Principles of classification for the SEEA EEA

Why international statistical classifications

Why have international statistical classifications?

- Statistics that are reasonably **comparable between countries**

- **Developing national classifications** for the same variable/characteristics

Statistical classification:

- Collect and organize information in a standard way

- Aggregate and disaggregate data set in a meaningful way for complex analysis

- Support policy and decision making

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Classifications in the SEEA EEA

- SEEA EEA priority research issues
  - > Classify of ecosystem extent
  - > Classify of ecosystem services

- Classification may also apply to other concepts in the SEEA EEA where we need to collect information, such as
  - > Condition
  - > Beneficiary
  - > Benefit/use

Possible classifications for ecosystem accounting
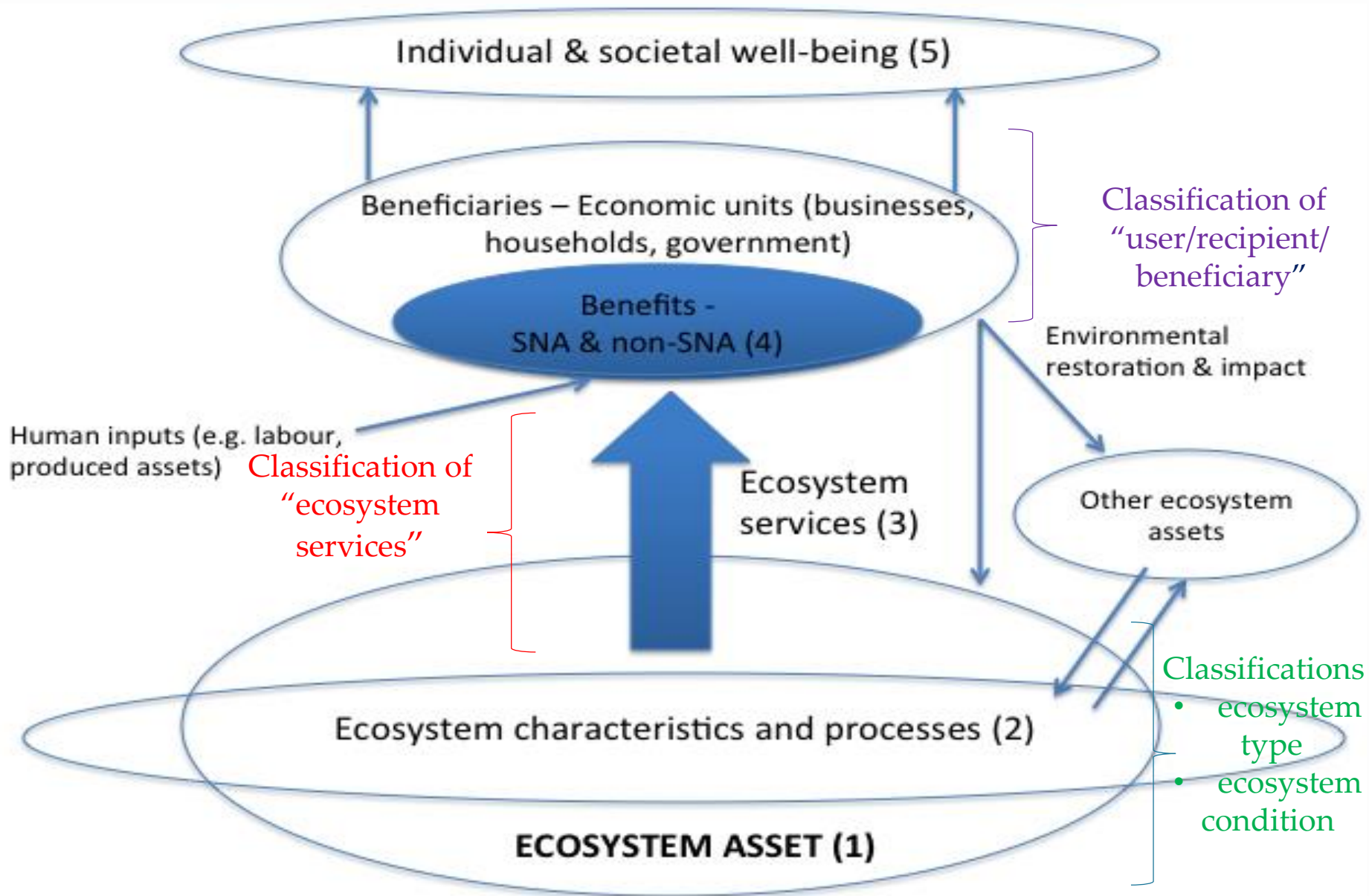
Ecosystem extent account

Classification of ecosystem types

		Proxy ecosystem type (based on land cover)															
		Artificial surfaces	Herbaceous crops	Woody crops	Multiple or layered crops	Grassland	Tree-covered areas	Mangroves	Shrub-covered areas	Regularly flooded areas	Sparse natural vegetated areas	Terrestrial barren land	Permanent snow and glaciers	Inland water bodies	Coastal water and inter-tidal areas	Sea and marine areas	TOTAL
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Opening extent																	
	Additions to extent																
	Managed expansion																
	Natural expansion																
	Upward reappraisals																
	Reductions in extent																
	Managed regression																
	Natural regression																
	Downward reappraisals																
	Net change in extent																
Closing extent																	

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Ecosystem condition account
(End of accounting period)

Classification of ecosystem types

Classification/typology of ecosystem conditions

		Proxy ecosystem type (based on land cover)														
		Artificial surfaces	Herbaceous crops	Woody crops	Multiple or layered crops	Grassland	Tree-covered areas	Mangroves	Shrub-covered areas	Regularly flooded areas	Sparse natural vegetated areas	Terrestrial barren land	Permanent snow and glaciers	Inland water bodies	Coastal water and inter-tidal areas	Sea and marine areas
Example indicators of condition		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Vegetation (e.g. native cover)	Opening condition															
	Closing condition															
Water quality (e.g. turbidity, pH)	Opening condition															
	Closing condition															
Soil (e.g. erosion, pH, nutrients)	Opening condition															
	Closing condition															
Carbon (e.g. net primary productivity)	Opening condition															
	Closing condition															
Biodiversity (e.g. species richness)	Opening condition															
	Closing condition															
Habitats (e.g. fragmentation)	Opening condition															
	Closing condition															
Overall index of condition	Opening condition															
	Closing condition															

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Ecosystem services supply table

Classification of ecosystem services

Classification of ecosystem types

ECOSYSTEM SERVICES SUPPLY TABLE

	Measurement Units	Type of economic unit									Proxy ecosystem type (based on land cover)															TOTAL SUPPLY
		Agriculture, forestry and fisheries	Electricity, gas supply	Water collection, treatment and supply	Other industries	Governmens	Households	Accumulation	Rest of the world - Imports	Artificial surfaces	Herbaceous crops	Woody crops	Multiple or layered crops	Grassland	Tree-covered areas	Mangroves	Shrub-covered areas	Regularly flooded areas	Sparse natural vegetated areas	Terrestrial barren land	Permanent snow and glaciers	Inland water bodies	Coastal water and inter-tidal areas	Sea and marine areas	
											2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Ecosystem services																										
Provisioning services																										
Biomass accumulation																										
- Timber																										
- Crops						A									B											
- Grass / fodder																										
- Fish																										
Water abstraction																										
Regulating services																										
Carbon sequestration																										
Water regulation																										
Water purification																										
Air filtration																										
Nutrient/waste remediation																										
Pest & disease control																										
Soil retention																										
Cultural services																										
Enabling tourism and recreation																										
Enabling nature based education and research																										
Enabling nature based religious and spiritual experiences																										
Products					C										D											

ECOSYSTEM SERVICES USE TABLE

		Type of economic unit	Proxy ecosystem type (based on land cover)

Ecosystem services use table

Classification of "beneficiary"

Classification of ecosystem services

Principles to consider when developing an international statistical classification

- Custodians

- Conceptual basis

- Classification structures – flat or hierarchic?

- Classification types

- Mutually exclusivity of items at the same level

- Exhaustiveness

- Statistical balance

- Statistical feasibility

- Classification units

- Time series comparability

Best Practice Guidelines for Developing International Statistical Classifications

Andrew Hancock, Chair, Expert Group on International Statistical Classifications

Best Practice Guidelines for Developing International Statistical Classifications November 2013   1

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Conceptual basis

- It is important that an international statistical classification is based upon **sound and agreed concepts and principles**. The conceptual basis of the classification should be detailed in the explanatory notes and explain why the conceptual approaches taken have in fact been undertaken.

- The **conceptual basis should be well defined and documented** to enable users to understand what the classification is about and should be used for categorising, interpreting and structuring the classificatio. It may be based on :

  > principles or concepts developed through international collaboration

  > the production of an agreed international standard

  > stakeholder consultation or agreement between national agencies.

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Conceptual basis for SEEA EEA classifications

- What are the "concepts" we want to classify and how to define them? What the distinguish characteristics ?

    > Ecosystem extent

    > Ecosystem services

- Should we stick to the concept/definition as defined in the SEEA 2012 EEA and the Technical Recommendations as a basis?

- If not:

    > Are we going to revise the definition in the SEEA EEA framework during the revision process, such that the concepts are aligned

    > What are the characteristics, description and criteria in defining the "phenomenon" that we want to classify, and how such concept can link/fit in the SEEA EEA framework?

    > Should we consider using another term to avoid different meaning for the same term in the SEEA EEA framework and the classification system?

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On classification principles

- How to classify ecosystem extent?
    - > Physical characteristics
    - > Underlying ecological characteristics
    - > Ecosystem function and process
    - > Use of ecosystem assets
    - > Provisioning of ecosystem services
    - > Should it be ISIC, land cover or land use type classification?

- How to classify ecosystem services?
    - > Intrinsic characteristics of ecosystem services
    - > Ecosystem type/source of origin
    - > Use/demand
    - > Characteristic of the user of ecosystem services/beneficiary
    - > Should it be CPC or COICOP type classification?

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Hypothetic examples

Water, classified by use

Division	Group	Class	Class types
Water	**Water for human consumption**	*Drinking water*	*e.g. abstracted surface water, abstracted ground water, or via desalisation*
		Domestic water use	*e.g. abstracted surface water, abstracted ground wate, or via desalisation*
	Water for agricultural use	*Irrigation water(consumptive)*	*e.g. abstracted surface water, abstracted ground water, or via desalisation*
		Water for livestock (consumptive)	*e.g. surface water, abstracted ground water, or via desalisation*
	Water for industrial and energy uses	*Industrial water (consumptive)*	*e.g. abstracted surface water, abstracted ground water, or via desalisation*
		Industrial water (non consumptive)	*e.g. abstracted surface water, abstracted ground water, or via desalisation*

Water, classified by characteristics then by source of origin

Division	Group	Class	Description of ecosystem services	Corresponding benefits
Water	**Natural Water**	*Surface water (to be abstracted)*	*Water to be abstracted for the growing of crops and animals, agricultural, mining, manufacturing and household use, etc*	*Drinking water, water for crop production, livestock feed, thermoelectric power production, etc.*
		Groudwater (to be abstracted)		
		Soil water (to be abstracted)		
		Water (to be abstracted) from other sources		

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Mutual exclusivity and exhaustive

- The categories in a statistical classification need to be mutually exclusive of items at the same level of the classification

  > i.e. each member of the population of primary units should only be classified to one category; and it should be possible to classify all units to a category in the classification.

- A classification with categories which are not mutually exclusive will confuse users and not enable the statistical classification to be accurately and consistently used.

  > Double counting

- A classification should be exhaustive for all possible values that the variable can take for the primary units for which the classification represents.

- Example:

  > When classifying forest protected area/park that is located in a city, should it be classified as "urban ecosystem" and "forest ecosystem"?

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Other considerations

- A single classification or multiple classifications?

- What are the generic descriptions of the properties and intrinsic nature of the ecosystem extent and services that can be used as distinguishing characteristics?

  > Physical characteristics (like land cover); Use (like land use classification); Product (like CPC – in terms of properties, intrinsic nature, principle of origin); Activity (like ISIC); Functional classification (like CIOCOP);Or a combination of both?

- Should we favour of an approach where classification of ecosystem extent and ecosystem services can be linked? Or they can be developed independent ?

- Is it feasible that the ecosystem services are defined and structured in terms of a combination of properties of the services, ecological processes and the uses of these services? – For instance, the CPC uses the criterion of industrial origin, the input structure, technology and organisation of production characteristics of products to structure the CPC?

- If hierarchic classification, what are the meaning categories at the top?

- How to define mutual exclusivity and exhaustive category?

  > E.g. How to ensure forest protected area/park will only be classified once, either as "urban ecosystem" and "forest ecosystem" to ensure that there is no double counting in the system?

- Are there any terminology related to ecosystem extent and service that require further clarification and agreement during the SEEA EEA revision process?

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THANK YOU

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