

System of Environmental Economic Accounting



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Environmental
Economic
Accounting

The SEEA and the geospatial information

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Seventh Session of the Committee of Experts on UN-GGIM

The 2030 Agenda for Sustainable Development “Where is the Data?”

Tuesday, 1 August 2017

10:00 am - 4:00 pm

Venue: Conference Room 3 (CR-3)



United Nations

SEEA and the SDG indicators

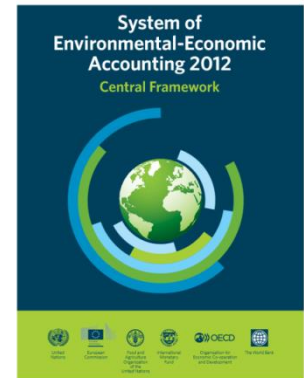
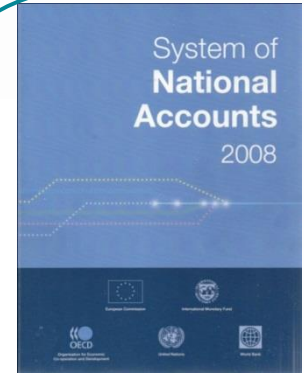


- The **SNA and SEEA** are statistical standards that can be used to monitor a number of environmental-economic SDG Indicators **in an integrated way**.
- The **Ecosystem Accounting and geospatial information** is in particular relevant for SDGs 6, 14 and 15.

Indicators based on standards

Indicators based on Standards

- Higher quality
- International comparability
- Comprehensive basis for (dis)aggregation
 - **Standards for Statistics**
 - Aligned Definitions and Classifications
 - Improved capacity to compare and/or combine statistics from different sectors
 - Basis for coherent and comprehensive data sets
 - Integration of statistical and geospatial information



SEEA Experimental Ecosystem Approach

- Measures the contributions of ecosystems to economic and other human activity in an accounting framework
- An integrated measurement framework for ecosystem stocks (assets) and flows (services):
 - > It covers “natural” as well as human-dominated systems such as croplands and intensive pastures
 - > It takes a detailed spatial approach (maps and statistics)
- A synthesis of current knowledge on ecosystem services, ecosystem condition and related concepts
 - > “Experimental” because significant measurement challenges remain and further testing of concepts is needed
- An integration framework explicitly recognizing and incorporating the geographic perspective
- Link to policies

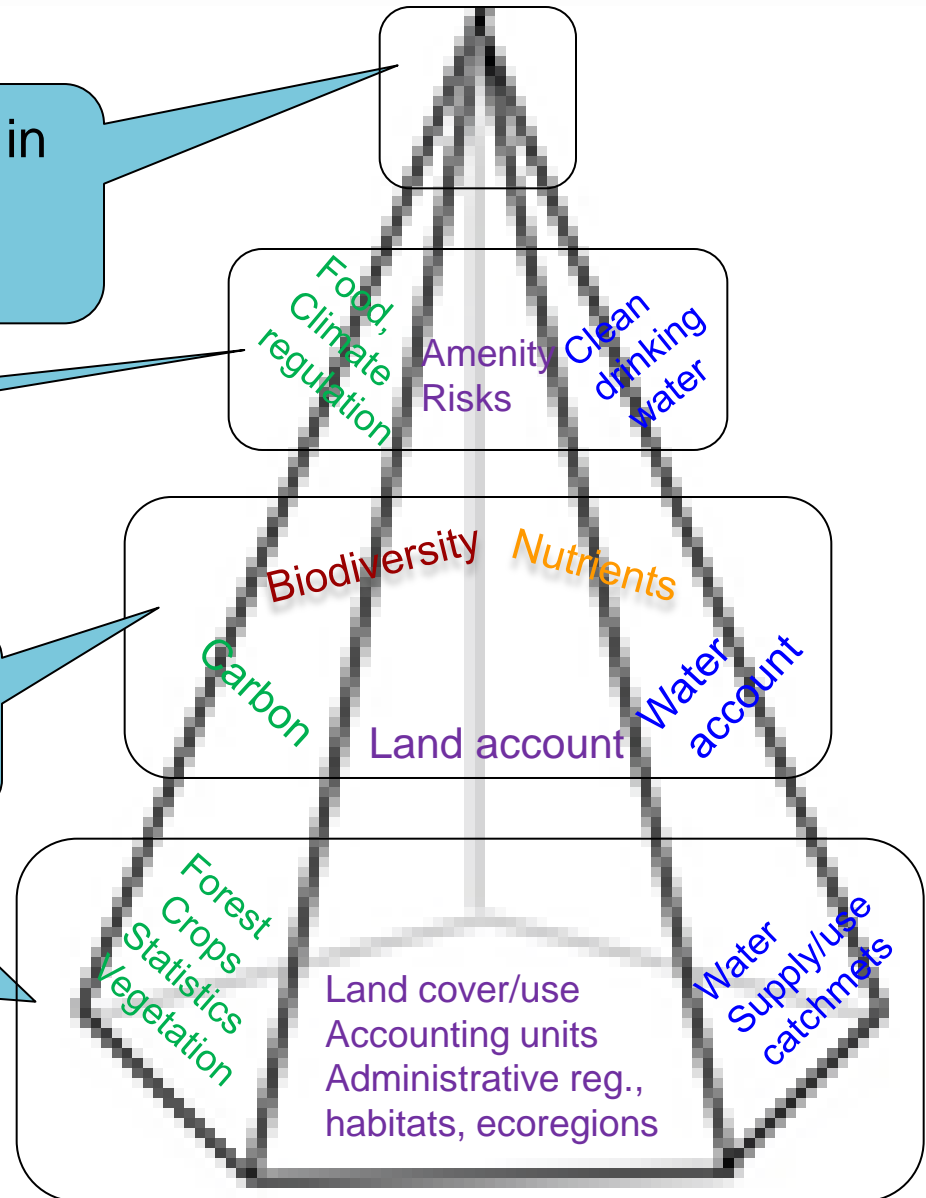
SEEA-EEA integration framework

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

Ecosystem services in monetary and physical terms

Consistent physical and monetary asset accounts

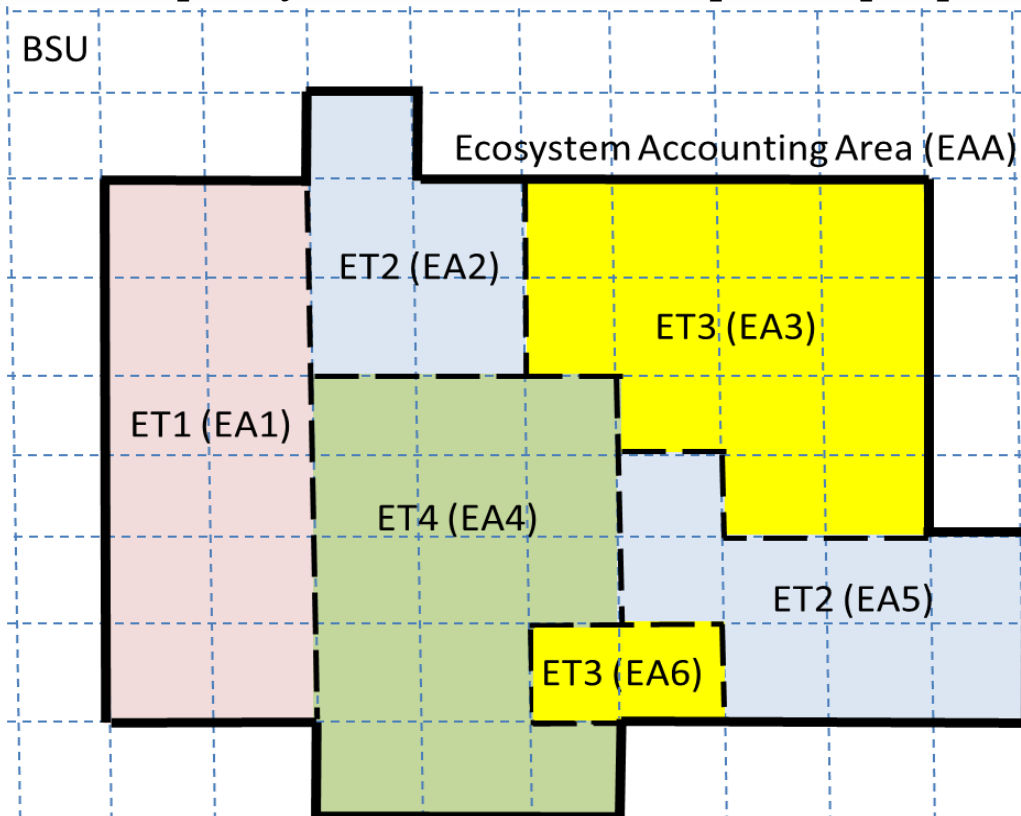
Raw data collection, processing and harmonization



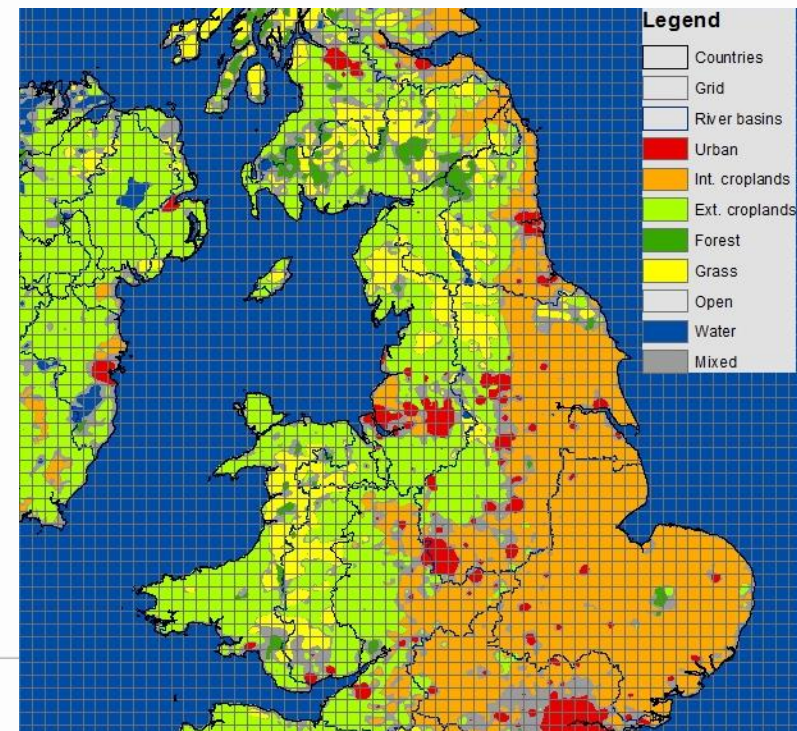
Use of geospatial data for improving environmental data

Spatial areas for ecosystem accounting in ecosystem extent accounting

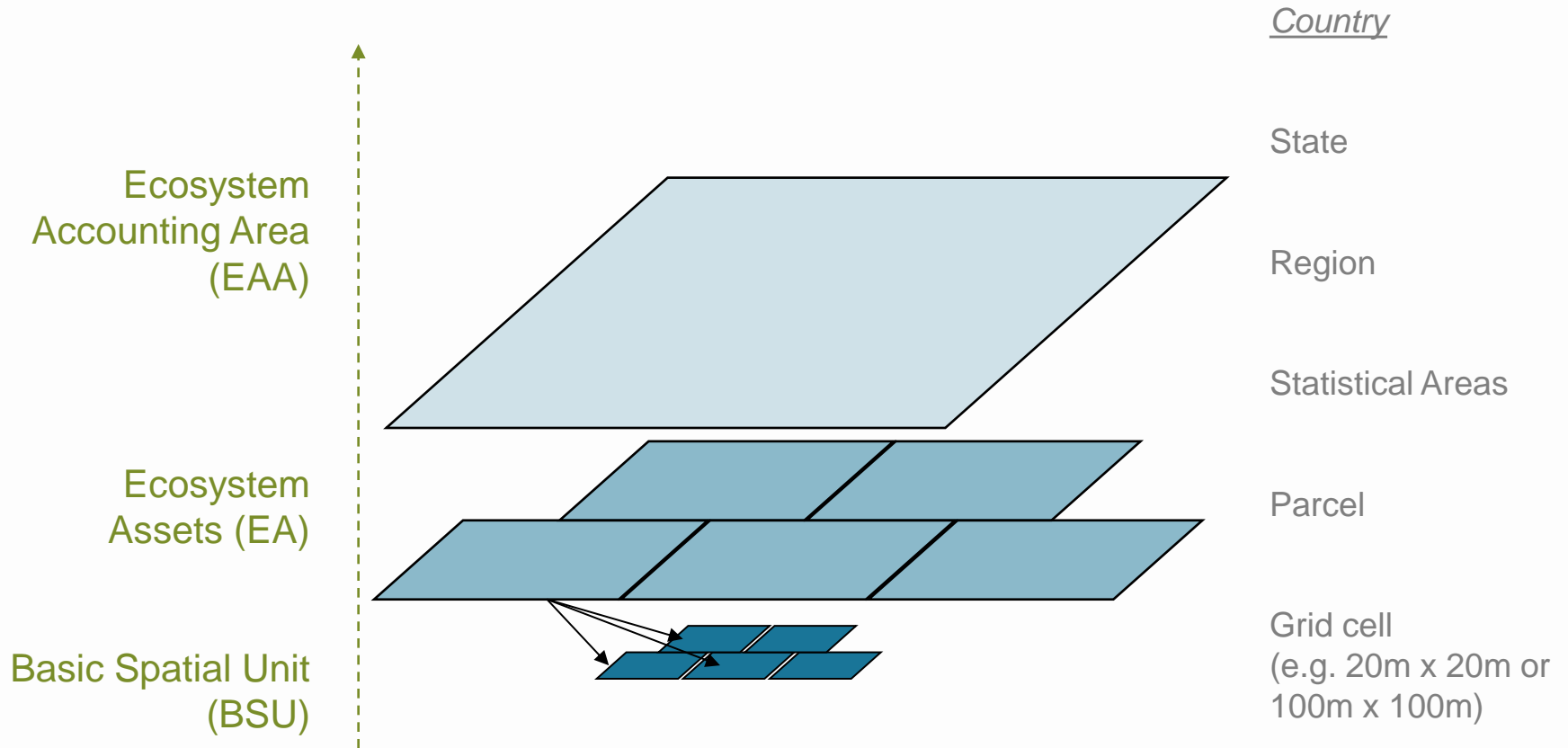
- Basic spatial units (BSU): small spatial area, a geometrical construct.
- Ecosystem Assets (EA): individual and contiguous ecosystems.
- Ecosystem Types (ET): aggregation of EAs of the same type.
- Ecosystem Accounting Area (EAA): aggregation of EAs and ETs relevant for policy at a scale fit for a specific purpose.



Overlay of units (UK)



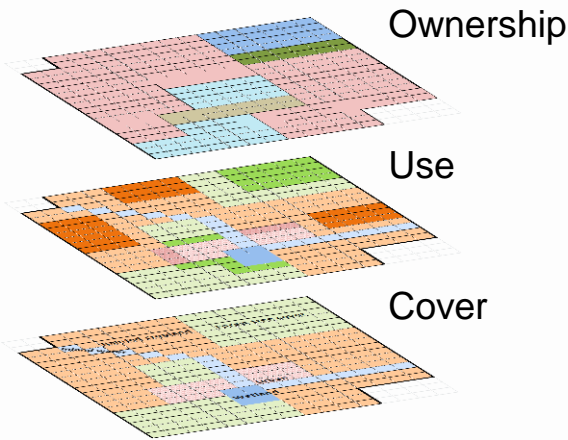
Hierarchical (nested-grid) aggregation



The use geospatial information

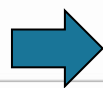
Geospatial information is used for construction of ecosystem accounts:

Maps



Tables

Cover	Urban and associated		Rainfed herbaceous cropland		Forest tree cover		Inland water bodies		Open wetlands	Total
Use	Infrastructure	Residential	Permanant crops	Maintenance	Forestry	Protected	Infrastructure	Aquaculture	Maintenance	
Ownership	Government	Private	Private	Private	Private	Government	Government	Private	Government	
Units	hectares									
Opening Stock										
Additions to Stock										
<i>Managed expansion</i>										
<i>Natural expansion</i>										
Reductions to stock										
<i>Managed regression</i>										
<i>Natural regression</i>										
Closing stock										



**Spatial units
Classifications**

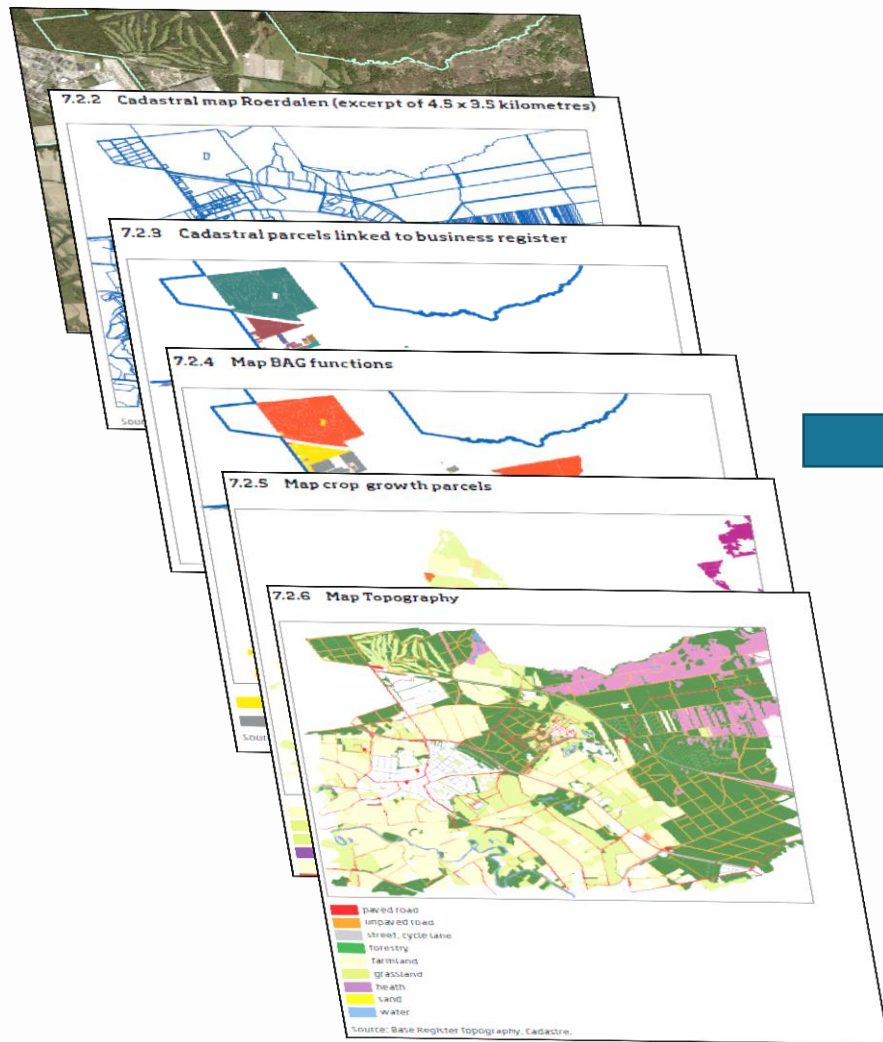


Examples

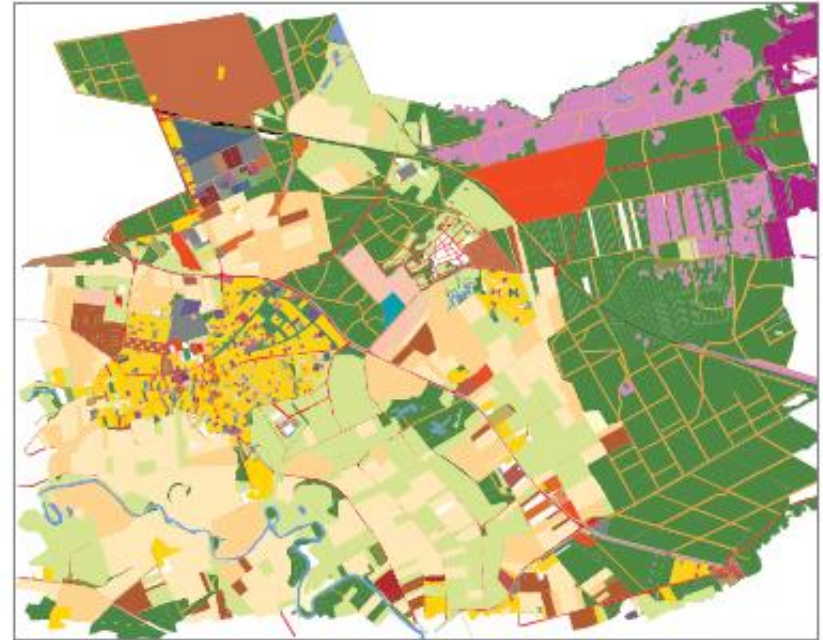
SDG Indicator 15.3.1

- Proportion of land that is degraded over total land area
- UNCCD is the custodian agency
- Land cover is one sub-indicator to 15.3.1 and there are several classifications in existence:
 - > IPCC (6 categories)
 - > Global Land Cover SHARE (11 categories) – global land cover database created by FAO
 - > SEEA (15 categories) – classification developed for the purposes of statistical standard
 - > European Space Agency Climate Change Initiative Land Cover (22 categories)

Combining maps through overlaying them

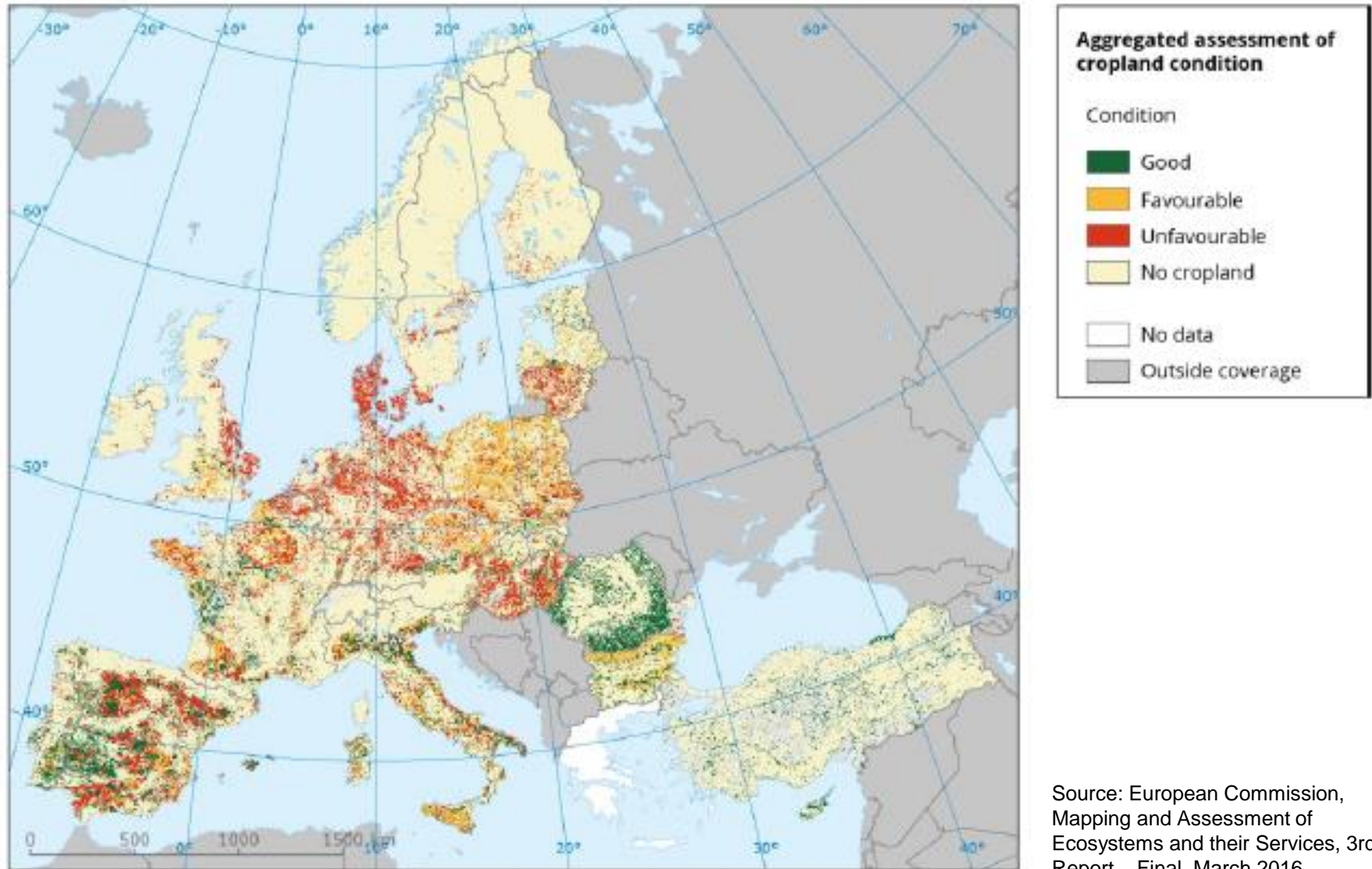


7.3.1 Land by use category Roerdalen



Source: analysis. Legend, see previous figures.

Europe: aggregated assessment of cropland condition



Source: European Commission, Mapping and Assessment of Ecosystems and their Services, 3rd Report – Final, March 2016.

Australia: using different sources for land cover and land use map



Areas calculated for land cover and land use include:

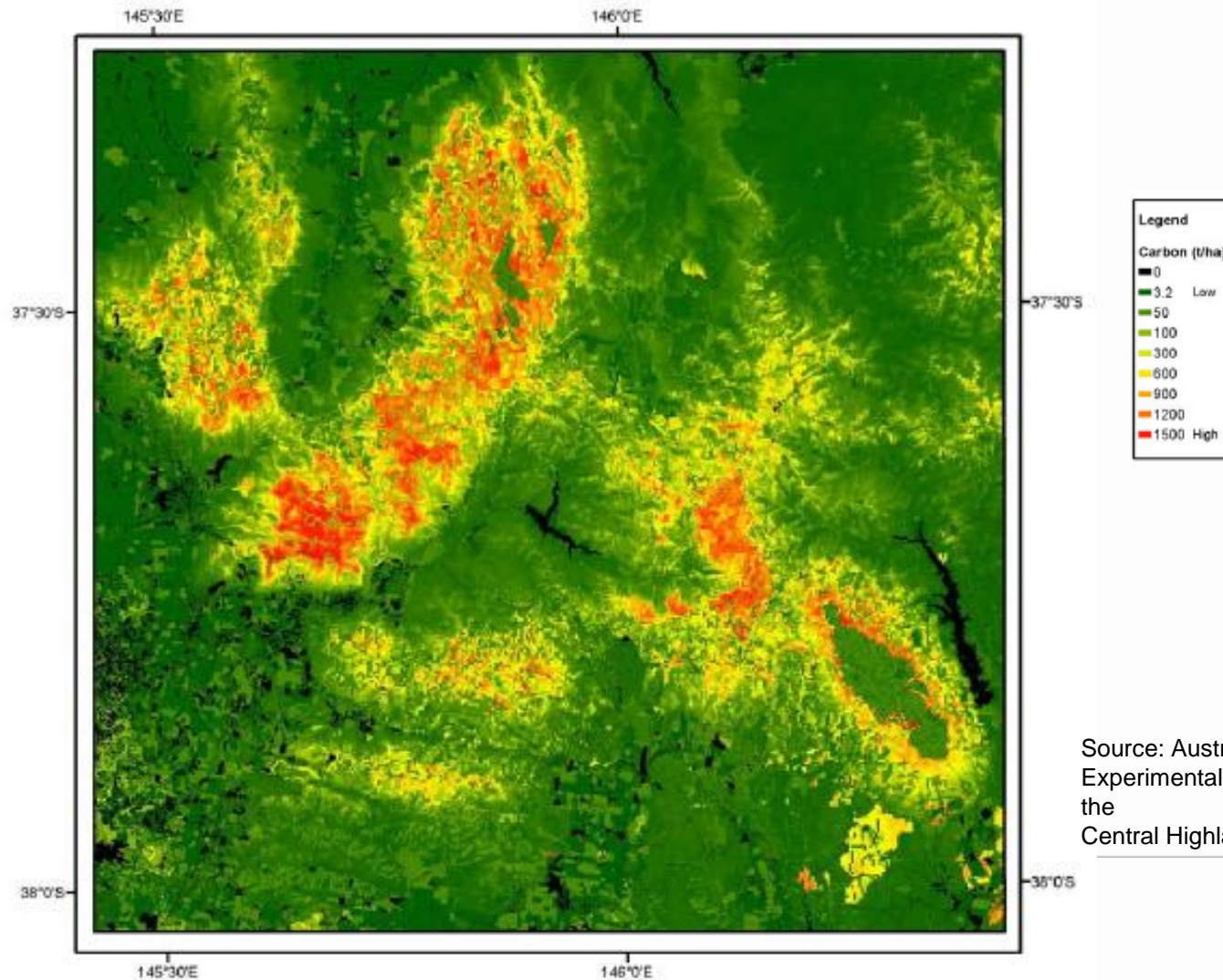
Land cover: A: forest – 39.0 ha, B: water – 3.5 ha, C: residence – 1.8 ha, D: irrigated crop – 13.5 ha, E: other crop – 3.8 ha, F: grassland – 68.0 ha.

Land use: Agriculture (grazing) – 129.6 ha

Source: Australian National University,
Experimental Ecosystem Accounts for
the
Central Highlands of Victoria, 2016.
Page 15

Australia: carbon account

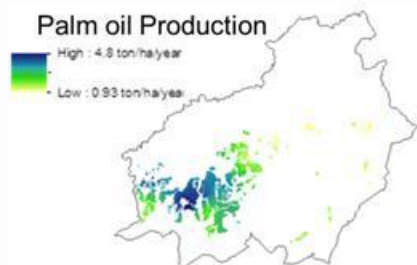
Figure 5.1 Spatial distribution of carbon stock density in the Central Highlands study area in 2015



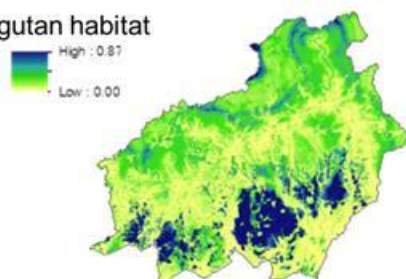
Source: Australian National University, Experimental Ecosystem Accounts for the Central Highlands of Victoria, 2016.

Indonesia: physical ecosystem services accounts

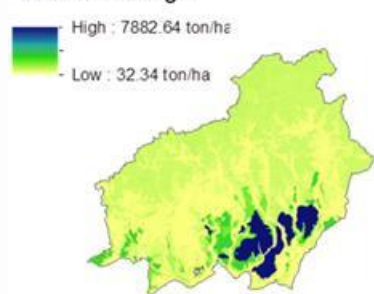
Palm oil Production



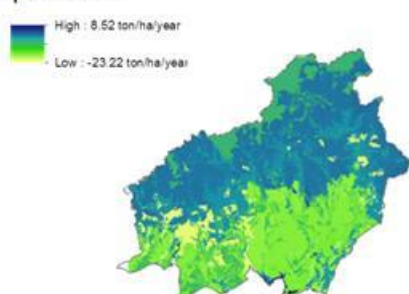
Orangutan habitat



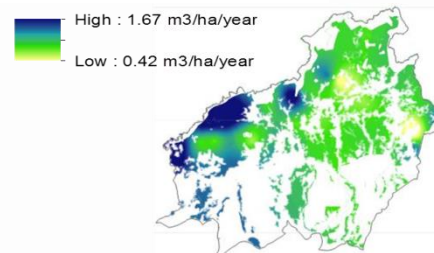
Carbon storage



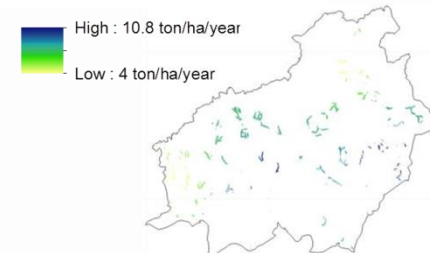
Carbon sequestration



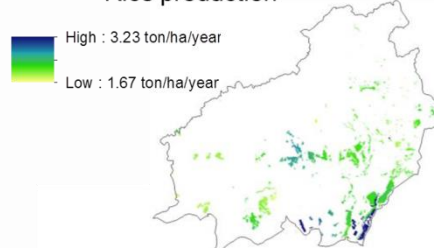
Timber production



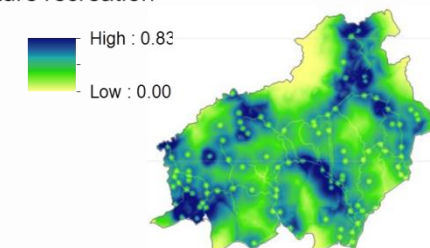
Rattan production



Rice production



Nature recreation



Source: Sumarga et al., 2014

Conclusion

The way forward?

- Integration of geospatial information in ecosystem accounting
 - > The National Spatial Data Infrastructure (NSDI) is crucial for the development of the ecosystem accounting
- Engaging in a dialogue between the statistical and geospatial community to ensure coordination of work in particular closer collaboration between the United Nations Committee of Experts on Environmental-Economic Accounting and the United Nations Expert Group on the Integration of Statistical and Geospatial Information
- Potential contribution of the geospatial community to the development of ecosystem accounting:
 - > SEEA EEA review process planned for 2016-2020
 - > Furthering of the research agenda in topics, such as spatial units and their delineation, and land cover classification



THANK YOU

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