A user perspective: reflections based on recent work at EU level and in some Member States

a) Brief overview of current approaches in the EU

b) Thoughts on scope for developing ‘proper’ SEEA EEA accounts for ES supply & use

c) Some final reflections

Current EU (KIP INCA) Proposal for ES Accounts

Service	Physical unit
Provisioning services	
Crops	Harvest (ton per ha)
Timber	Timber growth and harvest (ton per ha)
Marine fish	Catch (ton per fishing zone)
Water	Water abstraction for public, industrial and agricultural use (m3 per unit area)
Livestock	Amount of animal feed (grass) provided
Regulating services	
Pollination	Share of the crop harvest pollinated (ton per ha)
Erosion control (soil protection)	Avoided erosion in ton/ha/year compared to bare soil
Water purification	Removal of in-stream nitrogen (ton per km river)
Air filtration	Deposition of air pollutants (ton per ha)
Carbon sequestration (in vegetation and soil)	C sequestration in ton/ha/year
Flood control	Land area protected
Cultural services	
Recreation	Number of visits in ecosystems (person-days) / ha, include budget for surveys in some countries
Tourism	Number of overnight stays generated per ha/year

Finnish example: Indicators across the cascade

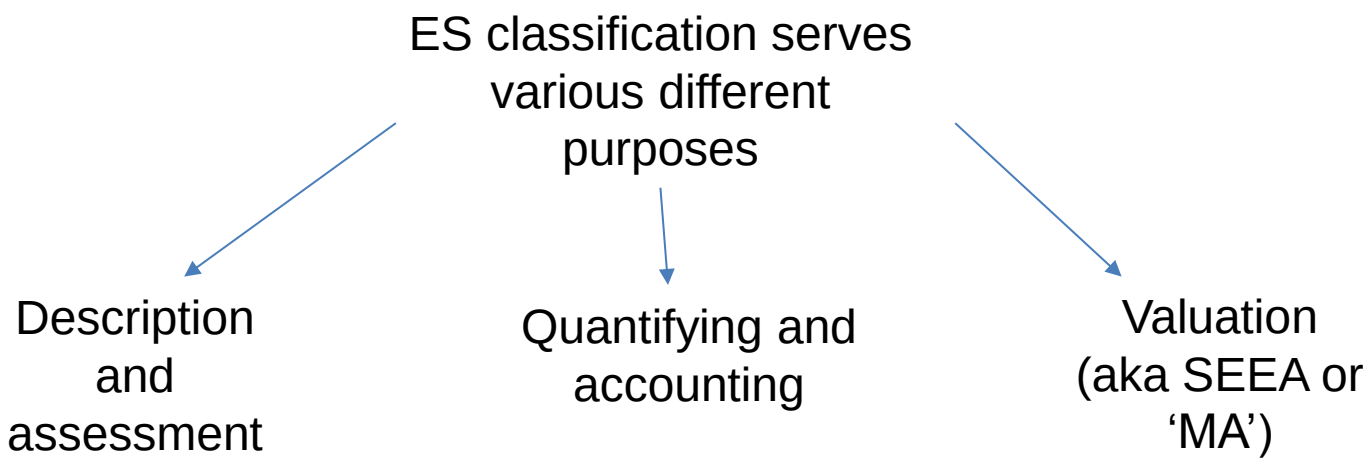
CICES				CASCADE			
Sec.	Div.	Group	Class	1. Structure	2. Function	4. Benefit	5. Value
ONING SERVICES	Nutrition	Biomass	Berries and mushrooms	Berry and mushroom habitats (ha)	Average annual production (kg/A or kg/ha/A)	Harvest (kg)	Sales, picking income (€) berry and mushroom pickers (n, %), health and intrinsic values
			Game	Game habitats (ha)	Game population (n), wildlife richness	Game bag (kg)	Game bag (€), social, health and intrinsic values
			Reindeer	Reindeer pastures (ha)	Reindeer population (n), birth rate (%)	Culled reindeer (kg)	Sales of reindeer meat (€) employment (n), intrinsic and health values

Mononen et al (2015), Ecological Indicators, *61*, 27-37

Overview of approaches used:

- SEEA EEA was not always the explicit conceptual framework
- ‘Common sense’ understanding and data constraints as key drivers for chosen approach
- Most attempts at practical implementation do what is feasible on the basis of available data
- Outcome is a lot of variance around the concept of ‘final ecosystem services’

ES: understanding – measuring – valuing



The definition of the 'production boundary' or what are 'final services' differs between these different analytical approaches.

Developing an integrated accounting system:

The concept looks very neat and logical..

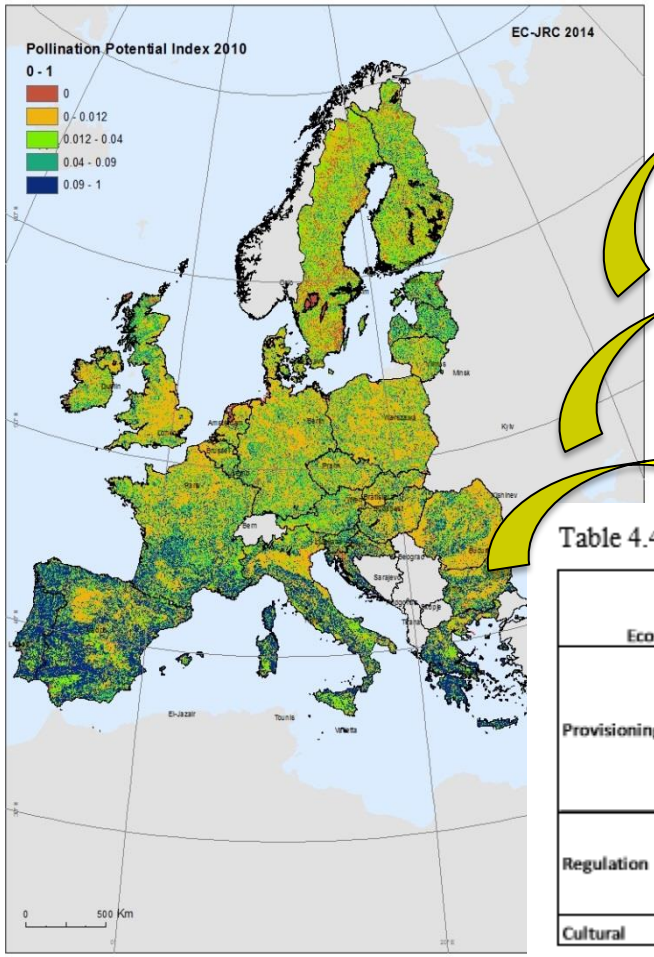


Table 4.2 Ecosystem extent account

Cover	Urban and associated		Rainfed herbaceous cropland		Forest tree cover		Inland water bodies		Open wetlands	Total
Use	Infrastructure	Residential	Permananet crops	Maintenance	Forestry	Protected	Infrastructure	Aquaculture	Maintenance	
Ownership	Government	Private	Private	Private	Private	Government	Government	Private	Government	
Units	hectares									
Opening Stock										
Additions to Stock										

Table 4.3 Ecosystem condition account (similar to SEEA EEA Table 4.3: see also SEEA EEA Table 4.4 with changes in condition account)

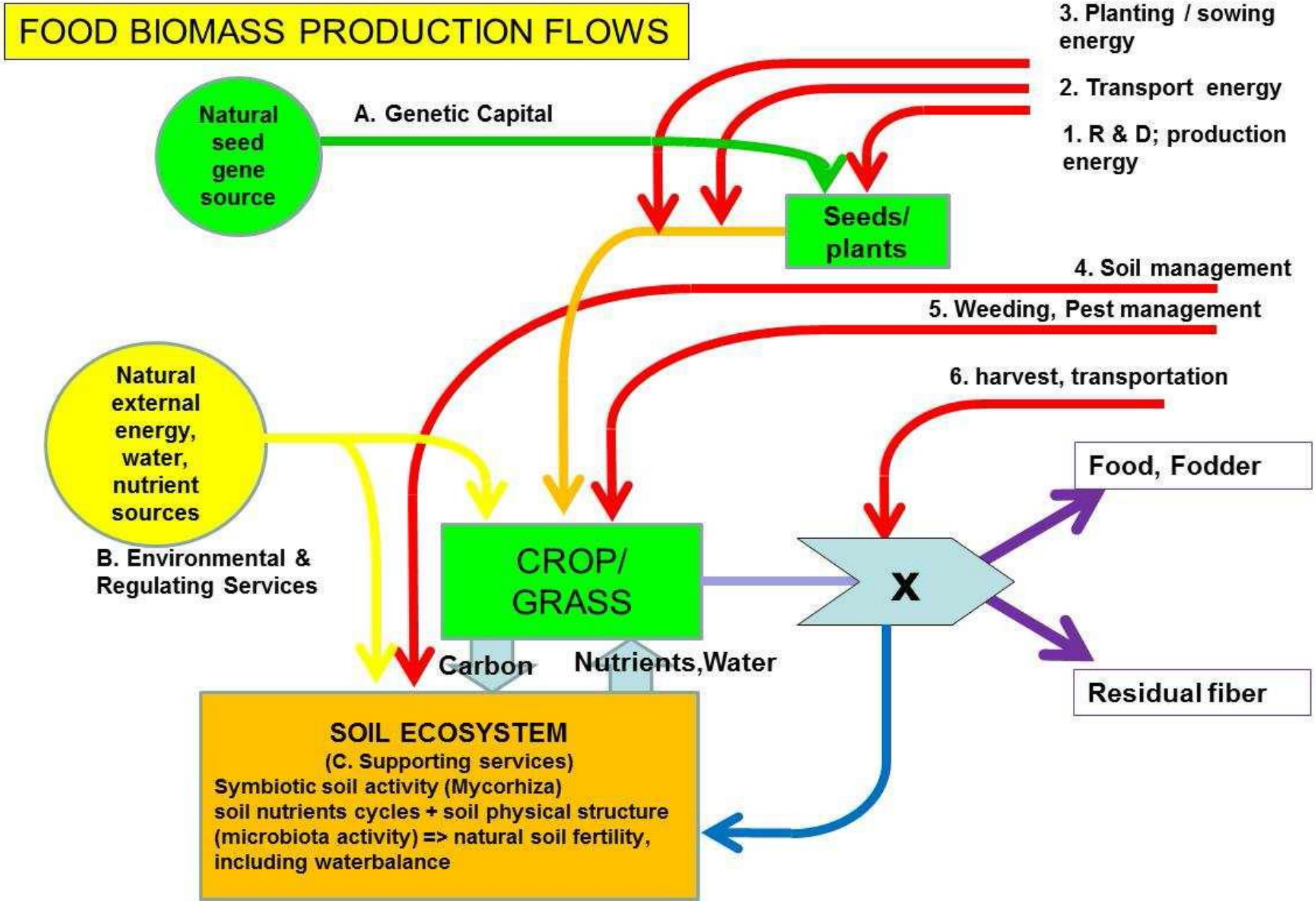
Ecosystem type	Ecosystem extent	Ecosystem condition					
	Area	Vegetation	Biodiversity	Soil	Water	Carbon	Index
	hectares						
Urban and associated							
Rainfed herbaceous							

Table 4.4 Ecosystem services supply account (LCEU by CICES)

Ecosystem service		Units	Land cover type								
			Urban	Pasture	Cropland	Forest	Heath	Peat	Water	Other nature	Provincial total
Provisioning	Hunting	kg meat	-	9,100	14,732	8,100	678	70		1,513	**34,193**
	Drinking water extraction	10^3 m^3 water	4,071	7,026	11,227	3,117	214	-	478	862	**26,995**
	Crop production	10^6 kg produce	-	-	1,868	-	-	-	-	-	**1,868**
	Fodder production	10^6 kg dry matter		533	251						**784**
Regulation	Air quality regulation	10^3 kg PM_{10}	272	404	717	700	45	7	40	69	**2,254**
	Carbon sequestration	10^6 kg carbon	875	8,019	273	50,664	393	149	-	1,056	**61,429**
Cultural	Recreational cycling	10^3 trips	2,690	1,863	2,611	1,565	30	3	139	220	**9,121**

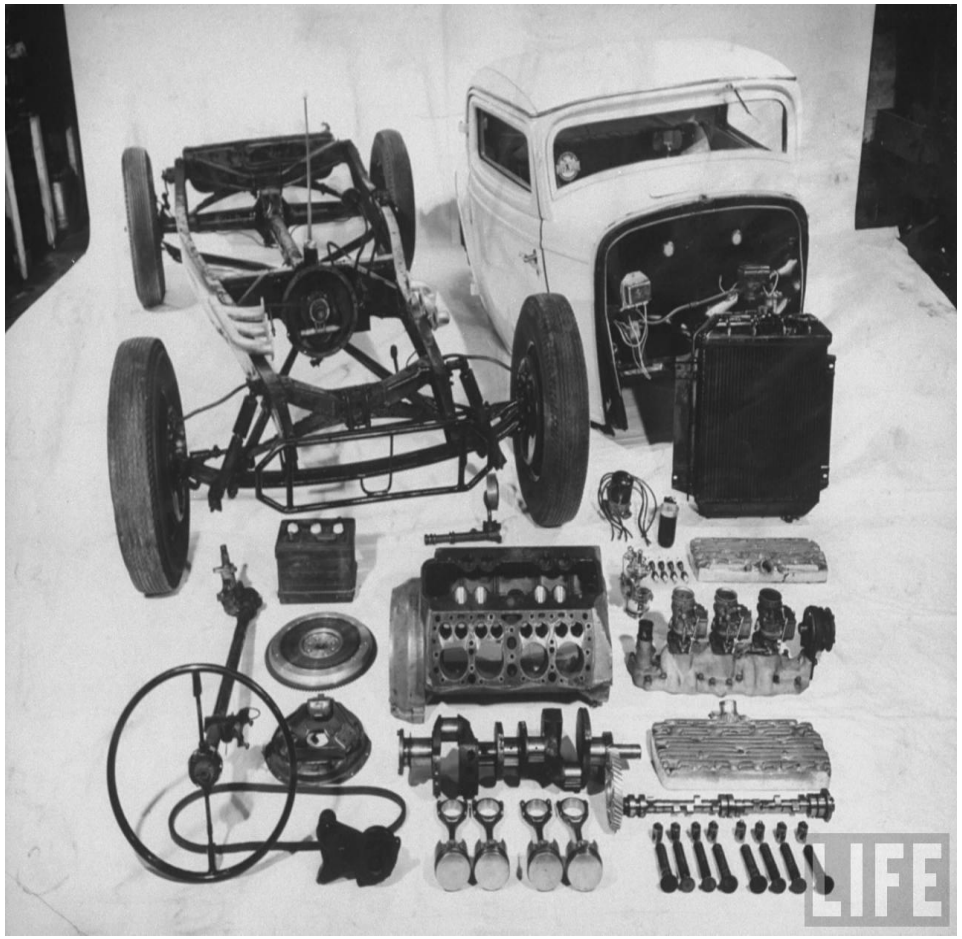
onment Agency

‘Real’ ecosystem processes are very complex ..

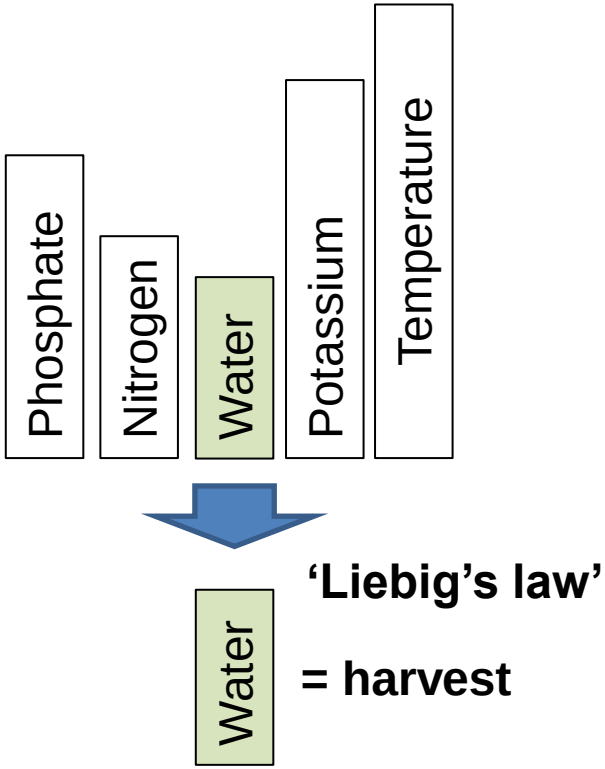


Can we really disentangle the different production factors?

What is the % share of different car parts in making it run?



Agronomy / ecosystems :



‘Liebig’s law’

= harvest

Some final reflections

- Users in the CICES survey stressed the need to keep the system simple for practical use
- We need to have data constraints in mind when further reviewing ES classifications in an application perspective
- Data and knowledge needs are important aspects for further developing SEEA EEA methodology
- Data foundation and data architecture are identified as critical elements for developing an EU system of ecosystem accounts

Proposal for looking at share of ‘nature’ in