

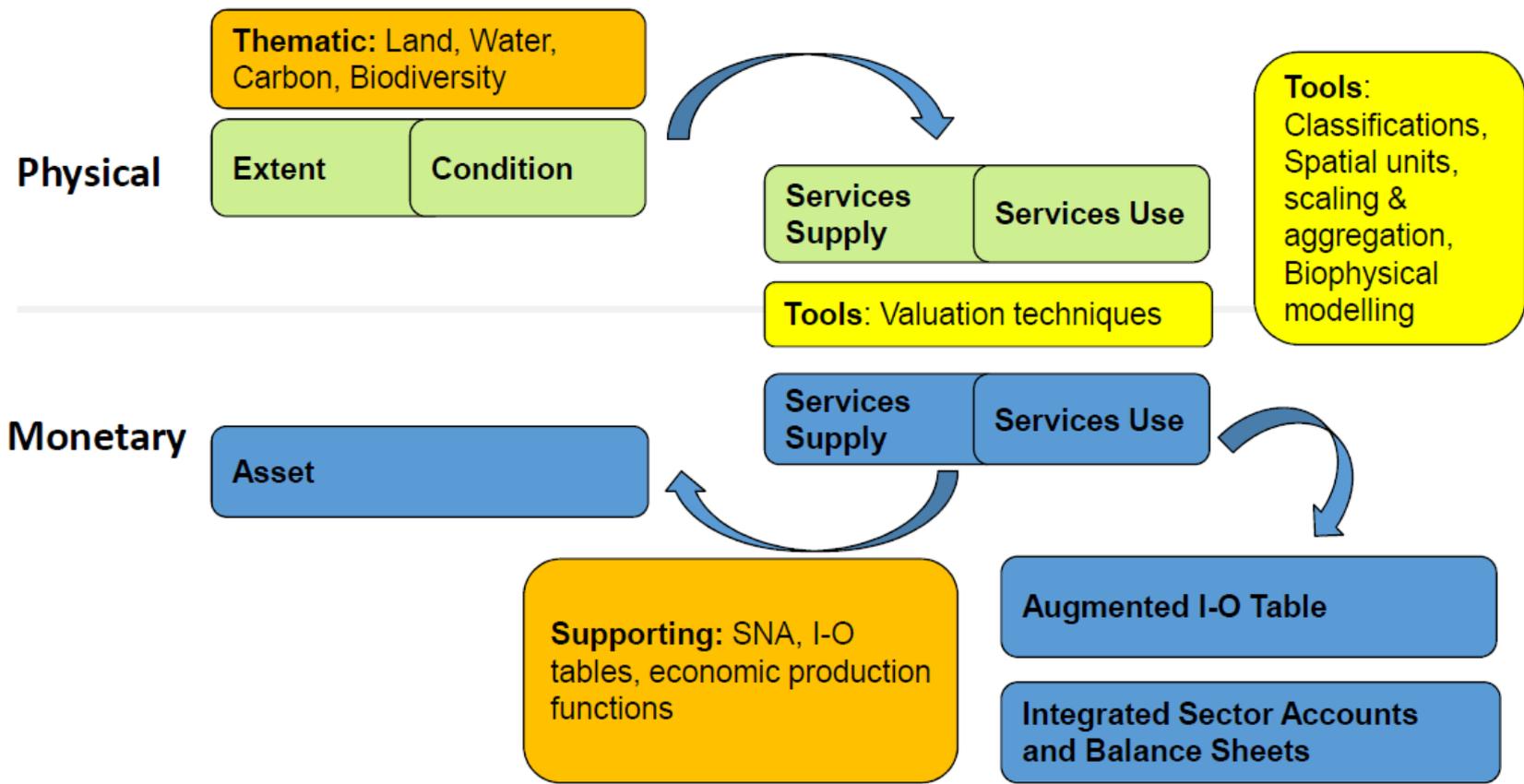
The European Commission's science and knowledge service

Joint Research Centre

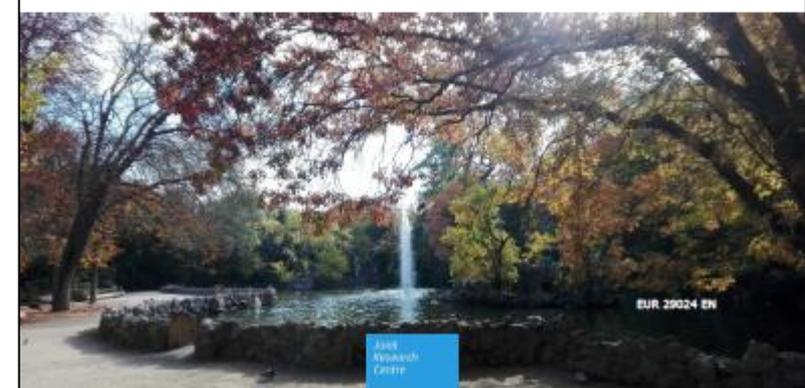
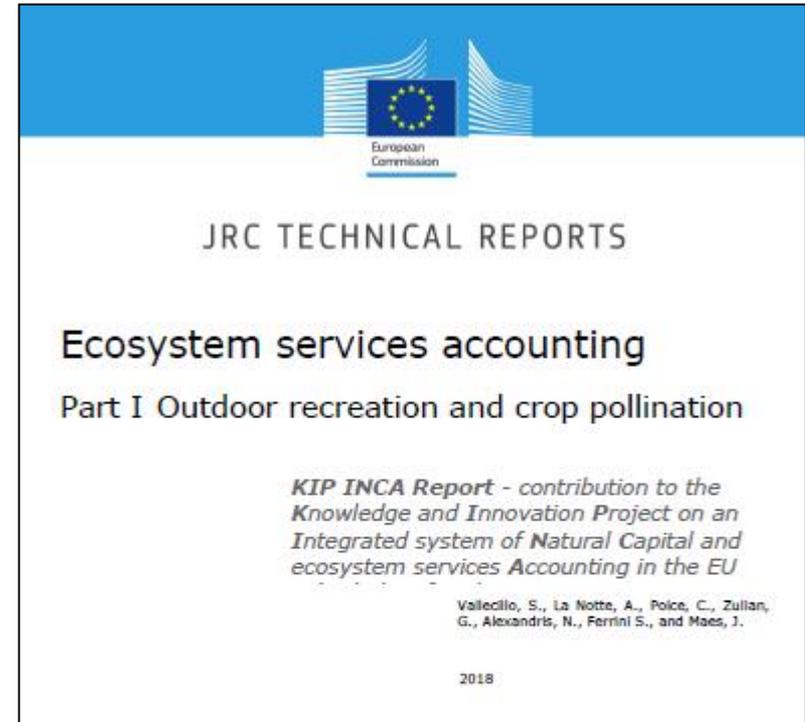
JRC user perspective

Joachim Maes

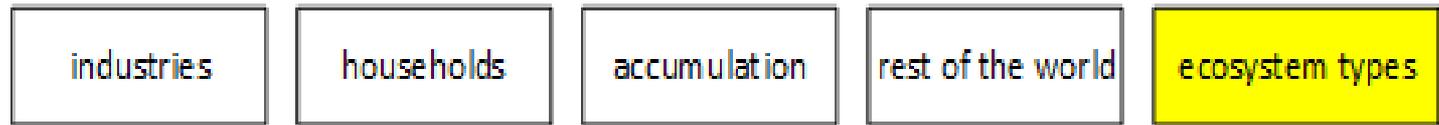




Ecosystem services accounts



SUPPLY TABLE



provisioning services

actual flows

regulating and maintenance services

actual flows

cultural services

actual flows

products

output

imports

USE TABLE

	industries	households	accumulation	rest of the world	ecosystem types
provisioning services	actual flows	actual flows			intermediate flows
regulating and maintenance services	actual flows	actual flows			intermediate flows
cultural services		actual flows			intermediate flows
products	intermediate consumption	final consumption	gross capital formation	exports	

Crop pollination by wild insects

Wild insect pollinators



Pollination **POTENTIAL**

Pollinator-dependent crops



DEMAND for pollination

SEEA EEA
accounting
tables

USE of crop pollination



BENEFIT

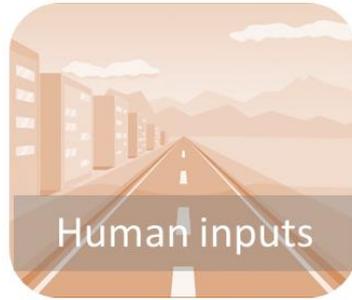


Nature-based local outdoor recreation



Land cover, water quality, protected areas

+



Proximity (roads, urban areas)



Demand

Potential

('Areas for daily recreation')

Use (actual flow)

SEEA EEA accounting tables



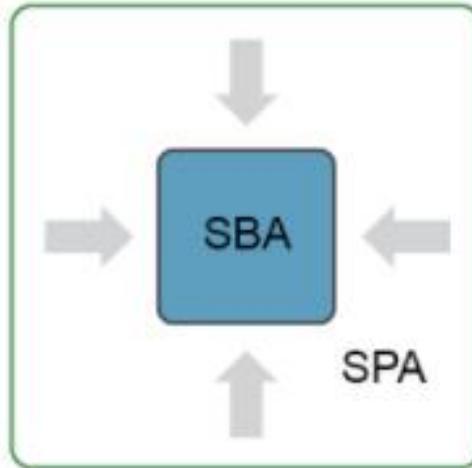
Benefits



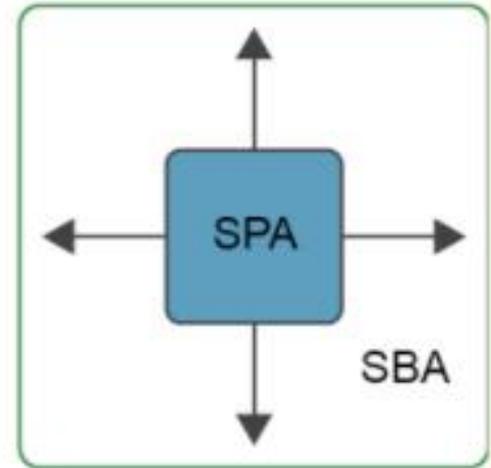
Opportunities for business



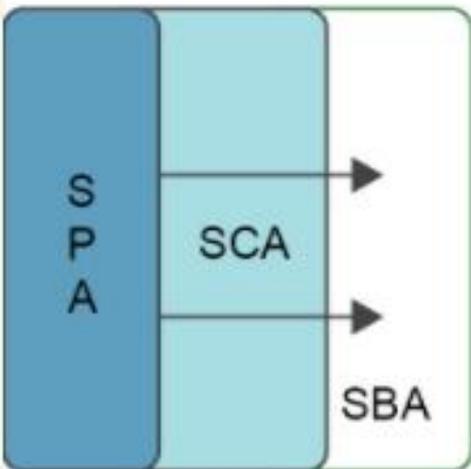
a) 'in situ': SPA and SBA are identical



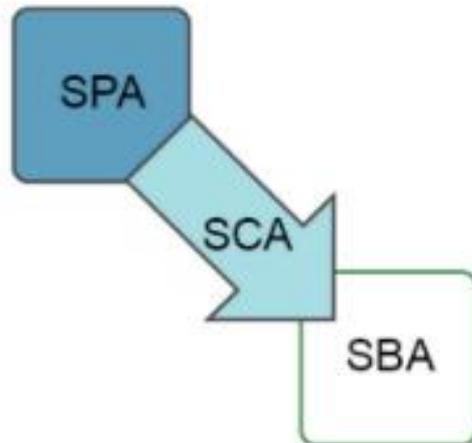
b) 'central': surrounding area supplies / acts on the central benefiting area



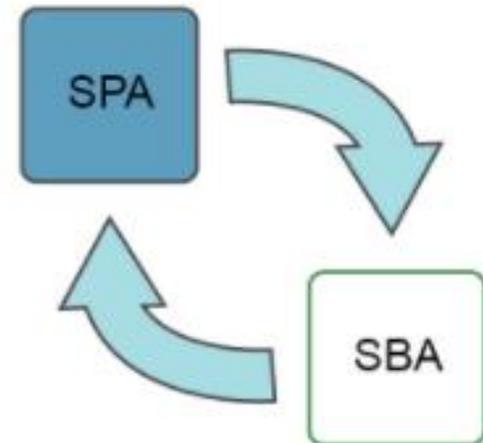
c) 'omnidirectional': directed on all sides - to larger surrounding area



d) 'directional' - spatially separated from each other: SBA lies 'behind' the SPA

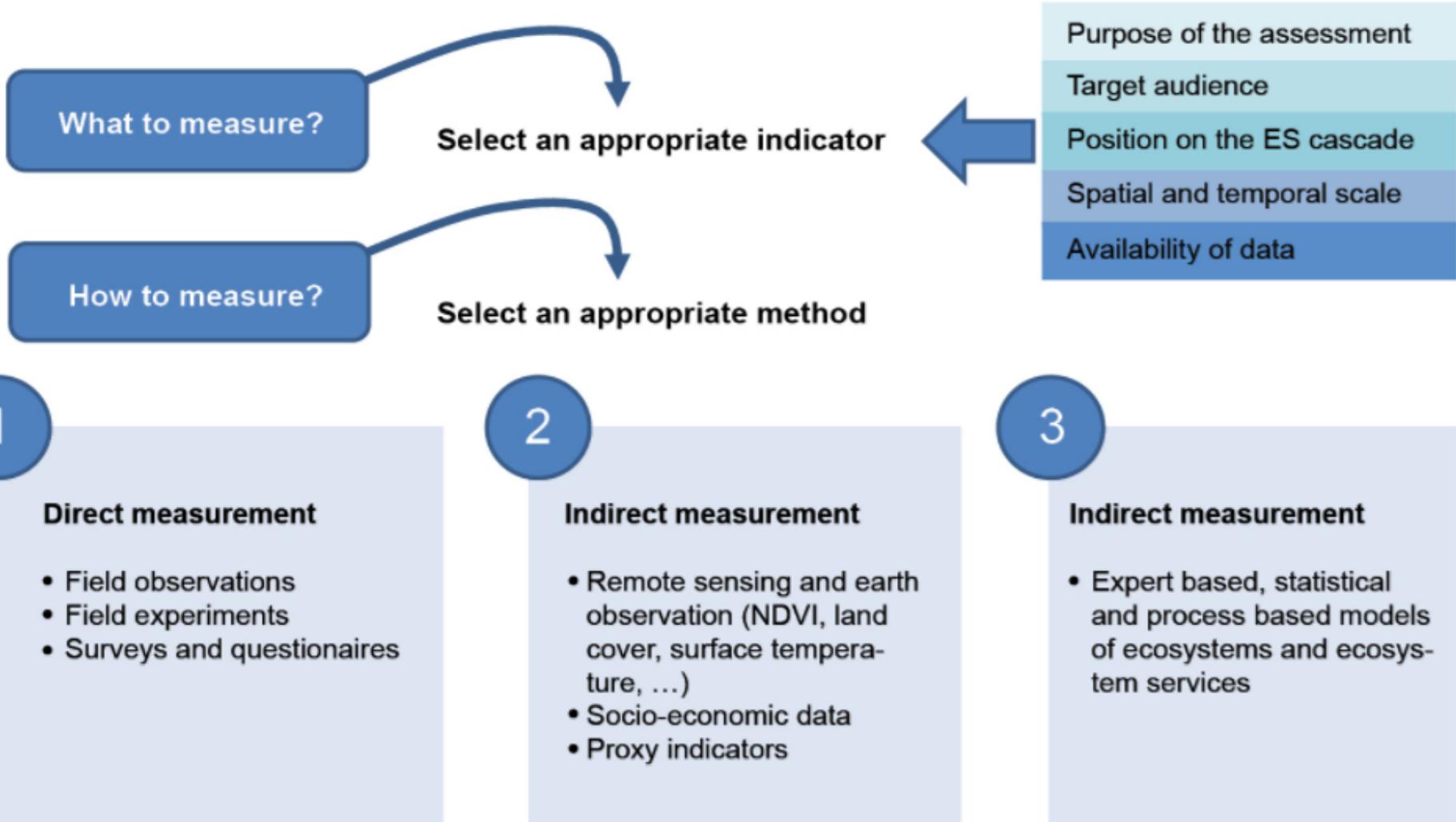


e) 'directional' - spatially separated from each other (e.g., slope dependent)



f) 'non-directional' - spatially separated from each other

Biophysical quantification of ecosystem services



What do we need for accounting?

Regularly updated physical data which measure the extent, condition of ecosystems and the actual use of ecosystem services in physical units that are usually reported at national scale.

We are interested in **change** (like % change in GDP).

Natural capital component	Specific data needs
Biodiversity including species diversity	Pan European data sets to assess the trends in populations of various plant and animal species and communities (e.g., birds)
Ecosystem extent	Annually updated pan-European data to assess the trends in the extent of all the MAES ecosystem types based on main habitat types
Pressures on ecosystems	Annually updated pan-European data to assess the trends in pressures on ecosystems (habitat conversion, climate change, pollution, overexploitation and invasive alien species)
Ecosystem condition	<p>Derived products which can be used for direct mapping and monitoring of ecosystem condition which are validated against field observations.</p> <p>Coverage of ecosystems by protected areas.</p>
Ecosystem services	Derived products which can be used for direct mapping and monitoring of provisioning and regulating ecosystem services

Current use of EO data for ES accounts

Many papers which confirm the high potential of EO4EA: clear links between specific sensors and the different components of natural capital

H202 projects (SWOS Ecopotential, EU BON, ...)

BUT: current use of EO in ecosystem services quantification (mapping and accounting) is very low because of :

Removing obstacles = Solutions for enhanced update

- Land cover is not equal to ecosystems
- Ecosystem maps are useless if not updated.
- Different ecosystem services – Different datasets
– Different years
- Insufficient or unusable data for land use
(demand: crop types, people/infrastructure)

Removing obstacles = Solutions for enhanced update

- an insufficient number of derived products (e.g., NDVI for mapping various ES, LAI for mapping AQ regulation)
- insufficient capacity to fill the gap between EO products and derived products (e.g., surface temperature)
- Timeliness is an issue: for accounting it is better to have CLC every year than COPERNICUS update every 5 years.

Conclusion

Instead of shooting billions of euro in space, it would be better to use (a fraction) of this budget on regularly updated derived products (with the same updating frequency as the available products)