UNSD proposal on CICES, 28 Sept 2012 (modified from CICES Version 4)

CICES for ecosystem service mapping and assessment					Note: this section is not complete and for illustrative purposes only. Key components could change by region or ecosystem.	Note: this section is not complete and for illustrative purposes only. Key components could change by region or ecosystem.
CICES for ecosystem accounting						
Section (1-digit)	Division (2-digit)	Group (3-digit)	Class (4-digit)	Class types (5-digit) /examples	Description of ecosystem services	Corresponding benefits
Provisioning	Water ~~supply~~	Abstracted 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	e.g. Collection from precipitation, abstraction from the sea		
	Materials	Natural terrestrial plants and animals for food	~~Crops~~ Natural animals for food	~~e.g. by type of crop (cereals etc.)~~ e.g. by animal type	Natural animal to be caught for food (e.g. wild pig, wild duck, rabbit)	Game animal (e.g. wild pig, wild duck, rabbit)
			~~Livestock and dairy products~~	~~e.g. by animal type~~	~~Sheep, cattle for meat and dairy products~~	
			~~Wild~~ Natural plants for food ~~and animals and their products~~	e.g. by type	Natural food, such as berries, fungi, honey, game, uncultivated crops etc. to be harvested	Natural berries, fungi, honey, game, uncultivated crops etc.
		Natural freshwater plants and animals for food	Freshwater fish for food ~~(wild populations)~~ ~~Aquaculture products~~	e.g. by fishery e.g. by type	Plaice, sea bass, Salmon, trout etc. to be harvested	Plaice, sea bass, Salmon, trout etc.
			Freshwater plants for food	e.g. by type or source (river, lake etc.)	Watercress to be harvested	Natural watercress,etc.
		Natural marine algae and animals for food	Marine fish and crustacean products ~~(wild populations aquaculture products~~	e.g. by fishery	Crustaceans (such as crabs, lobsters, crayfish) etc. to be harvested	Crustaceans (such as crabs, lobsters, crayfish) etc.
			Algae for food	e.g. by resource	~~Macro and microalgae~~ Natural edible seaweed to be harvested	Natural edible seaweed
		Nutrients for cultivated biological resources	Nutrient resources in cultivated system	e.g. by resource	Nutrient resources available for the uptake by crops in the crop field	Crops, cereals, vegetables, vines, cultivated timber, cultivated cotton, etc.
			Fodder for livestock	e.g. by resource	Food and other natural inputs for livestock	Sheep, cattel for meat and dairy products
			Feed for aquaculture product	e.g. by resource	Food and other natural inputs for agricultural product	Fish, shrimps, cultivated watercress, cultivated algae
		Biotic materials	Non-food vegetal fibres	e.g. by type, excluding ornamental, genetic, medicinal and cosmetic resources	Natural timber, natural straw, natural flax to be harvested; Natural algae to be harvested for fertiliser, packaging and chemicals;	logged timber, straw, flax for further processing; harvested algae for fertiliser, packaging and chemicals.
			Non-food animal fibres	e.g. by type, excluding ornamental, genetic, medicinal and cosmetic resources	Skin, bone from natural animal etc.; natural guano, corals, shells, to be harvested	Skin, bone from natural animal for further processing (etc.; natural guano, corals, shells, etc.)
			Ornamental resources	e.g. by type	Natural bulbs, cut flowers, shells, bones, pearls and feathers etc. to be harvested for ornamental use	Natural bulbs, cut flowers, shells, bones, pearls and feathers etc. used as ornaments
			Genetic resources	e.g. by type, noting that genetic resources for scientific purpose are classified under "Cultural, Educational and Scientfic"	~~Species~~ Genetic resources to be extracted for breeding programmes (e.g. for crop plants, farm animals, fisheries and aquaculture)	Genetic resources used for breeding programmes (e.g. for crop plants, farm animals, fisheries and aquaculture)
			Medicinal and cosmetic resources	e.g. by type	~~Bio-prospecting activities~~ Medicinal-type and cosmetic-type biochemicals in natural biological resources (e.g. enzymes, gums, oils, waxes), herbs to be harvested	Medicinal-type and cosmetic-type biochemicals in natural biological resources (e.g. enzymes, gums, oils, waxes), herbs for further processing
	Energy	Biomass based energy	Vegetal based resources	e.g. by type	Wood to be logged for fuel, uncultivated energy plants, algae to be harvested for biofuel etc.	Heating, light, fuel,etc.
			Animal based resources	e.g. by type	Dung, fat, oils from natural animal to be extracted for energy	Heating, light, fuel, etc.

	Other provisioning services	***Natural animals for other provisioning services***	*Natural animals for other provisioning services*	*e.g. by type*	Natural animal to be caught for agriculture, transportation, industrial use, human services, draft services, zoo, pet (e.g. exotic animals and pets, wild animals tamed and trained to harness, etc.)	Natural animal for agriculture, transportation, industrial use, human services, draft services, zoo, pet (e.g. exotic animals and pets, wild animals tamed and trained to harness, etc.)
		Other provisioning services, n.e.c.		*Residual category*		
Cultural, Recreational and Scientific	~~*Symbolic*~~ *Cultural* ~~*Spiritual*~~	***Aesthetic, Heritage and Spiritual***	*Landscape character for aesthetic*	*e.g. by resource, such as areas of outstanding natural beauty*	Provision of landscape character and biodiversity for aesthetic values and inspiration	Enjoyment of natural beauty; Increase level of creativity for art, folklore, architecture; increase economic value of a "beautiful" land; etc.
			Cultural landscapes	e.g. by resource	~~Sense of place~~ Provision of landscape and biodivesity character for cultural heritage values and a sense of personal and group identity (sense of place)	increase sense of personal and group identity, creation of national symbol, etc.
			Wilderness, naturalness	*e.g. by resource*	Provision of landscape character for tranquillity and isolation value	Enjoyment of tanquillity and isolation in the wilderness
			Sacred places or species	*e.g. by resource*	Provision of landscape character or biodiversity for spiritual and religioos functions	Performance of spiritual and religious functions, such as woodland cemeteries, sky burials,
	~~*Intellectual and Experiential*~~ *Recreational*	***Recreation and community activities***	*Charismatic or iconic wildlife or habitats*	*e.g. by resource*	Provision of wildlife, habitants and landscape character for bird or whale watching, conservation activities, volunteering, etc.	Enjoyment for bird or whale watching, conservation activities, volunteering etc.
			Landscape and wildlife ~~Prey~~ for hunting, fishing or collecting	*e.g. by resource*	Provision of landscape character and wildlife for hunting, fishing or collecting	Enjoyment of hunting, fishing or collecting (e.g. Angling, shooting, membership of environmental groups and organisations); increase health level; increased number of visitors in the tourism industry, etc.
			Landscape character for recreational opportunities	*e.g. by resource ,*	Povision of landscape character for recreational opportunities	Enjoyment of recreational opportunity (such as bathing, scuba-diving, recreational leisure boating, surfing, abseiling, hiking, mountaineering etc.); increase health level; increased number of visitors in the tourism industry; etc.
	Scientific	***Information & knowledge***	*Scientific*	*e.g. by resource*	Provision of landscape character and biodiversity for scientific research	Scientific progress (e.g. such as pollen record, tree ring record, genetic patterns)
			Educational	*e.g. by resource*	Provision of landscape character and biodiversity for education	Increase knowledge (e.g. subject matter for wildlife programmes and books) etc.
Regulation and Maintenance	***Remediation regulation of biophysical environment***	***Bioremediation***	*Remediation by plants or algae*	*e.g. by method, such as phytoaccumulation, phytodegradation, phytostabilisation, rhizodegradation, rhizofiltration, vegetation cap*	Removal of pollutants by plants or algae	Reduce level of pollutant/contaminants in soil and groundwater.
			Remediation by micro-organisms	*e.g. by method, such as in situ (Bioremediation), ex situ (composting), bioreactors*	Removal of pollutants by micro-organisms	Reduce level of pollutant/contaminants in soil and groundwater.
			Remediation by animals	*e.g. by method, e.g. Bioremediation e.g. filtration of particles using molluscs*	Removal of pollutants by animals	Reduce level of pollutant/contaminants in soil and groundwater.
		Dilution, filtration and sequestration of pollutants	*Dilution, decomposition, remineralisation and recycling*	*e.g. by method /process*	Dilution of municipal wastewater in rivers etc., removal of organic material and nutrients from waste water by biogeochemical processes e.g. marine denitrification	Wastewater treatment - reduction of pollutant in wasterwater
			Filtration	*e.g. by method /process*	Filtration of particulates and aerosols	Cleaner air and water

			Sequestration and absorption of pollutants	*e.g. by method /process , noting that carbon sequestration is classified under another class "global climate regulation)*	Sequestration of nutrients and pollutants in organic sediments, removal of odours	Cleaner air, water and soil
	Flow regulation	***Air flow regulation***	*Rural ~~microclimatic~~ regulation*	*e.g. by process*	Provision of natural or planted vegetation that serves as shelter belts	Increase level of dust storm prevention, level of shelter from the wind
			Urban ~~microclimatic~~ regulation	*e.g. by process*	Provision of ventilation services	Increase level of ventilation and heat migation in the urban area
		Water flow regulation	*Attenuation of runoff and discharge rates*	*e.g. by process, such as woodlands, wetlands and their impact on discharge rates*	Reduction of surface water runoff and discharge rates	Prevention of flood damage
			Water storage for flow regulation	*e.g. by process, such as flood plains and wetlands for water storage*	Total water stored/absorbed for the release into surface water and groundwater	Water released into surface water and groundwater
			Coastal protection	*e.g. by process, such as mangroves, sea grasses, macroalgae, dune systems and coastal wetlands for costal protection*	Dissipation of wave energy	Reduced damage from high water
		Mass flow regulation	*Erosion protection*	*e.g. by process, such as wetlands, mangroves, sea grasses, macroalgae, dune systems for erosion protection*	Dissipation of energy causing erosion	Protection from soil erosion
			Avalanche and gravity flow protection	*e.g. by process*	Stabilisation of mudflows, erosion protection [reduction]	Protection from avalanche and mudflows
	Regulation of physico-chemical environment	***Atmospheric cycle regulation***	*Global climate regulation (incl. C-sequestration)*	*e.g. by process, Atmospheric composition, hydrological cycle? , marine cycle*	Capture of greenhouse gas	Reduce amount of greenhouse gas in the atmosphere
			Local & Regional climate regulation	*e.g. by process*	Modifying temperature, humidity etc.; maintenance of urban climate ~~and air quality~~ and regional precipitation patterns	Improvement of the climate condition governed by temperature, humdiity and regional precipitation.
		Water ~~quality~~ cycle regulation	*Water ~~purification and~~ ciculation and oxygenation*	*e.g. by process, Natural or planted vegetation that serves nutrient retention for water, translocation of nutrients for water, marine vertical circulation, hydrological cycle?*	Provision of oxygen and nutrient resources in water	Increase nutrient content in water
		Pedogenesis and soil ~~quality~~ cycle regulation	*Maintenance of soil fertility*	*e.g. by process, e.g. Green mulches; N-fixing plants, nutrient cycle for soil*	Provision of nutrient resources in the soil of a cultivated system	Improvement of soil fertility
			Maintenance of soil structure	*e.g. by process, e.g. Soil organism activity*	Provision of soil physical properties that improve soil productivity of a cultivated system	Improvement of soil productivity
	Regulation of biotic environment	***Lifecycle maintenance, habitat and gene pool protection***	*Pollination*	*e.g. by process*	~~by biota~~ Provision of pollen, distributed by natural pollinators species ~~(~~e.g. bees, flies, birds, etc.), in a cultivated system	Pollen receipt in the cultivated system (pollen receipt in uncultivated plants is a supporting services and therefore not be included)
			Seed dispersal	*e.g. by process*	~~by biota~~ Provision of seed, dispersed by parent plants, in a cultivated system	Seeds receipt in cultivated system (seed receipt in uncultivated plants is a supporting services and therefore not be included)
			Maintaining nursery populations	*e.g. by process*	Provision of area for habitat refuges (e.g. wetland, riparian buffer, etc.)	Level of the maintenance of nursery population
		Pest and disease control (incl. invasive alien species)	*Biological control mechanisms*	*e.g. by process, by plants and animals for pest and disease control ,*	Control of pathogens	Reduce harzard level to crops, human health and the environment

Other Environmental Services	***Abiotic materials***	*Non-metallic mineral resources*		*e.g. by resources, such as chemicals (subsoil), salt, sand, sedimentary rocks*	Non-metallic mineral resources (e.g. salt, sand, sedimentary rocks) to be extracted	Non-metaliic mineral resources for further processing
		Metallic mineral resources		*e.g. by resources, such as ores*	Metallic mineral resources (e.g. iron ores) to be extracted	Metaliic mineral resources for further processing
	Abiotic Energy	***Abiotic non-renewable energy***	*Oil resources*	*e.g by resources*	Oil resources to be extracted	Oil resources for further processing/generation of electricity and energy
			Natural gas resources	*e.g. by resources*	Natural gas resources to be extracted	Natural gas resources for for further processing/generation of electricity and energy
			Coal and peat resources	*e.g. by resources*	Coal and peat resources to be extracted	Coal and peat resources for further processing/generation of electricity and energy
			Other abiotic non-renewable resources, n.e.c.	*Residual category*		
		Abiotic renewable energy	*Solar*	*e.g. by resources*	Sunlight and heat	Heating, light, solar energy for the generation of electricity
			Wind	*e.g. by resources*	Wind energy	Wind energy for the generation of electricity/farming/sailing
			Hydro	*e.g. by resources*	Hydropower	Hydropower for the generation of electricity
			Wave and tidal	*e.g. by resources*	Wave and tidal energy	Wave and tidal energy for the generation of electricity
			Geothermal	*e.g. by resources*	Geothermal energy	Geothermal energy for the generation of electricity
	Space	***Space***	*Space for human habitat and infrastructure*	*e.g. by resources, such as space for human settlements, roads, railways*	Provision of space for human habitant and infrastructure	Space for human habitant and infrastructure
	Other environmental flow, n.e.c.	***Other environmental flows, n.e.c.***		*Residual category*		

Note: colour fonts represent changes from CICES V4

Table 2: The CICES classification version 4 (2012)

CICES for ecosystem service mapping and assessment		
CICES for ecosystem accounting		
Section	*Division*	*Group*
Provisioning	***Nutrition***	***Terrestrial plants and animals for food***
		Freshwater plants and animals for food
		Marine algae and animals for food
	Water supply	***Water for human consumption***
		Water for agricultural use
		Water for industrial and energy uses
	Materials	***Biotic materials***

	Energy	*Biomass based energy*
Regulation and Maintenance	***Regulation of bio-physical environment***	***Bioremediation***
		Dilution and sequestration
	Flow regulation	***Air flow regulation***
		Water flow regulation
		Mass flow regulation
	Regulation of physico-chemical environment	***Atmospheric regulation***

		Water quality regulation
		Pedogenesis and soil quality regulation
	Regulation of biotic environment	*Lifecycle maintenance, habitat and gene pool protection*
		Pest and disease control (incl. invasive alien species)
Cultural	*Symbolic*	*Aesthetic, Heritage*
		Spiritual
	Intellectual and Experiential	*Recreation and community activities*
		Information & knowledge

Class	*Class types*
Crops	*e.g. by type of crop (cereals etc.)*
Livestock and dairy products *Wild plants and animals and their products*	*e.g. by animal type* *e.g. by type*
Fish (wild populations) *Aquaculture products*	*e.g. by fishery* *e.g. by type*
Fresh water plants	*e.g. by type or source (river, lake etc.)*
Fish (wild populations including shellfish) *Aquaculture products*	*e.g. by fishery* *e.g. by fishery*
Algae	*e.g. by resource*
Drinking water	*e.g. abstracted surface water, abstracted ground water*
Domestic water use	*e.g. abstracted surface water, abstracted ground water*
Irrigation water *(consumptive)*	*e.g. abstracted surface water, abstracted ground water*
Water for livestock (consumptive)	*e.g. surface water, abstracted ground water*
Industrial water (consumptive)	*e.g. abstracted surface water, abstracted ground water*
Cooling water *(non consumptive)*	*e.g. abstracted surface water, abstracted ground water*
Non-food vegetal fibres	*e.g. by type*
Non-food animal fibres	*e.g. by type*
Ornamental resources	*e.g. by type*

Genetic resources	*e.g. by type*
Medicinal and cosmetic resources	*e.g. by type*
Vegetal based resources	*e.g. by type*
Animal based resources	*e.g. by type*
Remediation by plants or algae	*e.g. by method*
Remediation by micro-organisms	*e.g. by method*
Remediation by animals	*e.g. by method*
Dilution, decomposition, remineralisation and recycling	*e.g. by method*
Filtration	*e.g. by method*
Sequestration and absorption	*e.g. by method*
Rural microclimatic regulation	*e.g. by process*
Urban microclimatic regulation	*e.g. by process*
Attenuation of runoff and discharge rates	*e.g. by process*
Water storage for flow regulation	*e.g. by process*
Coastal protection	*e.g. by process*
Erosion protection	*e.g. by process*
Avalanche and gravity flow protection	*e.g. by process*
Global climate regulation (incl. C-sequestration)	*e.g. by process*
Local & Regional climate regulation	*e.g. by process*

Water purification and oxygenation	*e.g. by process*
Maintenance of soil fertility	*e.g. by process*
Maintenance of soil structure	*e.g. by process*
Pollination	*e.g. by process*
Seed dispersal	*e.g. by process*
Maintaining nursery populations	*e.g. by process*
Biological control mechanisms	*e.g. by process*
Landscape character	*e.g. by resource*
Cultural landscapes	e.g. by resource
Wilderness, naturalness	*e.g. by resource*
Sacred places or species	*e.g. by resource*
Charismatic or iconic wildlife or habitats	*e.g. by resource*
Prey for hunting, fishing or collecting	*e.g. by resource*
Landscape character for recreational opportunities	*e.g. by resource*
Scientific	*e.g. by resource*
Educational	*e.g. by resource*

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Examples and indicative benefits
Cereals, vegetables, vines etc.
Sheep, cattle for meat and dairy products Berries, fungi, honey, game etc.
Plaice, sea bass etc. Salmon, trout etc.
Water cress or River x
Includes crustaceans Includes crustaceans
Macro and microalgae
Spring or well water, managed supplies from rivers or reservoirs, etc.
Water for personal hygiene, water for toilet systems
For crop production
Natural water sources (brooks, ponds etc.), managed water supplies in stabled livestock systems etc.
For manufacturing in a wide range of industries
For power production, incl. marine waters for nuclear power plants
Timber, straw, flax; algae for fertiliser, packaging and chemicals
Skin, bone etc., guano, corals, shells
Bulbs, cut flowers, shells, bones, pearls and feathers etc.

Wild species used in breeding programmes
Bio-prospecting activities
Wood fuel, energy crops, algae for biofuel etc.
Dung, fat, oils
Phytoaccumulation, phytodegradation, phytostabilisation, rhizodegradation, rhizofiltration, vegetation cap
In situ (Bioremediation), ex situ (composting), bioreactors
Bioremediation e.g. filtration of particles using molluscs
Dilution of municipal wastewater in rivers etc., removal of organic material and nutrients from waste water by biogeochemical processes e.g. marine denitrification
Filtration of particulates and aerosols
Sequestration of nutrients and pollutants in organic sediments, removal of odours
e.g. Natural or planted vegetation that serves as shelter belts
Ventilation
Woodlands, wetlands and their impact on discharge rates
Flood plains and wetlands
Mangroves, sea grasses, macroalgae, dune systems and coastal wetlands
Wetlands, mangroves, sea grasses, macroalgae, dune systems
Stabilisation of mudflows, erosion protection [reduction]
Atmospheric composition (air quality), hydrological cycle, marine cycle
Modifying temperature, humidity etc.; maintenance of urban climate and air quality, regional precipitation patterns

Natural or planted vegetation that serves nutrient retention, translocation of nutrients, marine vertical circulation
Green mulches; N-fixing plants
Soil organism activity
By biota
By biota
Habitat refuges
By plants and animals, control of pathogens
Areas of outstanding natural beauty
Sense of place
Tranquillity, isolation
Woodland cemeteries, sky burials
Bird or whale watching, conservation activities, volunteering
Angling, shooting, membership of environmental groups and organisations
Bathing, scuba-diving, recreational leisure boating, surfing, abseiling, hiking, mountaineering etc.
Pollen record, tree ring record, genetic patterns
Subject matter for wildlife programmes and books etc.