



Environment
Agency

Service Based Approaches to Soil Protection

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Date	8 th October 2009

Structure

- ⇒ Quick Recap on Ecosystem Services;
- ⇒ Context Setting;
- ⇒ Service Based Approaches to Soil Protection;
- ⇒ The Environment Agency's Approach;

Recap on Ecosystem Services

‘the multiple, simultaneous beneficial ‘services’ derived by society from ecosystems’.



Image from: grInfrastructure

Context Setting

‘Creating a better place’ Corporate Strategy 2010-2015

‘We want a healthy and diverse natural environment that supports the needs of society and the economy.’

‘By working together, we will be able to prevent future problems, improve the quality of the natural environment and protect people’s health.’

The Scientific Revolution



Image from: bet.rmi.org

⇒ Thomas Kuhn's (1962) three paradigms, or world views:

- ⇒ Reductionism
- ⇒ Holism
- ⇒ Systems thinking

The Reductive Paradigm

Science:

- ➔ Breaking things down into small problems/disciplines
- ➔ Remains one of the most powerful frameworks ever developed

Environmental management:

- ➔ Local scales of space and time
- ➔ Single disciplines
- ➔ narrow perspective of beneficiaries
- ➔ Blind to repercussion

Examples:

- ➔ Post-WWII food sufficiency...



Image from: unknown source

The Holistic Paradigm Science:

- ⇒ Acknowledging interactions between different disciplines,
- ⇒ Remaining in discipline,

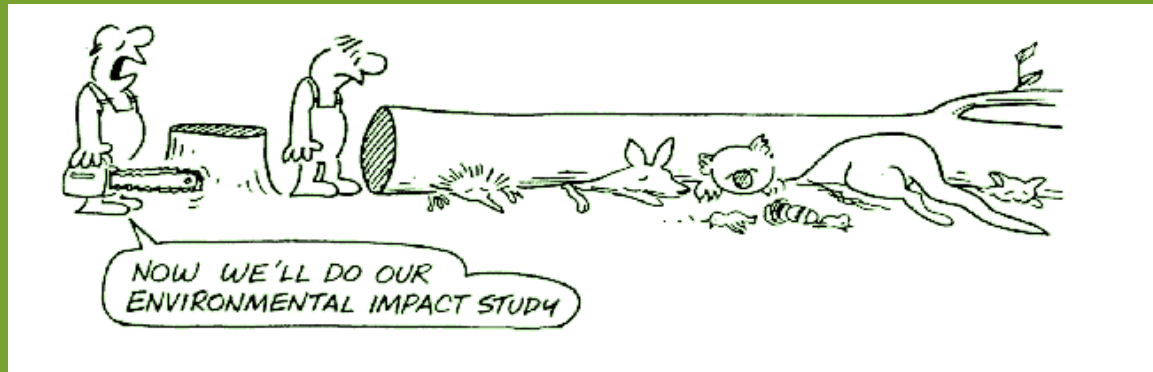
⇒ Environmental management:

- ⇒ Genuine attempts at 'trade-offs' ('win-lose')
- ⇒ Silos reinforced by ring-fenced budgets

⇒ Examples:

- ⇒ Flood defences 'softened' for wildlife, amenity, fisheries, etc.

Image from: Bimage017saiea.com



The Systemic Paradigm

➔ Science:

- ➔ Based on complete interdependencies
- ➔ 'Emergent properties' not predictable from reductive analysis

➔ Environmental management:

- ➔ IWRM... water, soils and landscapes, people and ecosystems
- ➔ Seeks sustainability through 'win-win-win' innovations (not trade-offs)
- ➔ Overcomes disciplinary/budgetary silos

➔ Examples:

- ➔ Flood Risk Management - managed realignment

➔ The Ecosystem Services Approach stems from systems thinking

Service Based Approaches to Soil Protection

Safeguarding the societal value of land

Everard, M. and Appleby, T. (2009).

MA categories and ecosystem services	Potential benefits and costs flowing from management	Geographic and temporal scales of benefit (and potential beneficiaries)
Provisioning services		
Fresh water	Soil permeability and moisture levels can have a significant influence on water retention and purification processes in catchments	Catchment scale (public supply, the water industry and the water-using industry, irrigation)

Defra's Soil Strategy, 2009



‘Soil is a fundamental natural resource on which life depends. It provides many essential services on which we rely including food production, water management and support for valuable biodiversity and ecosystems.’

The Environment Agency Approach to Ecosystem Services



Ecosystem Services Case Studies

- ⇒ Significant socio-economic benefits from functioning ecosystems,
- ⇒ Diverse localised and off-site benefits,
- ⇒ Cumulative benefits may contribute to large cost/benefit ratios,
- ⇒ Wide range of potential public benefits from management,
- ⇒ Can help us optimise public value,
- ⇒ Could better guide decisions re: SEA, EIA, CAP, CSF, SSSI, FRM, etc.

'Land Use and Environmental Services' Report 2009



⇒ 'Environmental Services'
provided by land:

- ⇒ Regulation of water quality
- ⇒ Availability of water resources
- ⇒ Management of flood risk
- ⇒ Storage of carbon in soils.

Service Based Approaches to Soil Protection

- ➡ Recapped on Ecosystem Services;
- ➡ Set Context;
- ➡ Service Based Approaches to Soil Protection;
- ➡ The Environment Agency's Approach;

Conclusion

Einstein...

“The significant problems we face today cannot be solved at the same level of thinking we were at when we created them”.

Service Based Approaches to Soil Protection

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 (with thanks to Mark Everard)

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