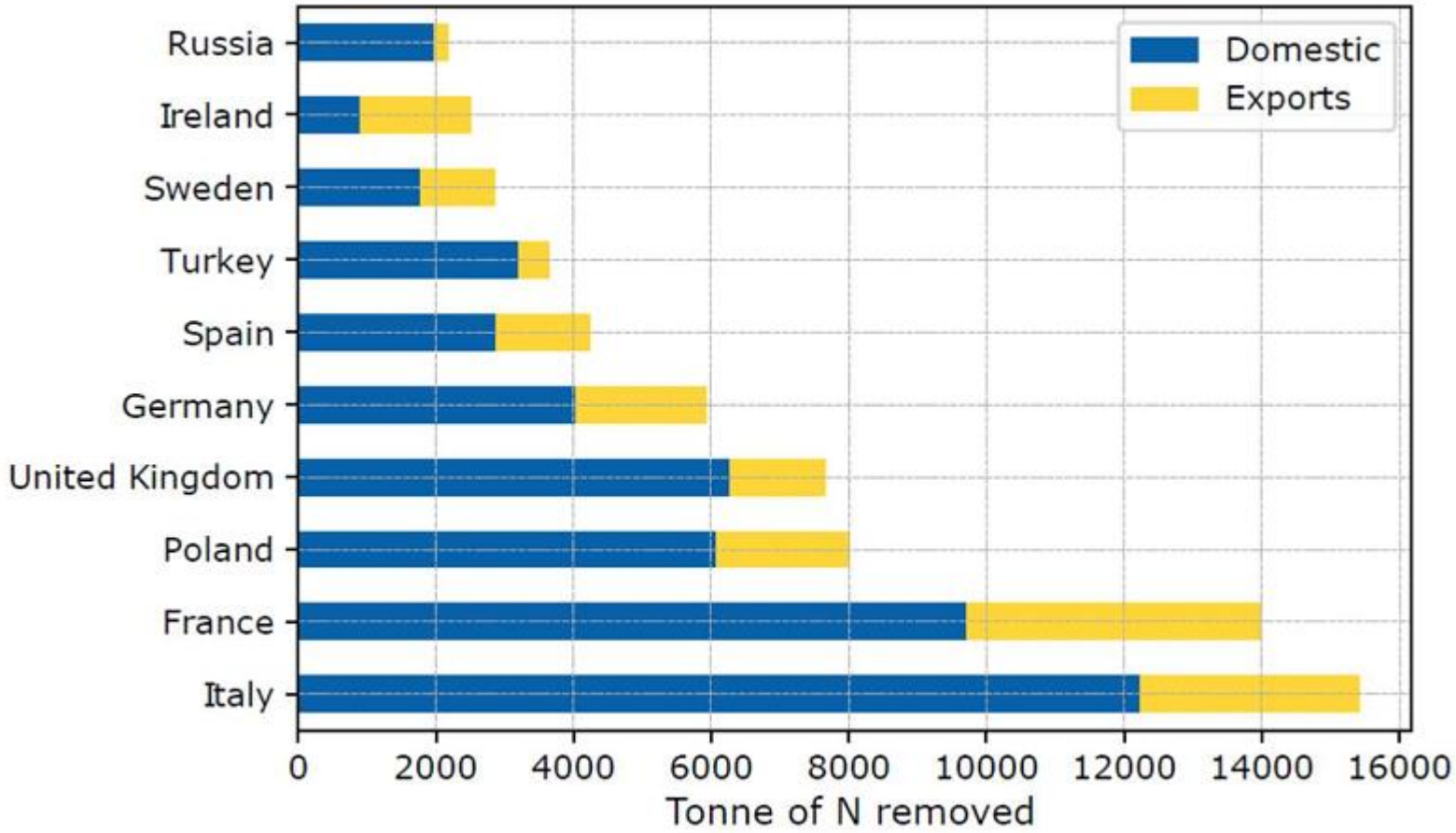
Ecosystem Services and the Economic Dimension

The 10 Member States and non-EU countries with the greatest flows of water purification ecosystem service embodied in agricultural goods in 2005



La Notte et al. 2020

The Case for an EU Taxonomy

Current market practice

Different taxonomies among different **Member States** and **financial institutions**

- **Costly to raise capital for real economy**
- **Burdensome to check and compare information for investors**
- **Costly for financial institutions to provide clarity on a voluntary basis**

Hampering investments into a low-carbon economy

Establish an EU Sustainable Taxonomy

Bridging the gap by developing

a harmonized list of economic activities that can be considered "environmentally sustainable"

for investment purposes.

Value-add of the taxonomy for the market practice

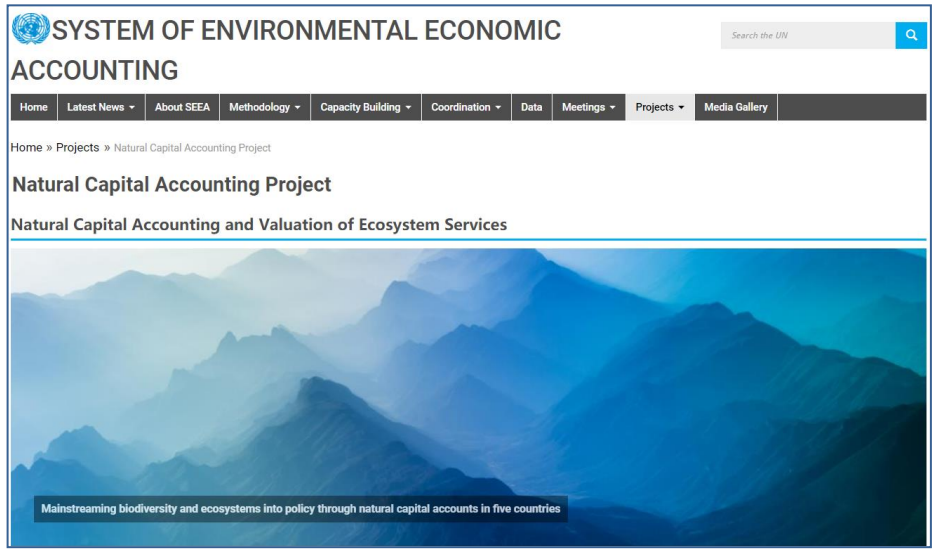
- Provide appropriate signals and more certainty to economic actors.
- **Protect private investors** and mitigate the risk of greenwashing.
- Make it **easier to raise capital.**
- Adress and avoid **market fragmentation and** barriers to cross border capital flows.
- Provide the **basis for further policy action** in the area of sustainable finance.

Reorienting capital flows towards sustainable investment

Source: EC presentation on the EU Strategy on SF and the role of the TEG

Out of the EU: projects funded by the European Union

NCA&VES project, Brazil, China, India, Mexico and South Africa, 2018 (by UNSD with UNEP, CBD and countries)



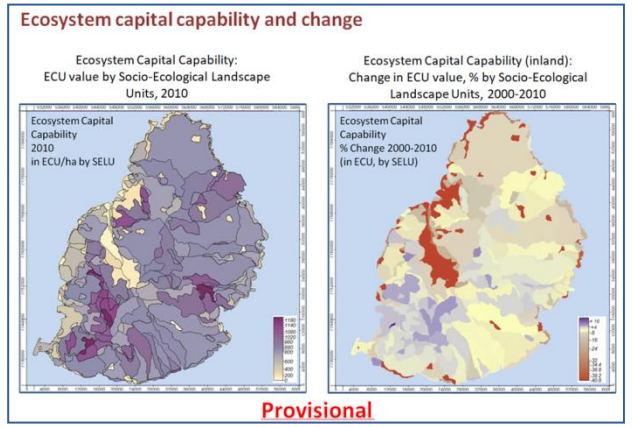
"The United Nations Statistics Division, the United Nations Environment Programme, the Secretariat of the Convention on Biological Diversity, and the European Union have launched the project "**Natural Capital Accounting and Valuation of Ecosystem Services" (NCAVES).** … to assist the five participating partner countries, namely Brazil, China, India, Mexico and South Africa, to advance the knowledge agenda on environmental-economic accounting, in particular ecosystem accounting. "

Project funded by:
The European Union

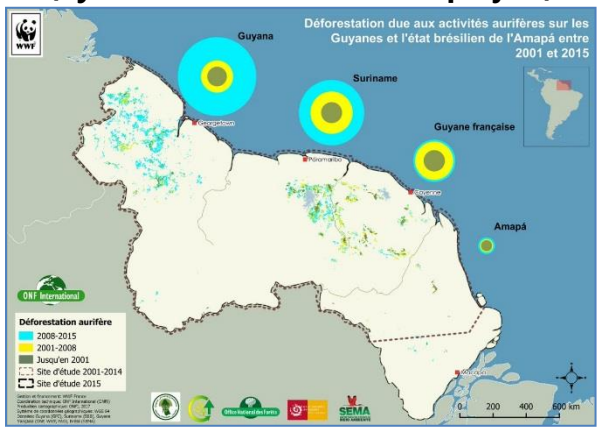
WAVES, the World Bank's Global Partnership on Wealth Accounting and the Valuation of Ecosystem Services (E.C. contribution to the multi-donors WAVES Trust Fund)

WAVES

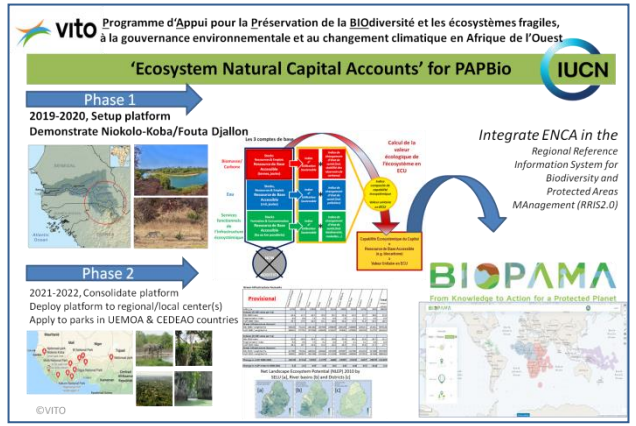
Experimental SEEA/ENCA in Mauritius , 2014 (by the Indian Ocean Commission and Statistics Mauritius, ISLANDS project)



SEEA/ENCA on the Guyana Shield, 2019 (by WWF and ONFI, ECOSEO project)



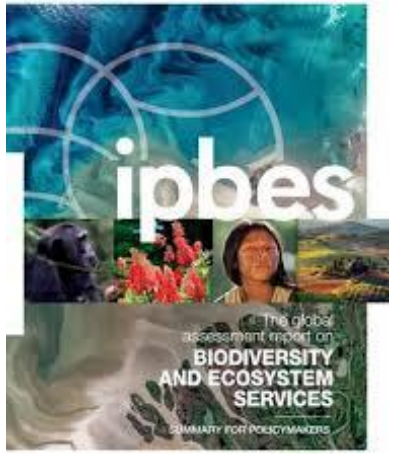
SEEA/ENCA for Niokolo-Koba natural park and Fouta Djallon (Western Africa), 2019 (by IUCN and VITO, PAPBio Project)

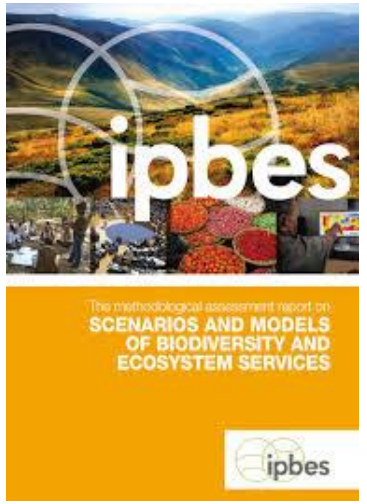


Nature Contributions to People and Ecosystem Service Approach

FOCI OF VALUE	TYPES OF VALUE		EXAMPLES
NATURE	Non-anthropocentric (Intrinsic)		Animal welfare/rights
			Gaia, Mother Earth
			Evolutionary and ecological processes
			Genetic diversity, species diversity
NATURE'S CONTRIBUTIONS TO PEOPLE (NCP)	Anthropocentric	Instrumental	Habitat creation and maintenance, pollination and propagule dispersal, regulation of climate
			Food and feed, energy, materials
		Relational	Physical and experiential interactions with nature, symbolic meaning, inspiration
GOOD QUALITY OF LIFE			Physical, mental,emotional health
			Way of life
			Cultural identity, sense of place
			Social cohesion

Current Opinion in Environmental Sustainability





Pascual et al., 2017, Current Opinion in Environmental Sustainability 2017, 26-27:7–16

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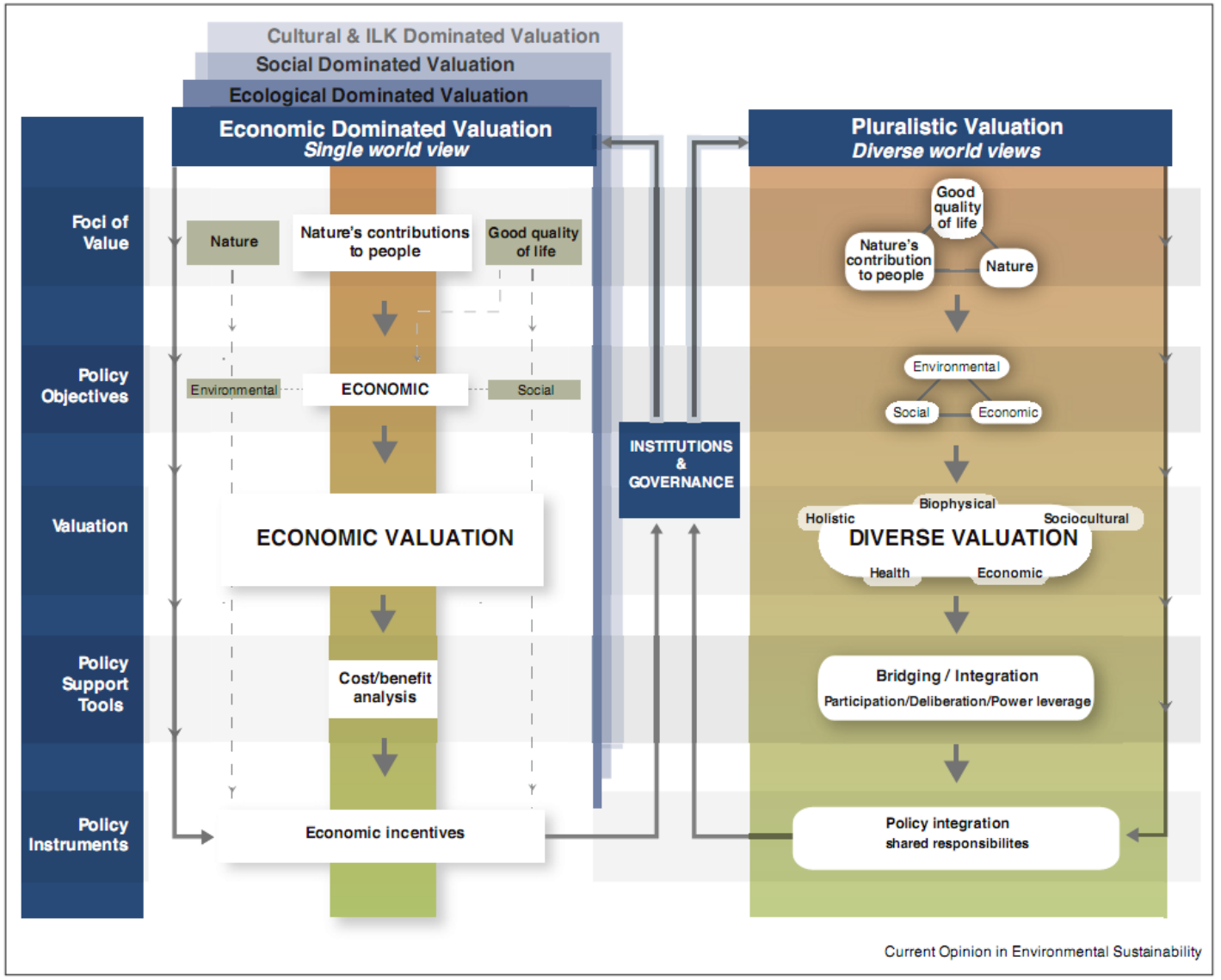
Nature Contributions to People (NCP) and (EU) Ecosystem Service (ESS) Approach



Pascual et al., 2017, Current Opinion in Environmental Sustainability 2017, 26-27:7–16

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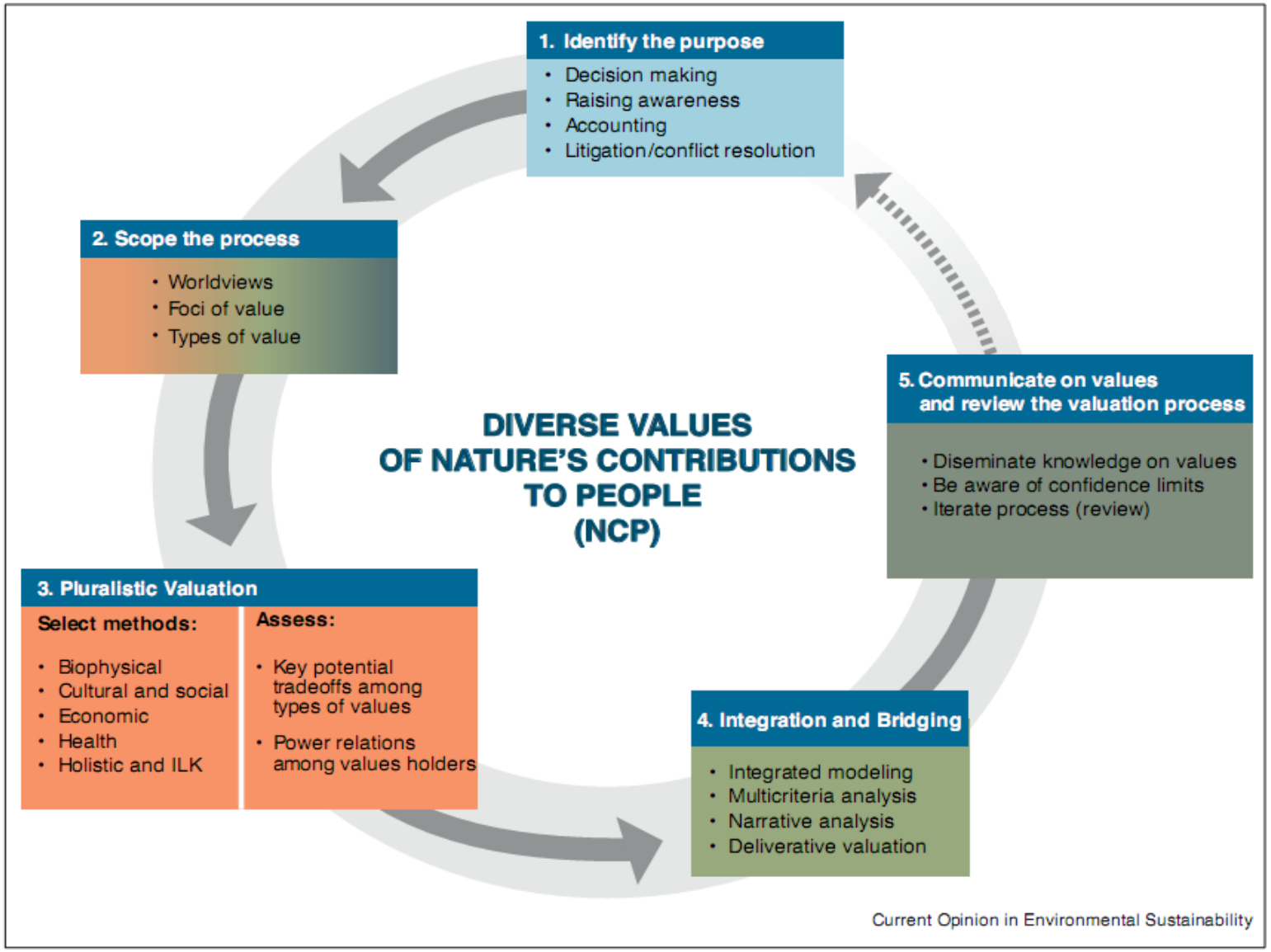
Common Approaches NCP and ESS



- Approaches
- Methods
- Goals

Pascual et al., 2017, Current Opinion in Environmental Sustainability 2017, 26-27:7–16

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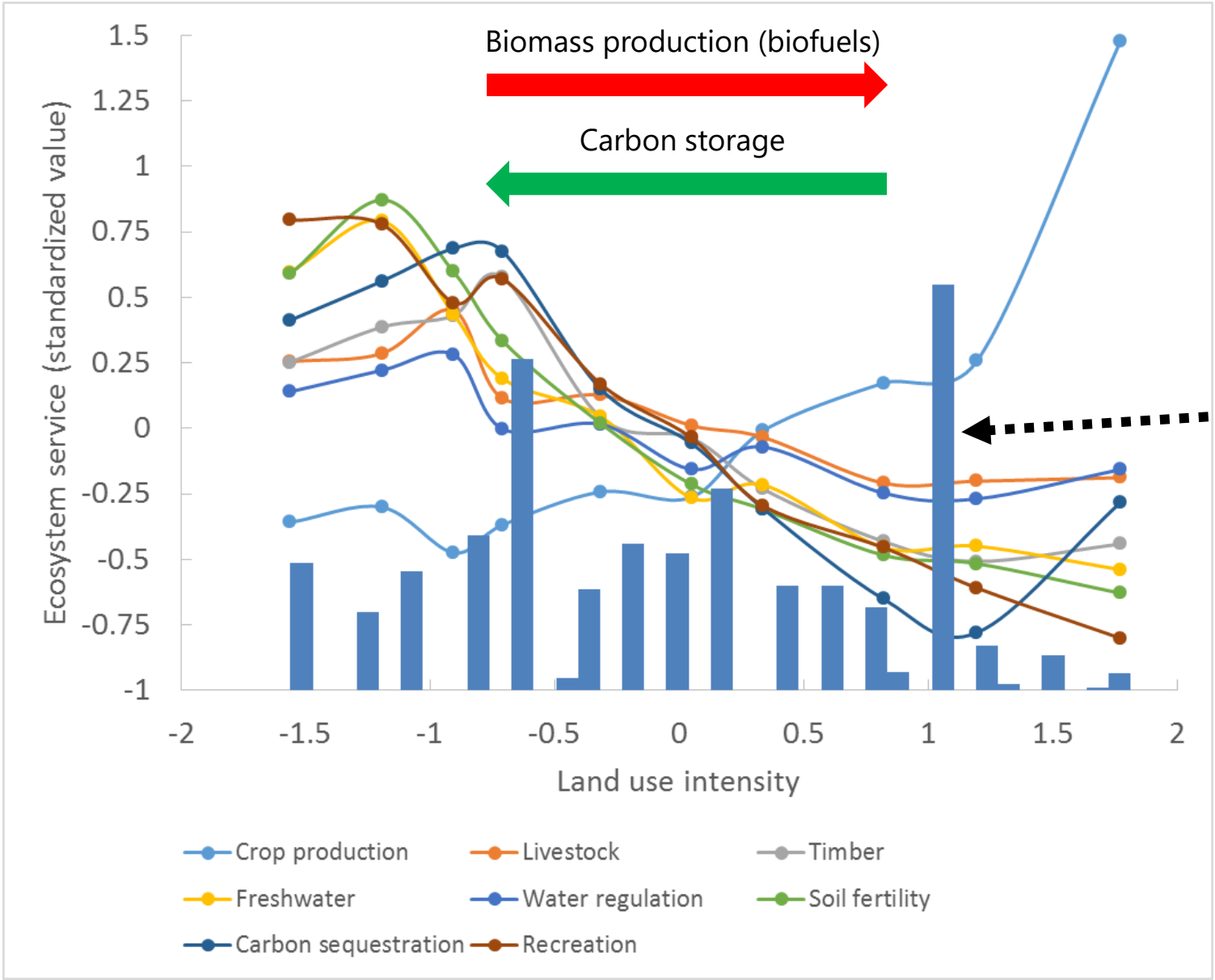
Understanding Synergies and Trade-offs



Example implementation of LULUCF Regulation

Areas per land use intensity class

F. Santos-Martín et al. Ecosystem Services 35 (2019) 43–51

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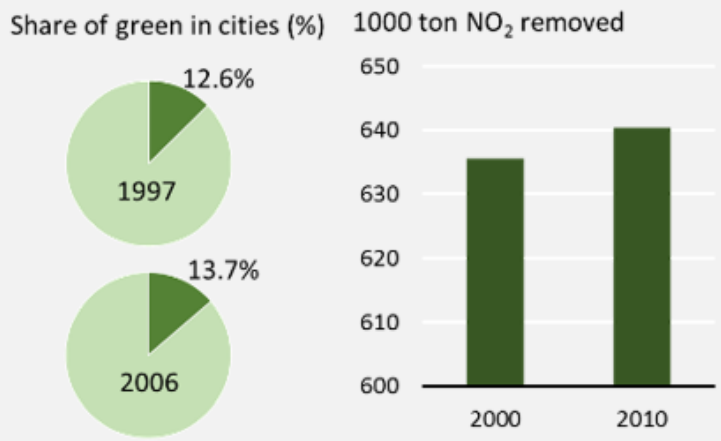
Change over time

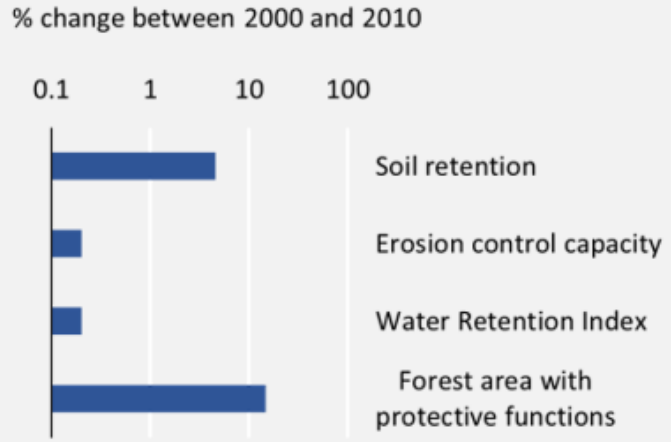
Trends in regulating services

Air quality regulation (in cities)



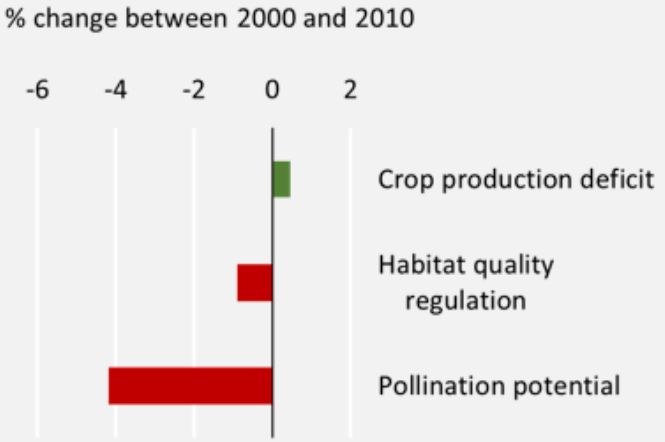
Cities expanded, on average, their green area. Trees captured 1% more NO_2 in 2010 relative to 2000.

Erosion control and water regulation



The area of protective forest expanded. Soil retention increased. Modelled erosion control and water retention capacities remained equal.

Habitat maintenance and pollination

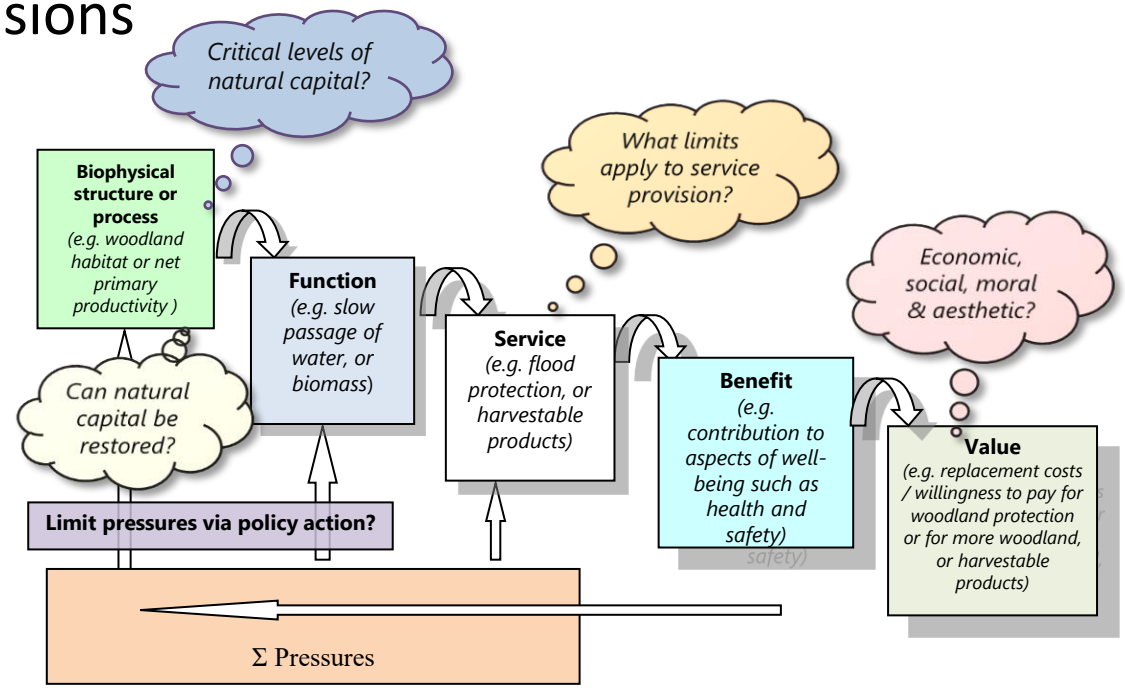


Despite increasing production levels of crops in need of pollinating insects, pollination potential declined across the EU. Habitat quality (regulation) slightly declined.

JRC, 2015

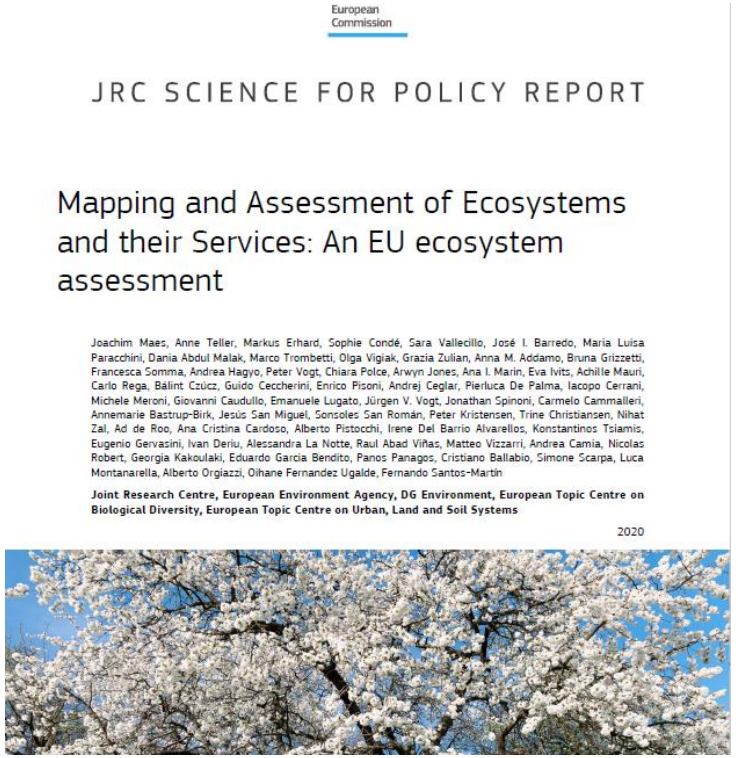
Challenges Towards Solutions

- Biophysical level / bio-physico-chemical level
  - Implementation of ecosystem condition and management in (regional) modeling approaches
  - Connecting ecosystem condition – ecosystem service capacity
  - From quantitative service specific to multiple service assessments
- Connecting biophysical – economic – social dimensions
  - Micro-economy e.g. farm level, local market
  - Macro-economy including global market
  - Integrating economic - social - cultural dimensions
- Methodological challenges in valuation
  - Lack of appropriate methods (e.g. intrinsic value, willingness to pay …)
  - Integrating economic - social - cultural interactions
- Implementation
  - From (research based) assessments / case studies to operational monitoring for change detection



Source: Potschin & Haines-Young, 2011

Thank you very much for your attention



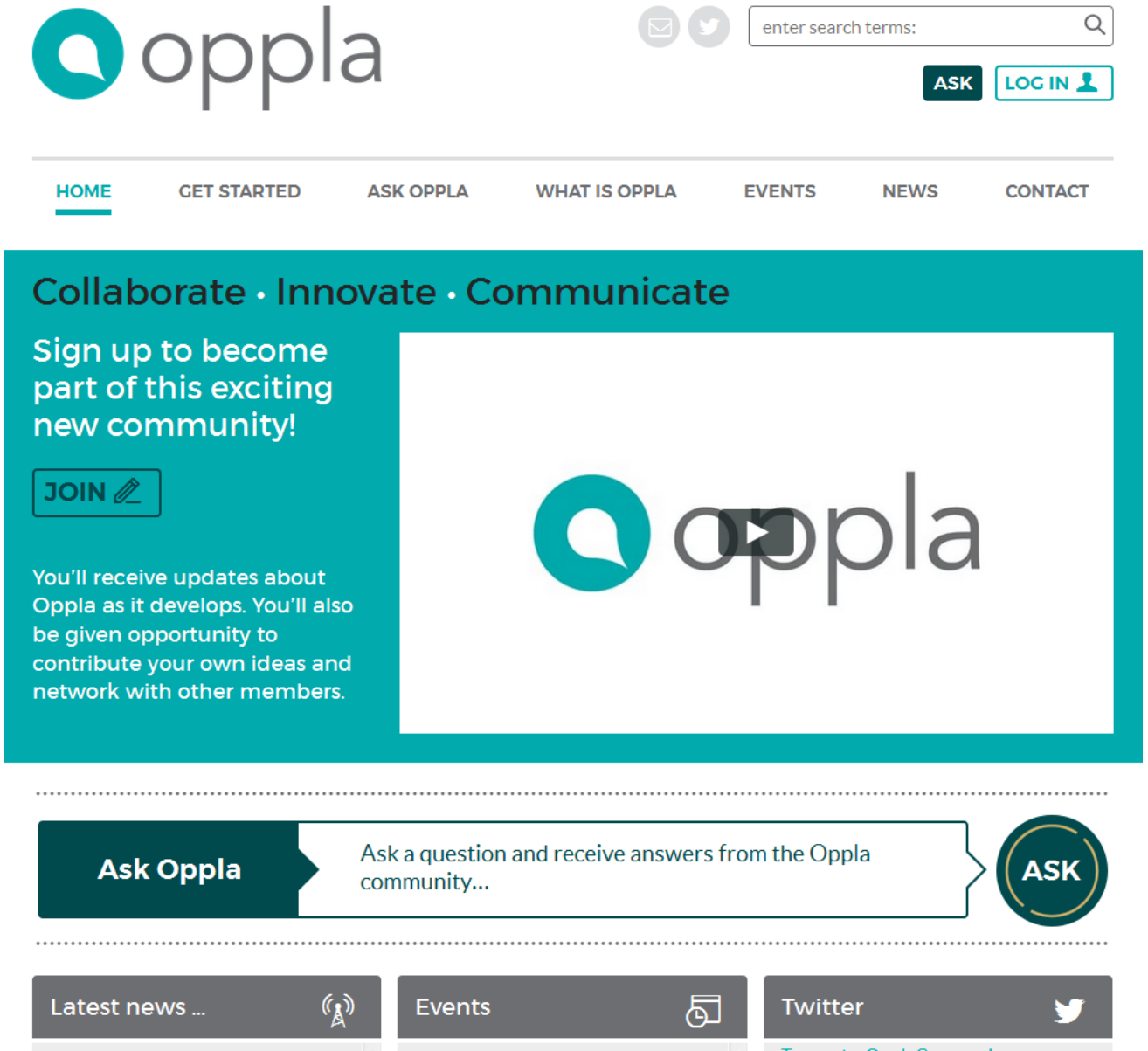
https://publications.jrc.ec.europa.eu/repository/handle/JRC120383

IPBES NCP platform: https://ipbes.net/modelling-consequences-nature'-benefits-people
EU Green Deal: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en
EEA: https://www.eea.europa.eu/
Knowledge Centre for Biodiversity: https://biodiversity.europa.eu/ecosystems (under development)
BISE: http://biodiversity.europa.eu/
EU and MS Ecosystem Assessment: https://biodiversity.europa.eu/ecosystems
ESMERALDA Project Results: http://esmeralda-project.eu/documents/3/
Ecosystem Service Classification: www.cices.eu
The Ecosystem Services Partnership: https://www.es-partnership.org/
OPPLA platform: https://oppla.eu/
UNSD-SEEA: https://seea.un.org/

European Environment Agency

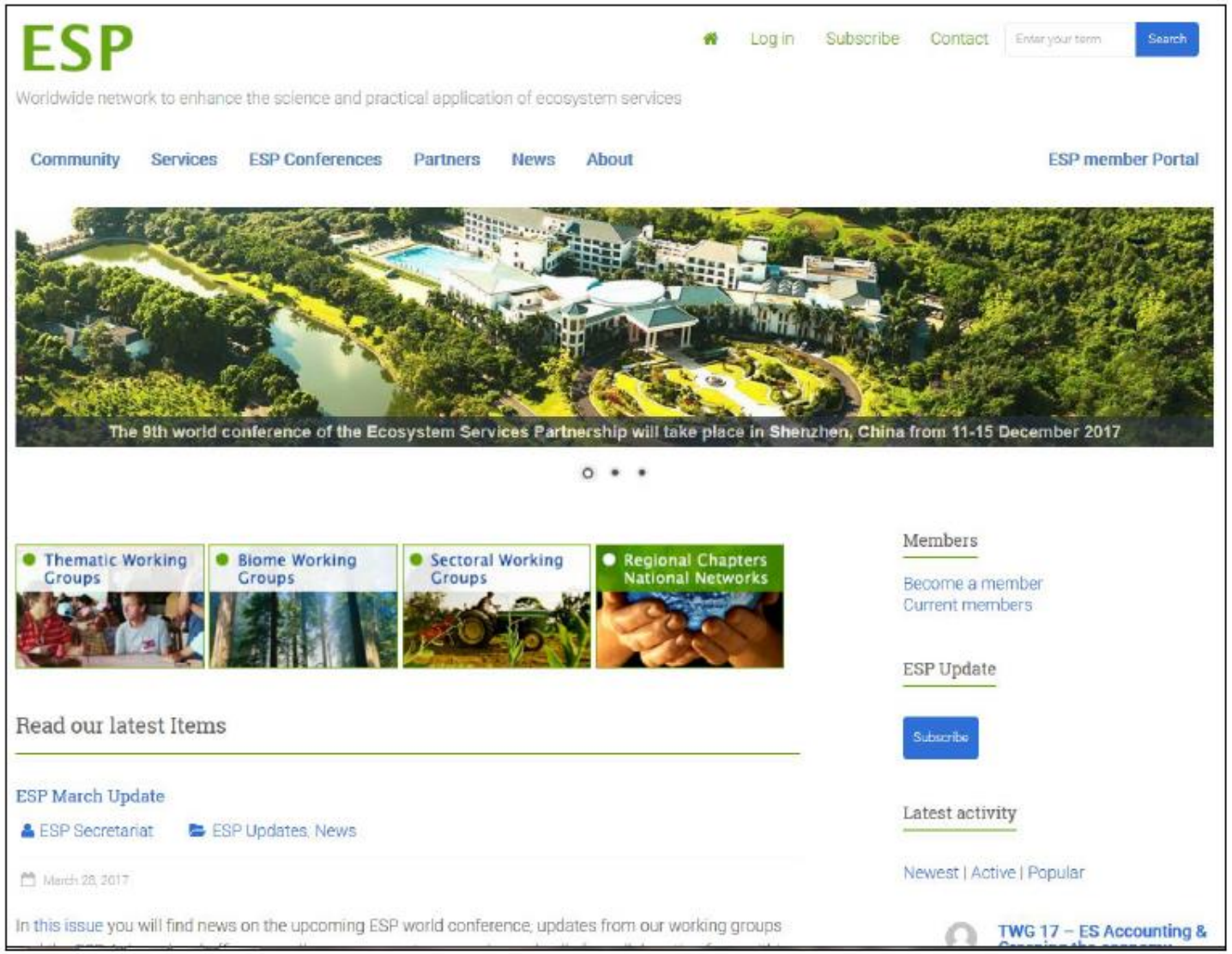
Additional Links

OPPLA Platform www.oppla.eu



European Environment Agency

Ecosystem Service Partnership



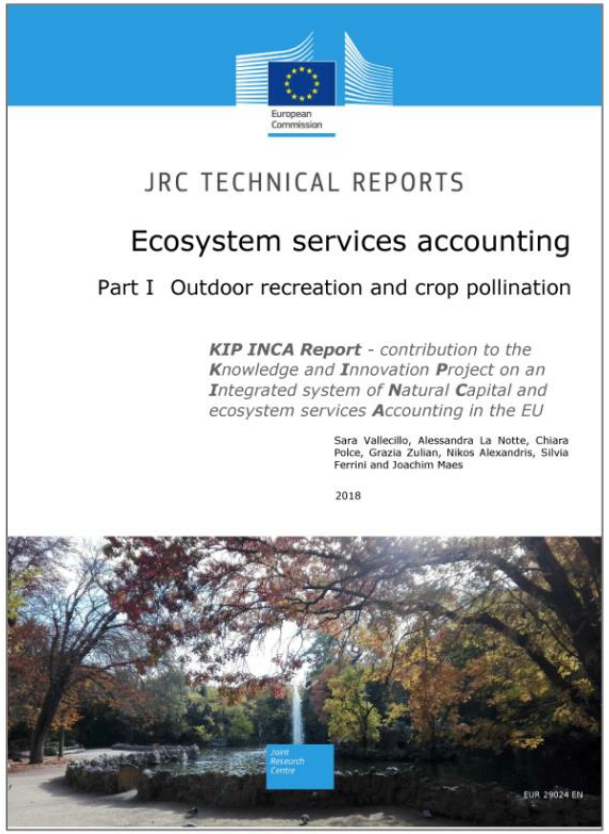
https://www.es-partnership.org/

European Environment Agency

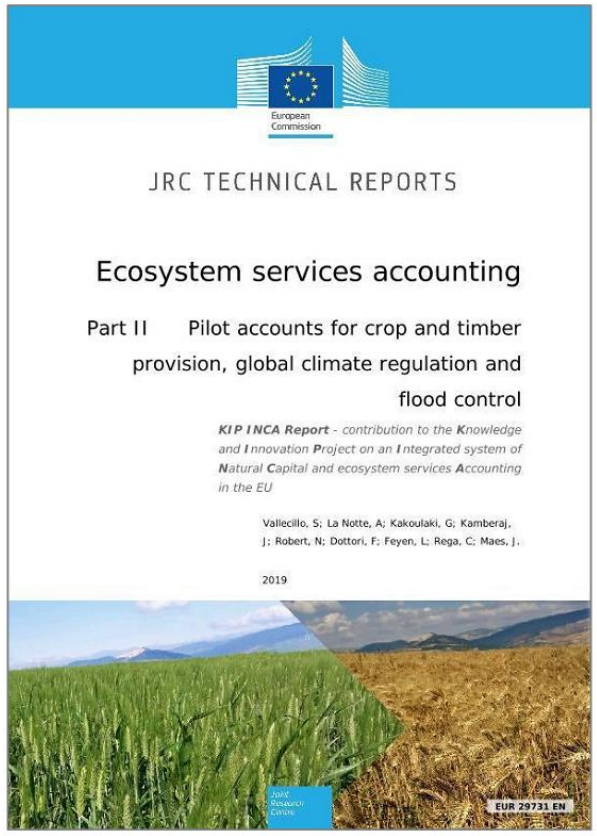
Background reports

EU level ecosystem service assessments and valuation

https://ec.europa.eu/jrc/en/publication/implementing-eu-system-accounting-ecosystems-and-their-services-initial-proposals-implementation



https://ec.europa.eu/jrc/en/publication/ecosystem-services-accounting-part-i-outdoor-recreation-and-crop-pollination



https://ec.europa.eu/jrc/en/publication/ecosystem-services-accounting-part-ii-pilot-accounts-crop-and-timber-provision-global-climate

https://ec.europa.eu/jrc/en/publication/linking-accounts-ecosystem-services-and-benefits-economy-through-bridging-lisbeth

European Environment Agency

Ecosystem Services in Business Sector

CBD: See the Global Platform on Business and Biodiversity https://www.cbd.int/business/

- Case Studies on Business and Biodiversity
- Tools and Mechanisms
- CBD technical series number 63 "Review of the Biodiversity Requirements of Standards and Certification Schemes"

World Forum on Natural Capital https://naturalcapitalforum.com

Natural Capital Coalition https://naturalcapitalcoalition.org/

TEEB for Business and Enterprise http://www.teebweb.org/areas-of-work/teeb-for-business/

TEEB for Business – The Netherlands https://www.cbd.int/financial/privatesector/netherlands-businessstudy.pdf

The EU Business and Biodiversity Platform http://ec.europa.eu/environment/biodiversity/business/index_en.htm

World Business Council for Sustainable Development http://www.wbcsd.org/