Ecosystem Services and Valuation

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Content

- What are Ecosystem Services?
- How are they provided?
- Approaches for identifying services and benefits
- Typology of services and benefits
- Valuation of benefits

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Ecosystem Services (ES)

- Goods, services and non-use values
- Millennium Ecosystem Assessment
  - Provisioning services (e.g. crops)
  - Regulating (e.g. carbon sequestration)
  - Cultural (e.g. recreation)
  - Supporting (e.g. pollination)
- Provided by habitats or groups of habitats

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Ecosystem Service and Habitats

- Upland heathlands

Provisioning	Regulating	Cultural	Supporting
Food	Carbon Sink	Spiritual	Pollination
Wool	Natural hazard protection /Water regulation	Aesthetic	Nutrient cycling
Biodiversity		Recreation	Promotion of soil function and formation
Natural medicines		Historic culture	
Fresh water		Employment	

Source: Haines-Young and Potschin (2008) England's terrestrial Ecosystem Services and the Rationale for an Ecosystems Approach

Identification of ES and Benefits

- Habitats approach
  - Presents difficulties for valuation
    - Multi-functionality of habitat and services
    - Scale at which services are provided
    - Double counting of benefits
- Services approach
  - Overcomes many of these making valuation more straightforward
- *Place based approach*

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Typology of Services

- Ecosystems -made up of habitats

→ Produce ecosystem services

→ Which provide benefits

Ecosystem service
Natural hazard control

Sub- services
Erosion control
Reduced run-off

Benefits
Avoidance of direct and indirect damages to people, properties and land

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Provisioning Services

Service	Benefit	Sub-benefit
Agricultural food produce	Cereal Crops	
	Vegetables	
	Fruit (including orchards)	
	Livestock	meat and diary
	Game	pheasants/ grouse
		waterfowl
	Allotments	
Agricultural non-food produce	Fibre crops	
	Wool	
	Leather	
	Bio-fuels	
	Commercial cultivation of flowers and plants	

Service	Benefit	Sub-benefit
Non-agricultural cultivated produce	Aquaculture	
	Timber	wood and paper products
		wood fuel
		charcoal
	Honey	
	Medical raw material: yew	
Wild produce	Commercial on-shore fisheries (net and trap)	
	Peat fuel	
	Wild mushrooms	
	Non-food plants (rushes, reeds, sedges and bracken)	
	Other wild products	

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Regulating Services

Service	Benefit	Sub-benefit
Climate regulation	Carbon sequestration	
Natural hazard regulation & Water regulation	Flood protection	Inland Flood protection
		Coastal Flood protection
	Erosion control	Landslide and subsidence prevention
		Retention of soil for use
Air quality regulation	Dry deposition of pollutants	Physical health protection
Water purification & waste treatment	Clean water	

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Cultural Services

Service	Benefit	Sub-benefit
Recreation Opportunities	Economic benefits of expenditure + welfare benefits of participants	Hill walking
		Casual walking/ Rambling
		Freshwater Angling
		Game shooting
		Bird / wildlife watching
		Cycling
		Horse riding
		Golf (?)
		Gardening
		Watersports (includes canoeing, rowing, sailing, windsurfing)

Service	Benefit	Sub-benefit
Knowledge Systems	Education	-
	Research	
Social Use Values	Local people gaining social use values	Social services, sense of place, spiritual, religious, continued traditional way of life etc.
Non-Use Values	Social/cultural heritage	Continue traditional ways of life; sense of place; spiritual; religious etc.
	Physical/landscape/ built heritage	Landscape/aesthetics/ Built heritage etc
	Biodiversity (habitats & species)	Anthropocentric intrinsic value

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Other Services

- Biodiversity
- Health
- Landscape
- Genetic resources

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Why Value?

- To enable better decision making

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Valuation Approaches

- Total Economic Value
  - Direct use values
  - indirect use values
  - non-use values
- Market data
- Market price proxies
- Revealed and Stated Preference methods (Willingness –To-Pay)
  - Benefits Transfer

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Key issues for valuation

- Identification of the baseline
- Marginal and Total valuation
- Gross and Net benefits
- Stocks and Flows
- Availability of Alternatives or Substitutes
- Actually realised benefits (crops produced) and potential benefits (natural hazard protection)

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Questions?

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