



SEEA, accounts for the integration of economic, social and environmental statistics

Ivo Havinga

United Nations Statistics Division

Global Forum on the Integration of Statistical and Geospatial Information

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Overview

- SEEA EEA as integration framework
- SEEA-EEA explicitly recognizes and incorporates the geographic perspective
 - Ecosystems are spatially explicit units.....
- Ecosystem accounting: data inputs and spatial accounting units
- Integration and harmonization of wide-range data
- Examples from land and carbon accounts



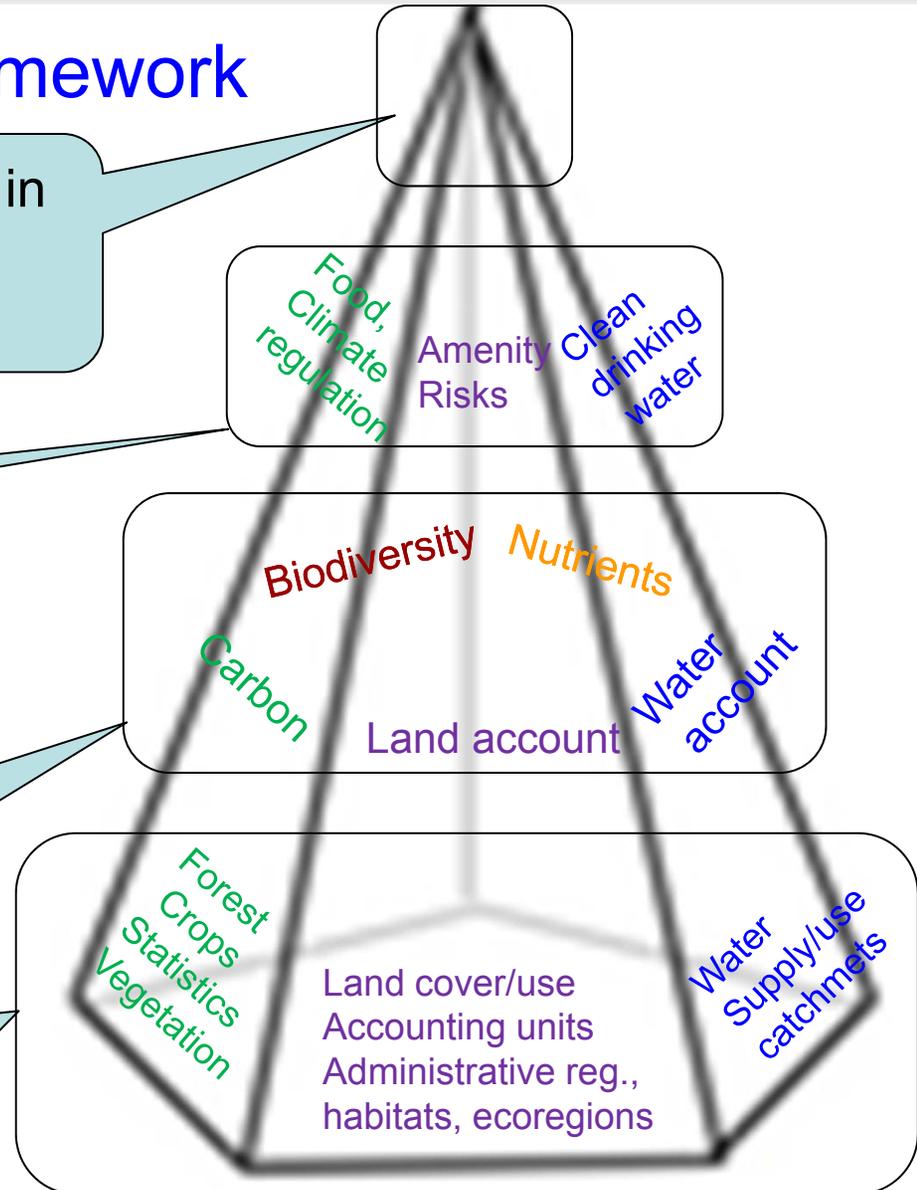
SEEA-EEA integration framework

Integration of ecosystem services in macroeconomic aggregates, like GDP and NDP

Ecosystem services in monetary and physical terms

Consistent physical and monetary asset accounts

Raw data collection, processing and harmonization

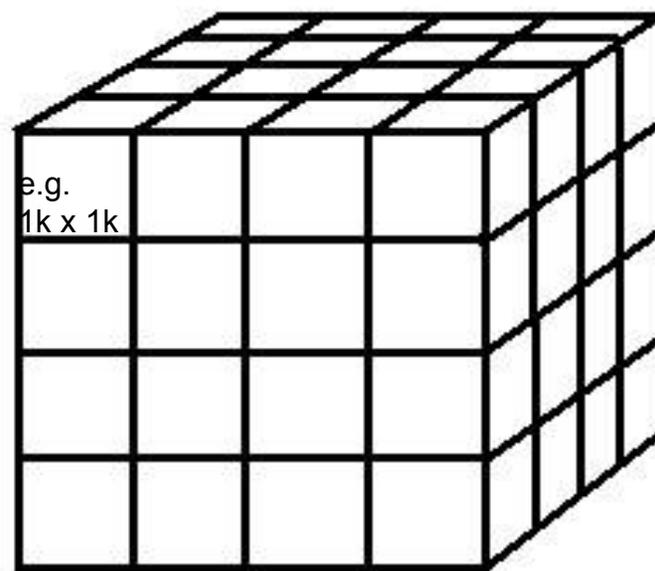
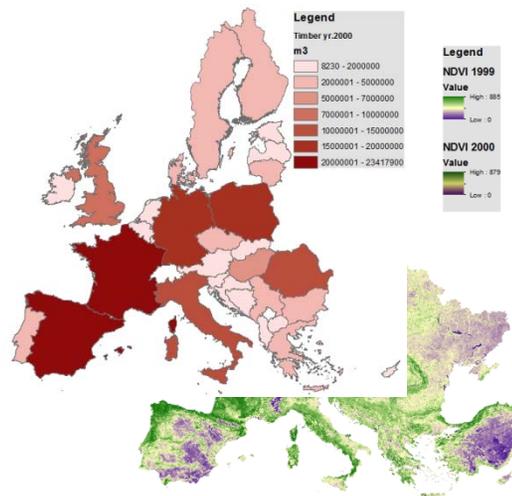




Spatial data perspective: harmonizing data inputs

- Use of existing spatial measurement methods and existing data
- Development of new spatial data processing methods based on 'Assimilation cubes'

Downscaling



Upscaling

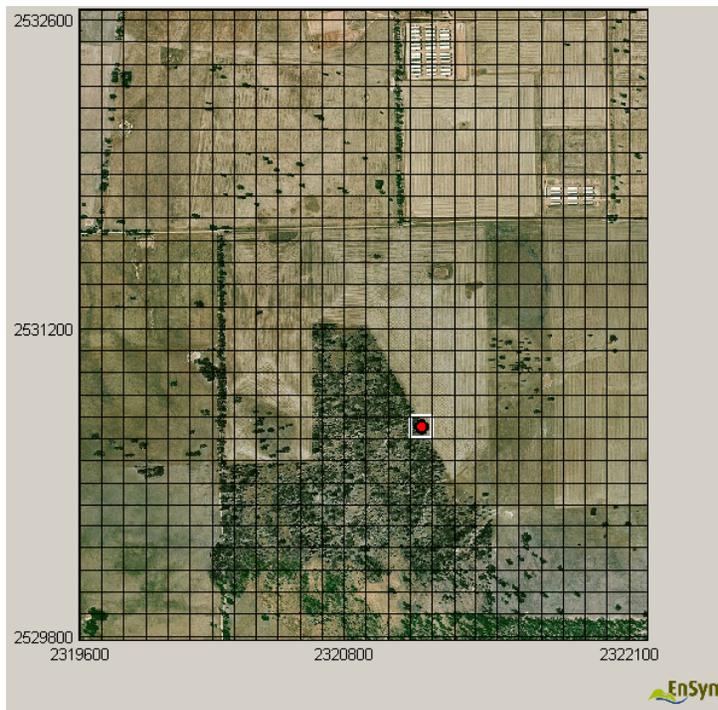


- Data inputs from multiple sources are linked and stored in an integrated database based on a grid structure



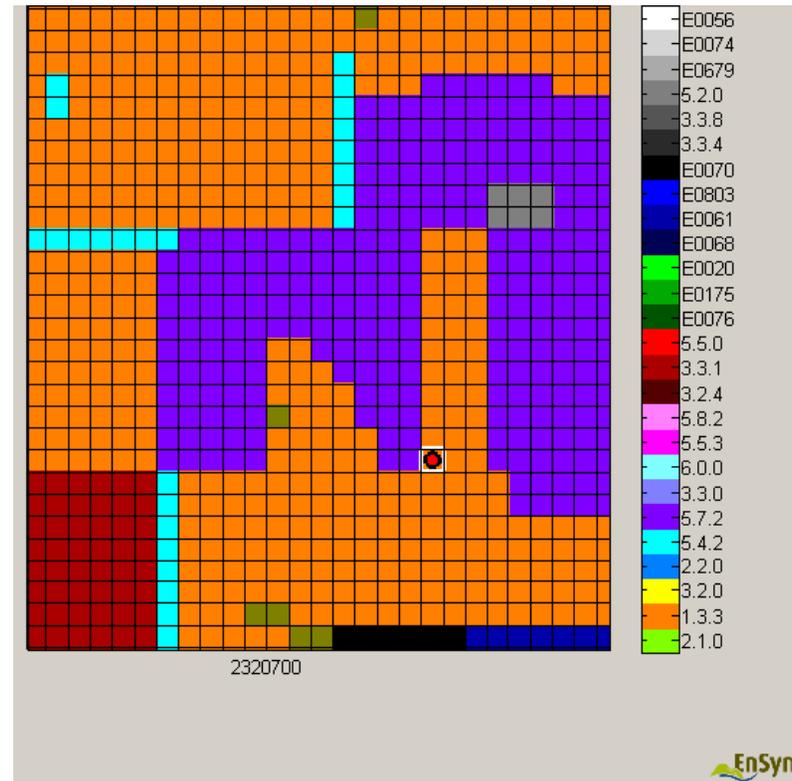
Assimilation Cube to integrate grid information

- Work on this concept/idea?
- Challenge is
 - Multidimensional space – grid and cube
 - Different characteristics can read across
 - Privacy issue -
 - Privacy (statistical discipline) versus information for decision making (policy)
- Benefits
 - Building blocks from different disciplines
 - *In many instances measuring the same thing but with a different discipline underlying the motivation*



Geography

Building analytical capability for units and ensure that GIS standards are maintained

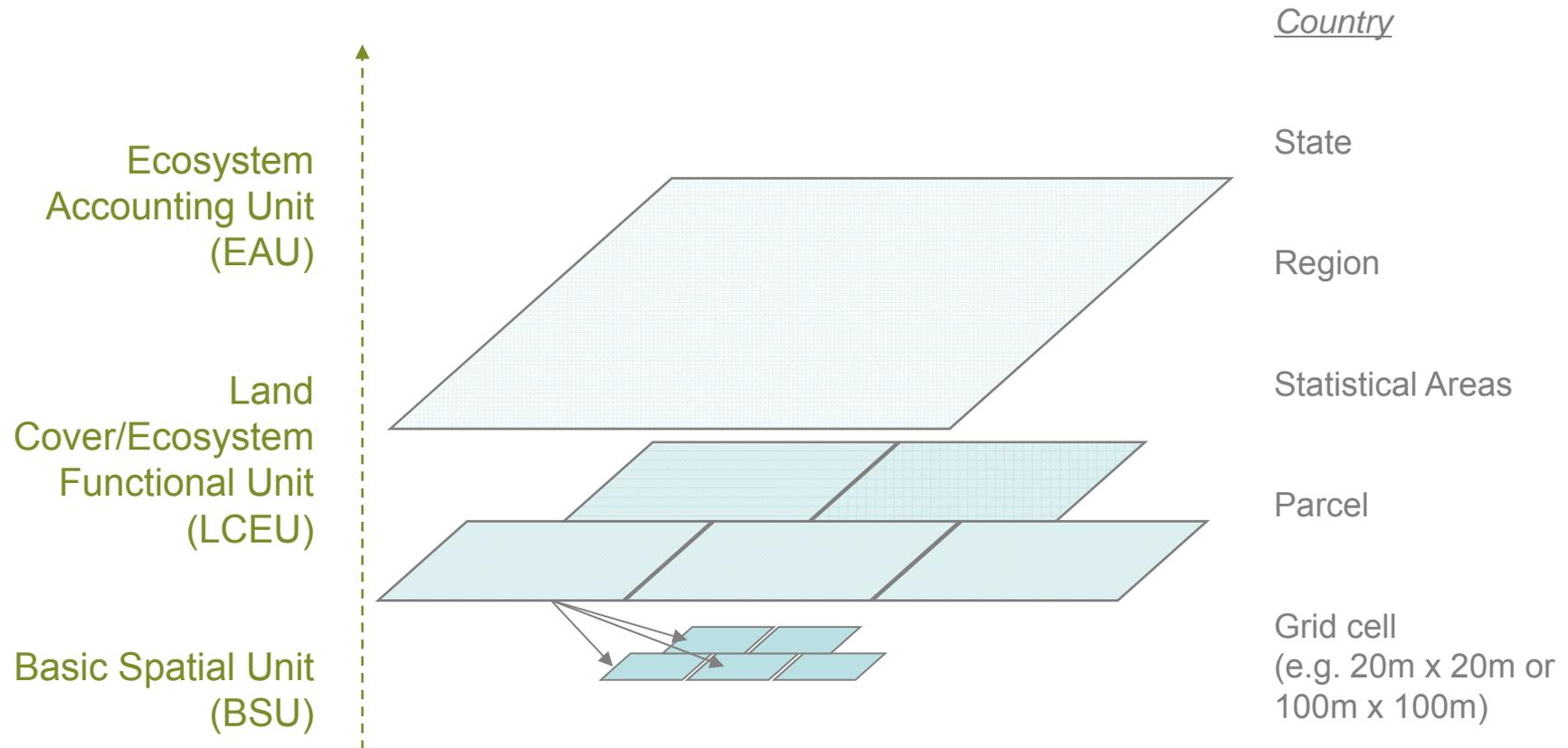


Accounting

e.g. unified and hierarchical classifications and variables for units (grid)



Hierarchical (nested-grid) aggregation

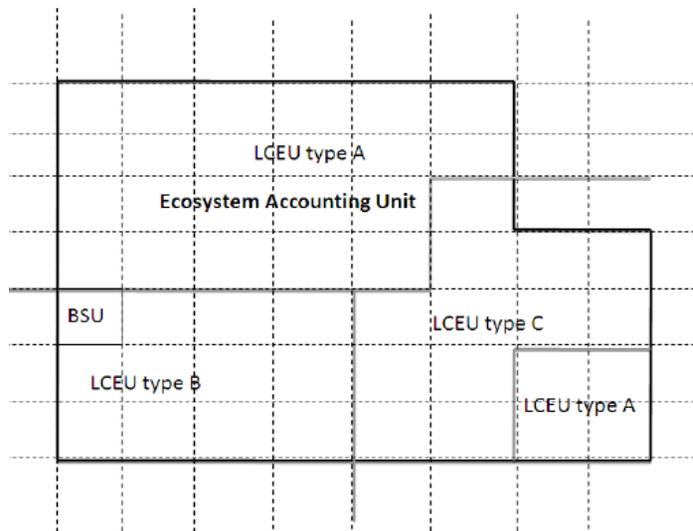




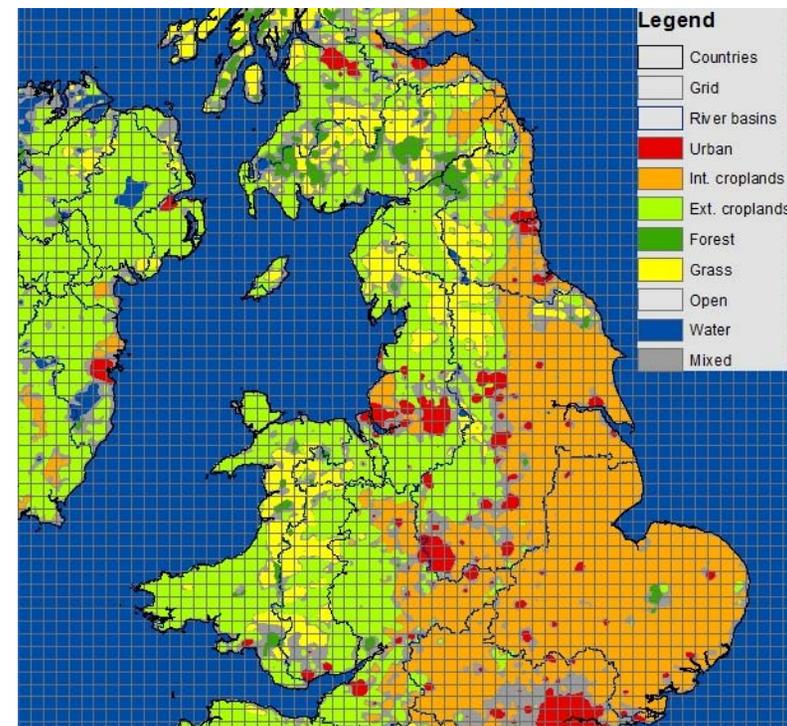
Spatial data perspective: harmonizing reporting units

- Measurement units for social, economic and environmental parameters remain untouched
- New accounting and reporting units created for ecosystem accounting purposes

Stylised depiction of relationships between BSU, LCEU and EAU



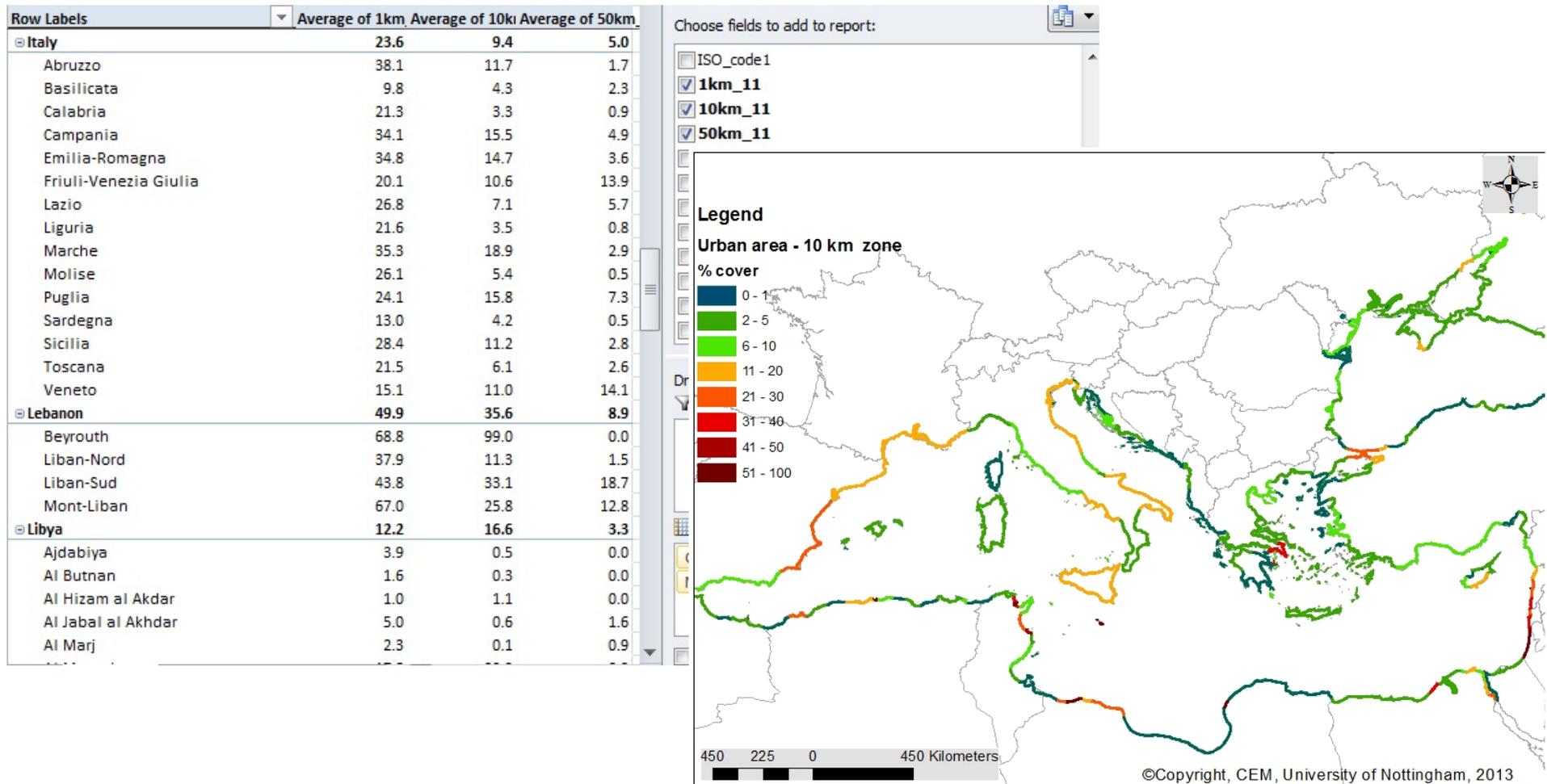
Overlay of units (UK)





Spatial data perspective: reporting and mapping

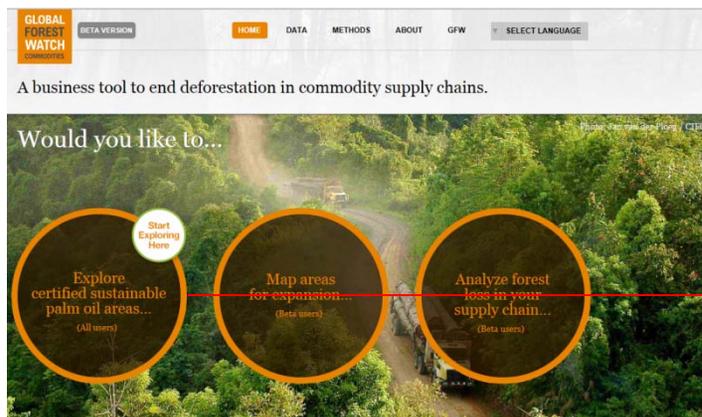
- Pivot tables are used to query, extract and map the accounts in GIS



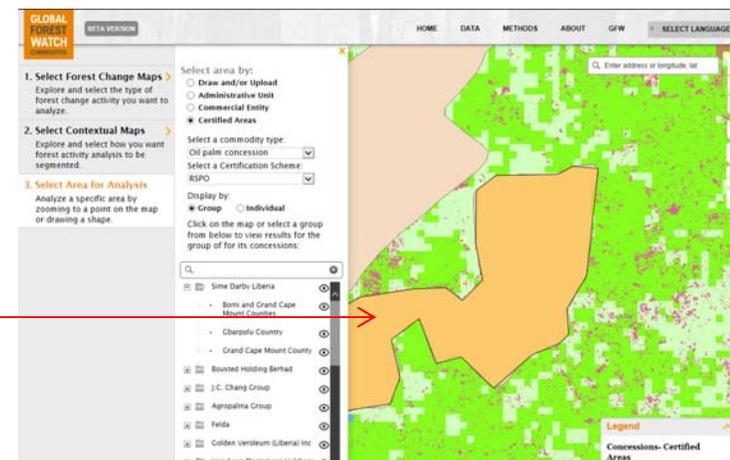


SEEA-EEA developing an international standard

- From national accounting perspective: assessment through the measurement of ecosystems and their flows of services into economic and human activity
- From business perspective accounting: tools are developed to assist sustainable management of crops, timber, fisheries (sectoral approaches) in an ecosystem perspective:
 - A number of initiatives: e.g. Global forest watch (<http://www.globalforestwatch.org/>)



Explore certified concession areas for palm-oil production

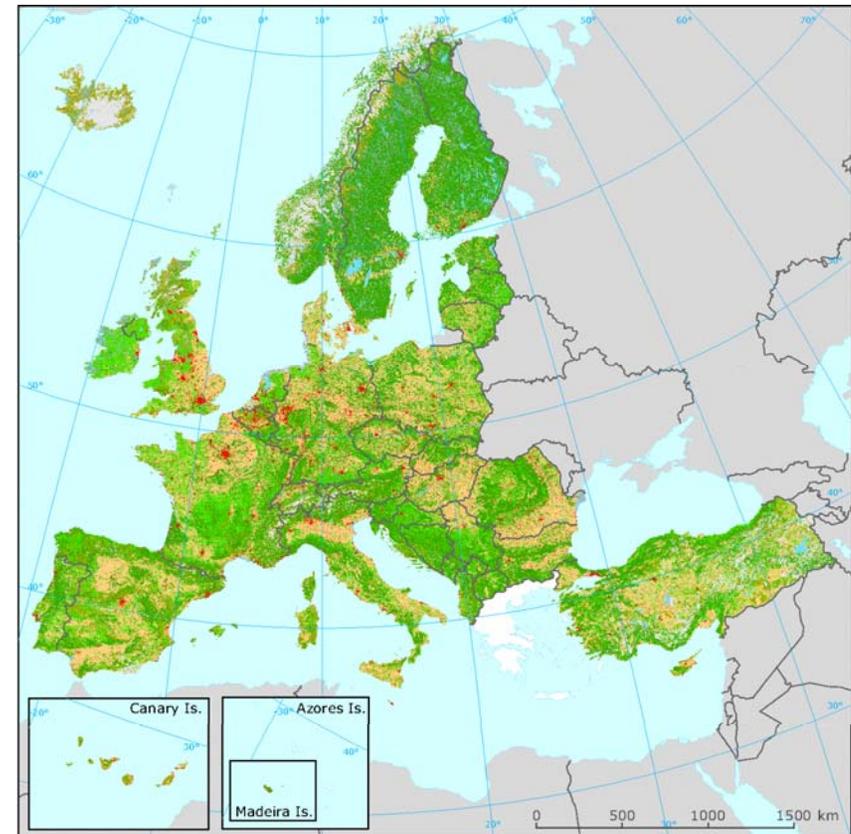
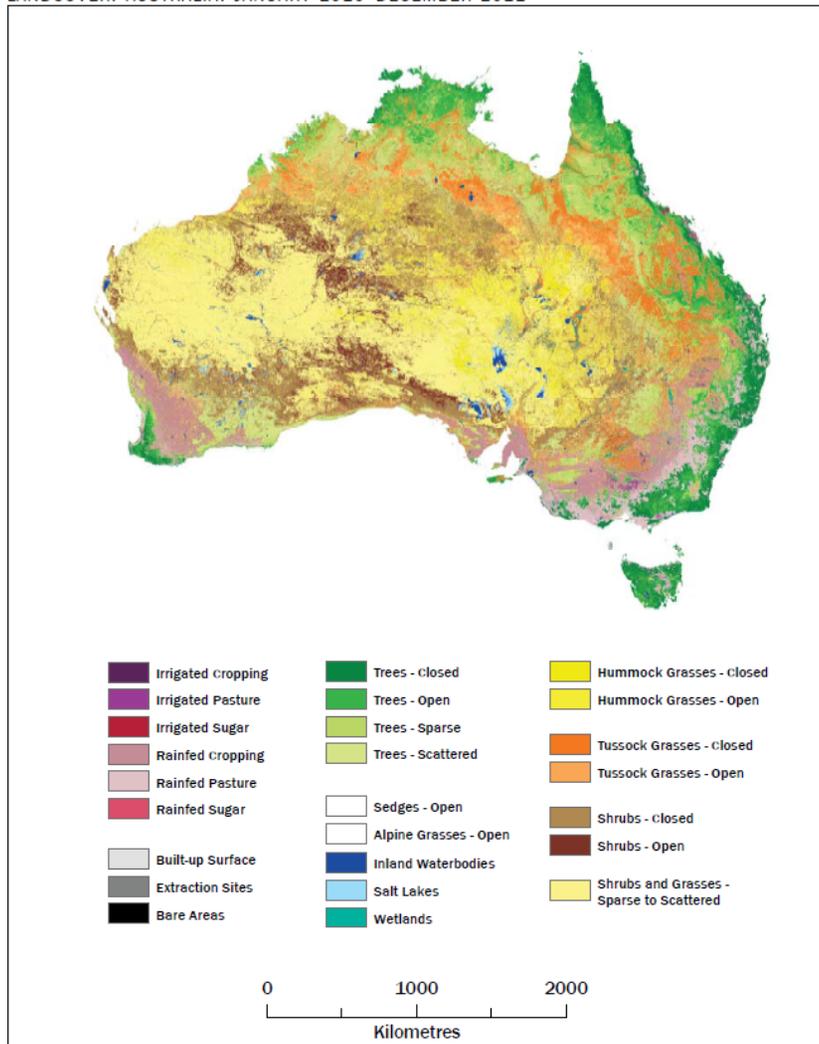


- Harmonizing indicators from business and national accounting perspective is an aspiration



Examples: Harmonization issues of Land cover maps

LANDCOVER. AUSTRALIA. JANUARY 2010-DECEMBER 2011



Corine Land Cover types - 2006





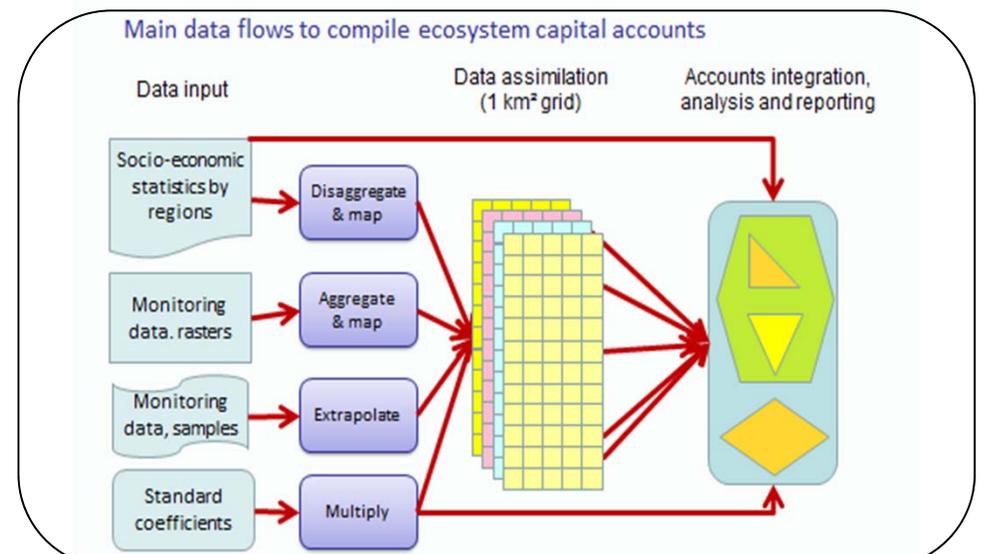
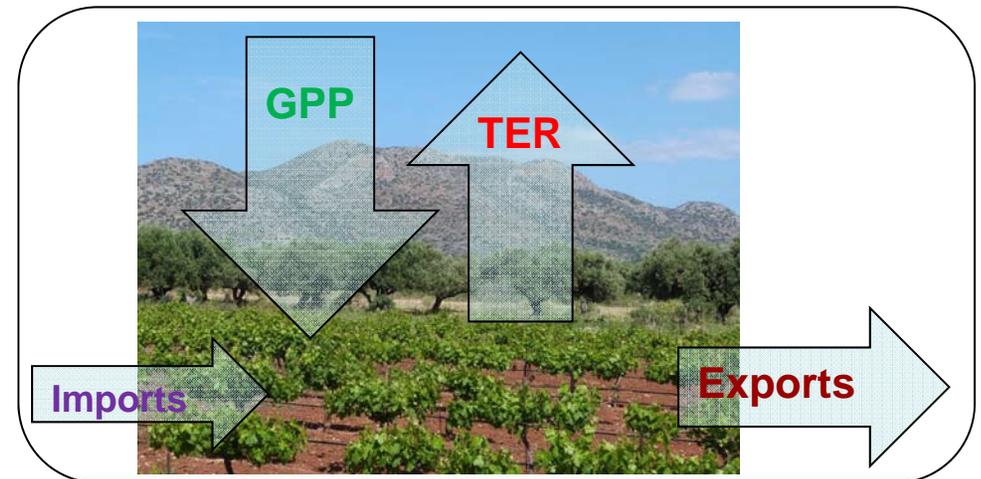
Examples: Carbon accounting illustrates an integrated application of spatial and statistical data

Statistical data on:

1. Forest biomass (FRA, 2000, 2005, 2010)
2. Crops **harvest** (EUROSTAT 2000 – 2010)
3. Timber **harvest** (EUROSTAT 2000 – 2010)
4. Livestock (EUROSTAT 2000 – 2010)

Remote sensing products:

1. CORINE Land cover (2000, 2006)
2. SPOT vegetation NDVI (1999 – 2010)
3. Primary production (**GPP**) and Ecosystem respiration (**TER**) (NASA, 2000 – 2010)

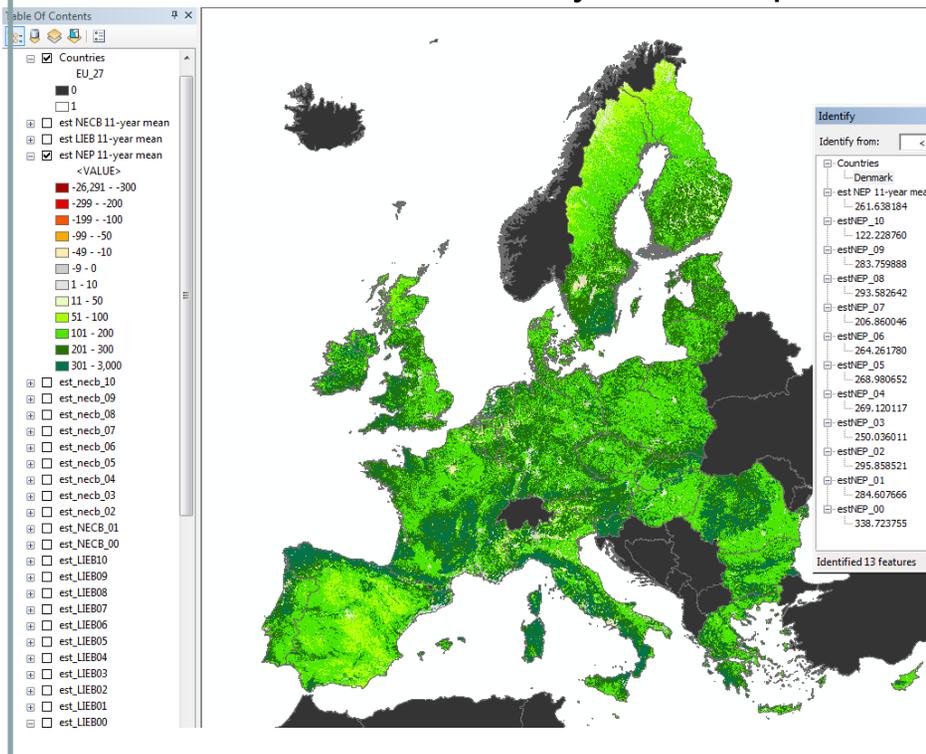




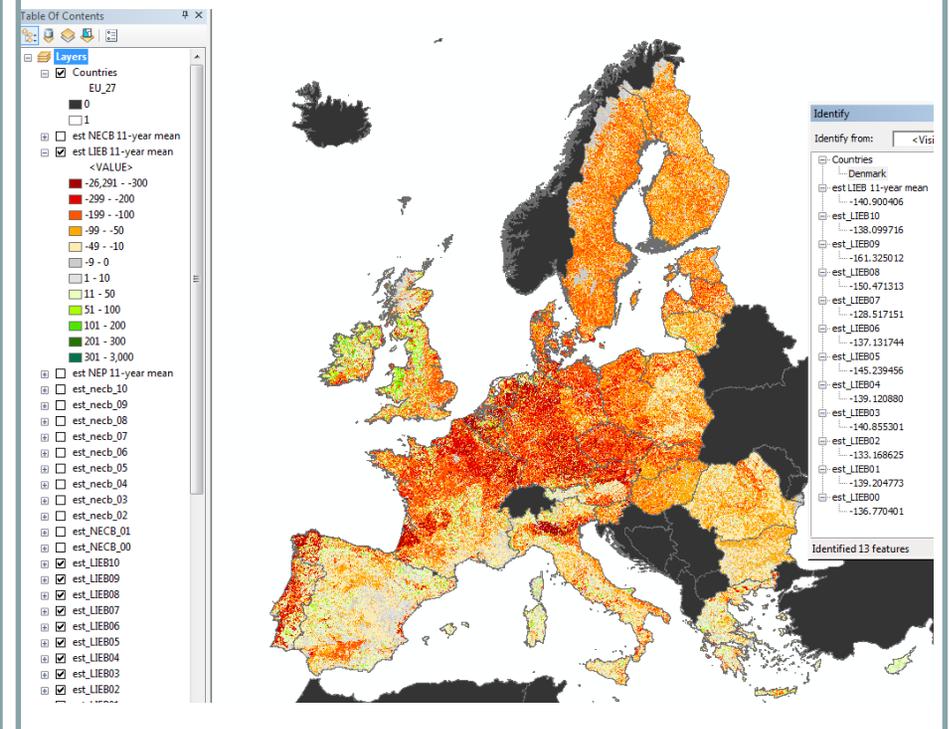
Examples: European carbon accounts

The two basic balancing items are designed to summarize 'vertical' and 'horizontal' carbon transfers

Net ecosystem production = Gross Primary Production – Terrestrial Ecosystem Respiration

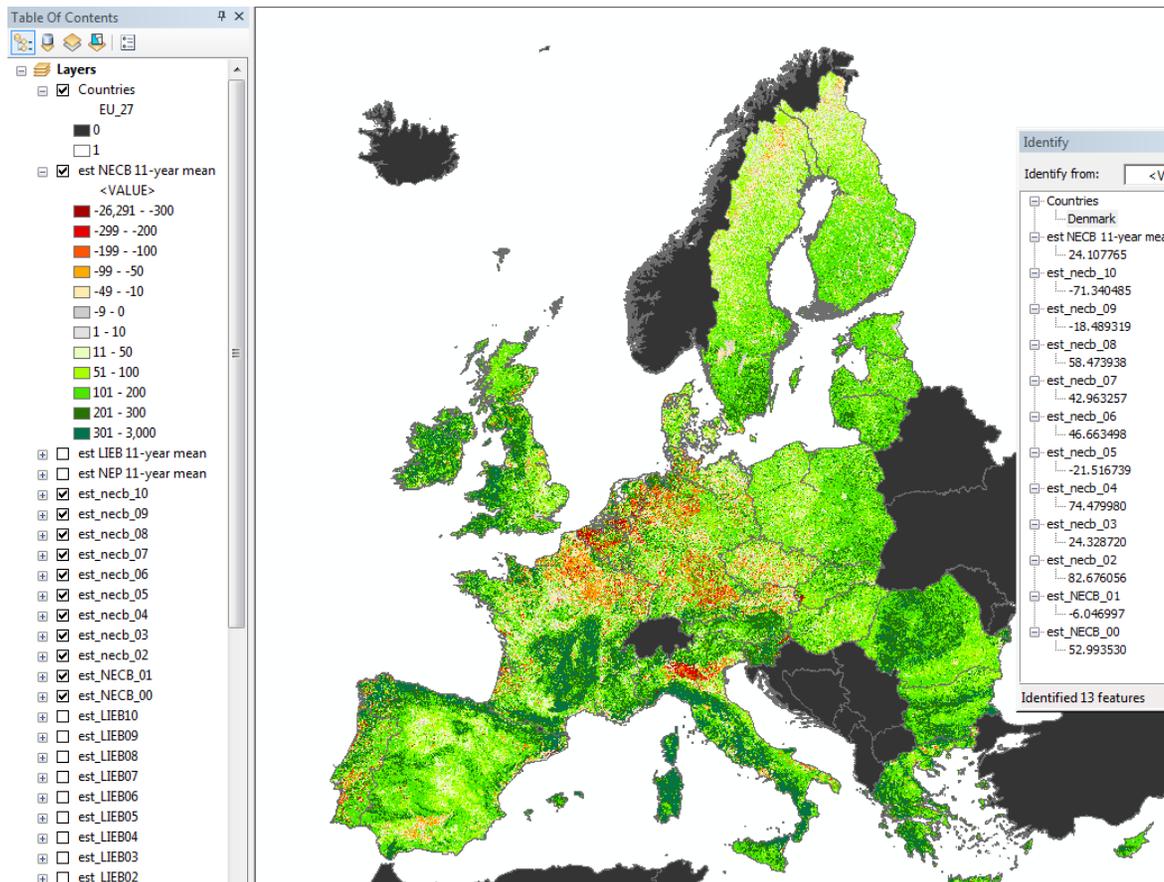


Balance of lateral imports and exports = Carbon returns – carbon 'uses'





Examples: Net ecosystem carbon balance



- On country level the ecosystem carbon accounts should be consistent with IPCC's in assessing whether ecosystems acted as net source or sink of CO₂ for a given period of time.
- The maps shows a decade average, with areas in green indicating prevailing sink (most of Europe) and in red – prevailing source functions (e.g. parts of North West Europe, Po valley in Italy, and spots of forest-burned areas of Portugal).



Conclusions

- SEEA EEA steers strategic directions articulating new priorities in both geography and statistical domains of work.
 - It can bring ‘win-win’ joint projects
- For accounting:
 - new geospatial technologies enable the experimentation of integrated ecosystem accounts in widely comparable / international space, thus contributes to standardization
- For geography / GIS:
 - the framework provides opportunities for added value applications – e.g. spatially explicit accounts supporting evidence-based (better informed) decision-making