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Proposed Common International Classification of Ecosystem Services (CICES)

(for discussion)

REVISION OF THE SYSTEM OF ENVIRONMENTAL - ECONOMIC ACCOUNTING (SEEA)

SEEA Experimental Ecosystem Accounts

Draft material prepared for the 7th Meeting of the Committee of Experts on Environmental-Economic Accounting (UNCEEA)

Meeting in Rio di Janeiro, Brazil 11-13 June, 2012

DRAFT

Proposed Common International Classification of Ecosystem Services (CICES)

The following text has been drafted for discussion among UNCEEA members as part of the process of developing the SEEA Experimental Ecosystem Accounts. The material should not be considered definitive.

Note on the revision of the Common International Classification of Ecosystem Services (CICES)

This paper presents a proposal for a fourth version of the Common International Classification of Ecosystem Services (CICES v4). Versions of the CICES have been developed over the past few years in response to a range of analytical and statistical requirements. The current version is being developed in the context of the program of work on the System of Environmental-Economic Accounting (SEEA) Experimental Ecosystem Accounts, but there are also current requirements for the CICES as part of other work programs, in particular, for the framework for 'Mapping and assessment of ecosystems and their services' (MAES) in the context of the European Union's Biodiversity 2020 Strategy.

The proposed revisions to CICES have been informed by a range of consultations with experts from a number of countries and international agencies. They also attempt to integrate ecosystem assessment and ecosystem accounting requirements.

The version of the CICES presented in this paper does not represent the final version of CICES for the purposes of the SEEA Experimental Ecosystem Accounts. Additional discussion with relevant experts and users is required. As well, there is a need to ensure alignment in conceptual terms between the structure and wording of the classification and the accounting concepts described in the main body of the SEEA Experimental Ecosystem Accounts. It is noted however, that in general, the conceptual alignment is well developed and hence significant change to this version of CICES is not expected.

Key conclusions reflected in this proposed version are:

- Defining a four tiered hierarchy : Section, Division, Group and Class
- Clarification that the CICES should not refer to ecosystem services as though they are activities such as "production" or "harvesting"
- Clarification on the treatment of ecosystem services related to water distinguishing water supply from the services of water in terms of water purification.
- Incorporation of marine related ecosystem services

Key issues requiring finalisation are

- Naming and descriptions of the lowest level of the CICES "classes"; particularly with respect to provisioning services and cultural services. This requires a common understanding of the boundaries between final and intermediate ecosystem services and related benefits.
- Treatment of abiotic resources such as sub-soil mineral and energy resources and sources of energy such as solar and wind.
- The provision of supporting information including examples of possible indicators and links to other classifications (such as the Central Product Classification).

COMMON INTERNATIONAL CLASSIFICATION OF ECOSYSTEM SERVICES (CICES): Draft proposal for CICES version 4, June 2012.					
Section	**Division**	**Group**	**Class**	**Class types**	**Examples and indicative benefits**
Provisioning	**Nutrition**	**Terrestrial plants and animals for food**	Crops	e.g. by crops	Cereals, vegetables, vines etc.
			Livestock and dairy products	e.g. by animal type	Sheep, cattle for meat and dairy products
			Wild plants and animals	e.g. by resource	Berries, fungi etc.
		Freshwater plants and animals for food	Fish (wild populations)	e.g. by fishery	
			Aquaculture products	e.g. by fishery	
			Fresh water plants	e.g. by resource	Water cress
		Marine algae and animals for food	Fish (wild populations including shellfish)	e.g. by fishery	Includes crustaceans
			Aquaculture products	e.g. by fishery	Includes crustaceans
			Algae	e.g. by resource	Macro and microalgae

Provisioning	**Water supply**	**Potable water**	Abstracted surface water	e.g. by feature	Spring, well water, river, reservoir, lake, supply of domestic and bottled waters, desalination of marine waters
			Abstracted ground water	e.g. by habitat	Aquifers
		Non-potable water	Irrigation water	e.g. by process	For crop production
			Industrial water	e.g. by process	For manufacturing
			Cooling water	e.g. by process	For power production, incl. marine waters for nuclear power plants
	Materials	**Biotic materials**	Non-food vegetal fibres	e.g. by resource	Timber, straw, flax; algae for fertiliser, packaging and chemicals
			Non-food animal fibres	e.g. by resource	Skin, bone etc., guano, corals, shells
			Ornamental resources	e.g. by resource	Bulbs, cut flowers, shells, bones, pearls and feathers etc.
			Genetic resources	e.g. by resource	Wild species used in breeding programmes
			Medicinal and cosmetic resources	e.g. by resource	Bio prospecting activities
	Energy	**Biomass based energy**	Vegetal based resources	e.g. by resource	Wood fuel, energy crops, algae for biofuel etc.
			Animal based resources	e.g. by resource	Dung, fat, oils

Regulation and Maintenance	**Regulation of wastes and pollution**	**Bioremediation**	Remediation using plants or algae	e.g. by method	Phytoaccumulation, phytodegredation, phytostabilisation, rhizodegradation, rhizofiltration, vegetation cap
			Remediation using micro-organisms	e.g. by method	In situ (Bioremediation), ex situ (composting), bioreactors
			Remediation using animals	e.g. by method	Bioremediation e.g. filtration of particles using molluscs
		Dilution and sequestration	Dilution, decomposition, remineralisation and recycling	e.g. by method	Wastewater treatment, removal of organic material and nutrients from waste water by biogeochemical processes e.g. marine denitrification
			Filtration	e.g. by method	Filtration of particulates and aerosols
			Sequestration and absorption	e.g. by method	Sequestration of nutrients and pollutant in organic sediments, removal of odours
	Flow regulation	**Air flow regulation**	Rural microclimatic regulation	e.g. by process	Windbreaks, shelter belts
			Urban microclimatic regulation	e.g. by process	Ventilation
		Water flow regulation	Attenuation of runoff and discharge rates	e.g. by process	Woodlands, wetlands and their impact on discharge rates
			Water storage for flow regulation	e.g. by process	Flood plains and wetlands
			Sedimentation	e.g. by process	Navigation
			Coastal protection	e.g. by process	Mangroves, sea grasses, macroalgae, dune systems and coastal wetlands

	Mass flow regulation	Erosion protection	e.g. by process	Wetlands, mangroves, sea grasses, macroalgae, dune systems
		Avalanche and gravity flow protection	e.g. by process	Stabilisation of mudflows, erosion protection [reduction]
Regulation of physical environment	**Atmospheric regulation**	Global climate regulation (incl. C-sequestration)	e.g. by process	Atmospheric composition (air quality), hydrological cycle, marine cycle
		Local & Regional climate regulation	e.g. by process	Modifying temperature, humidity etc.; maintenance of urban climate, regional precipitation patterns
	Water quality regulation	Water purification and oxygenation	e.g. by process	Nutrient retention in buffer strips etc. and translocation of nutrients, marine vertical circulation
	Pedogenesis and soil quality regulation	Maintenance of soil fertility	e.g. by process	Green mulches; N-fixing plants
		Maintenance of soil structure	e.g. by process	Soil organism activity
Regulation of biotic environment	**Lifecycle maintenance, habitat and gene pool protection**	Pollination	e.g. by process	By biota
		Seed dispersal	e.g. by process	By biota
		Maintaining nursery populations	e.g. by process	Habitat refuges
	Pest and disease control (incl. invasive alien species)	Biological control mechanisms	e.g. by process	By plants and animals, control of pathogens

Cultural	**Symbolic**	**Aesthetic, Heritage**	Landscape character	e.g. by resource	Areas of outstanding natural beauty
			Cultural landscapes	e.g. by resource	Sense of place
		Spiritual	Wilderness, naturalness	e.g. by resource	Tranquillity, isolation
			Sacred places or species	e.g. by resource	Woodland cemeteries, sky burials
	Intellectual and Experiential	**Recreation and community activities**	Charismatic or iconic wildlife or habitats	e.g. by resource	Bird or whale watching, conservation activities, volunteering
			Prey for hunting, fishing or collecting	e.g. by resource	Angling, shooting, membership of environmental groups and organisations
			Landscape character for recreational opportunities	e.g. by resource	Bathing, scuba-diving, recreational leisure boating, surfing, abseiling, hiking, mountaineering, etc.
		Information & knowledge	Landscape character and species diversity for scientific purposes	e.g. by resource	Pollen record, tree ring record, genetic patterns
			Landscape character and species diversity for educational purposes	e.g. by resource	Subject matter for wildlife programmes and books etc.

Other environmental flows	**Abiotic environmental flows**	**Abiotic materials and non-renewable source of energy**	Oil resources		
			Natural gas resources		
			Coal and peat resources		
			Non-metallic mineral resources		
			Metallic mineral resources		
			Soil, gravel and aggregate		
		Abiotic renewable sources of energy	Solar		
			Wind		
			Hydro		
			Wave and tidal		
			Geothermal		
	Environmental flows n.e.c				