



The EU environmental policy shift towards **sustaining of ecosystem services** and its possible implications for sediment management

Jos Brils

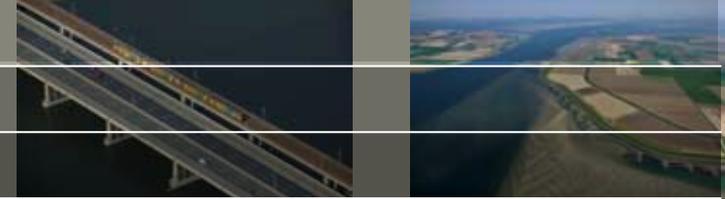
jos.brils@deltares.nl

6th International SedNet conference, Hamburg, 8 October 2009

An aerial photograph showing a coastal region. On the left, a large body of water (likely a bay or estuary) meets the land. A town with red-roofed buildings is visible on the left side. The land is divided into various agricultural plots, some green and some brown. A prominent feature is a long, curved dike or levee system that separates the land from the water. The dike has several small structures or gates along its length. The sky is clear and blue.

Policy shift towards ecosystem services

EU policy shift



Year	Policy	Scope (exact extracts from policy text)
1979	Birds Directive	<ul style="list-style-type: none"> • conservation of all species of naturally occurring birds • measures to maintain the population of the species referred to in Article 1
1992	Habitats Directive	<ul style="list-style-type: none"> • measures ... to maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora
2000	Water Framework Directive	<ul style="list-style-type: none"> • prevents further deterioration and protects and enhances the status of aquatic ecosystems • achieve the objective of at least good water status
2002	Working document Natura 2000 network	<ul style="list-style-type: none"> • community-wide network of nature protection areas • ... to assure the long-term survival of Europe's most valuable and threatened species and habitats.
2006	Proposed Soil Framework Directive	<ul style="list-style-type: none"> • preservation of soil functions • current scientific knowledge on soil biodiversity and its behaviour is too limited to allow for specific provisions
2008	Marine Strategy Framework Directive	<ul style="list-style-type: none"> • applying an ecosystem-based approach to the management of human activities while enabling a sustainable use of marine goods and services

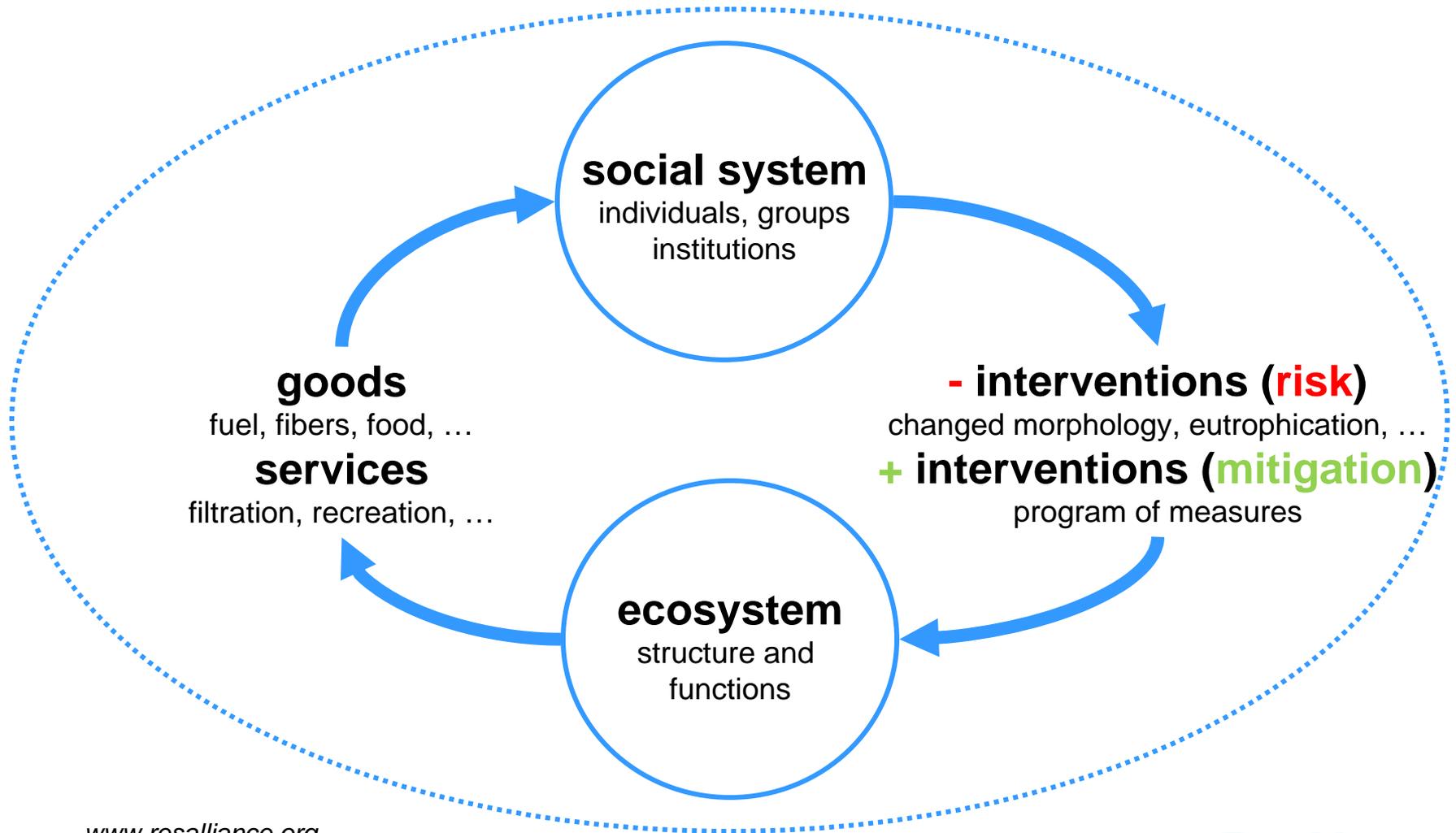
**conserving
single
species**

**conserving
status of
communities
of species**

**enhancing
connectivity**

**sustaining
Ecosystem
Services**

People benefit from ecosystem services



Some definitions

Ecosystem

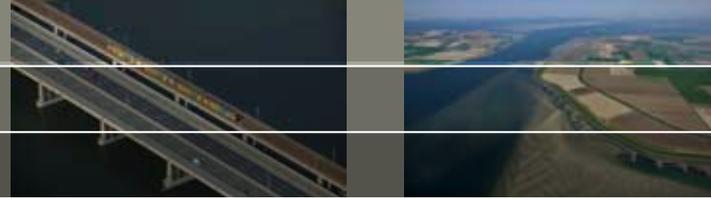
- A dynamic complex of plant, animal, and micro-organism communities and the non-living environment interacting as a functional unit

Ecosystem services (ES)

- The benefits people obtain from ecosystems
- The “services of nature”

Biodiversity

- The variability among living organisms within species and populations, between species, and between ecosystems
- **Serves as the foundation for all ecosystem services**

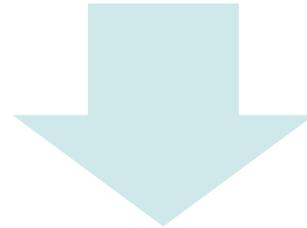


Ecosystem services and biodiversity

according to EC DG Environment

“From an economic perspective, biodiversity provides benefits for present and future generations by way of **ecosystem services**. ...

... It is difficult to put precise monetary values on these services worldwide, but estimates suggest they are in the order of hundreds of billions of Euros per year. These services underpin EU growth, jobs and wellbeing”*



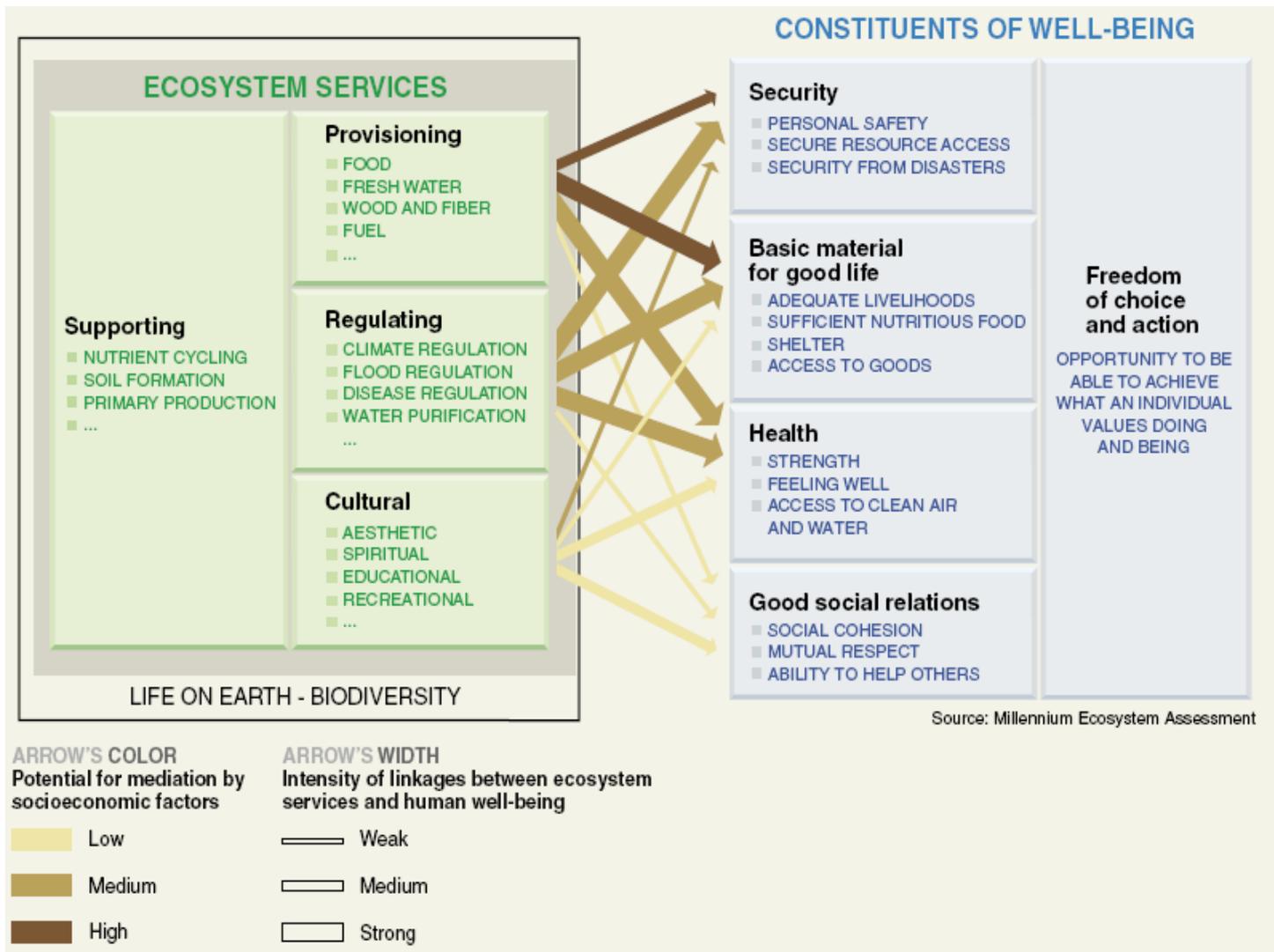
Biodiversity protection/sustainable ES at **core** of EU environmental policy

* *EC Communication (2006):*

“Halting Biodiversity Loss by 2010 – and Beyond: Sustaining ecosystem services for human well-being“

See also: http://ec.europa.eu/environment/nature/index_en.htm

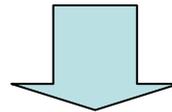
Ecosystem services and human well-being



“Appealing” aspects of ES approach

(personal opinion)

- Ecosystem based approach
- Dynamic concept (fitting to dynamic nature of social/ecological systems)
- Calls for the joint development of system understanding (multi discipline scientists, stakeholders, locals etc.)
- Provides a nice basis for development of a common ‘systemic’ language
- Because it calls for the joint:
 - identification of ES provided by the ecosystem
 - identification and assessment of threats to these ES
 - valuation of ES (trade-offs)
 - development of a program of measures to mitigate threats or restore ES
- Facilitates the joint implementation of different environmental policies



But: hardly demonstrated yet and practical guidance is missing

An aerial photograph showing a coastal region. On the left, a large body of water (likely a bay or estuary) meets a dike system. The dike runs along the coast, separating the water from a large area of agricultural land. The fields are divided into various colored sections, including green, brown, and tan. In the background, a small town or village is visible. The sky is clear and blue.

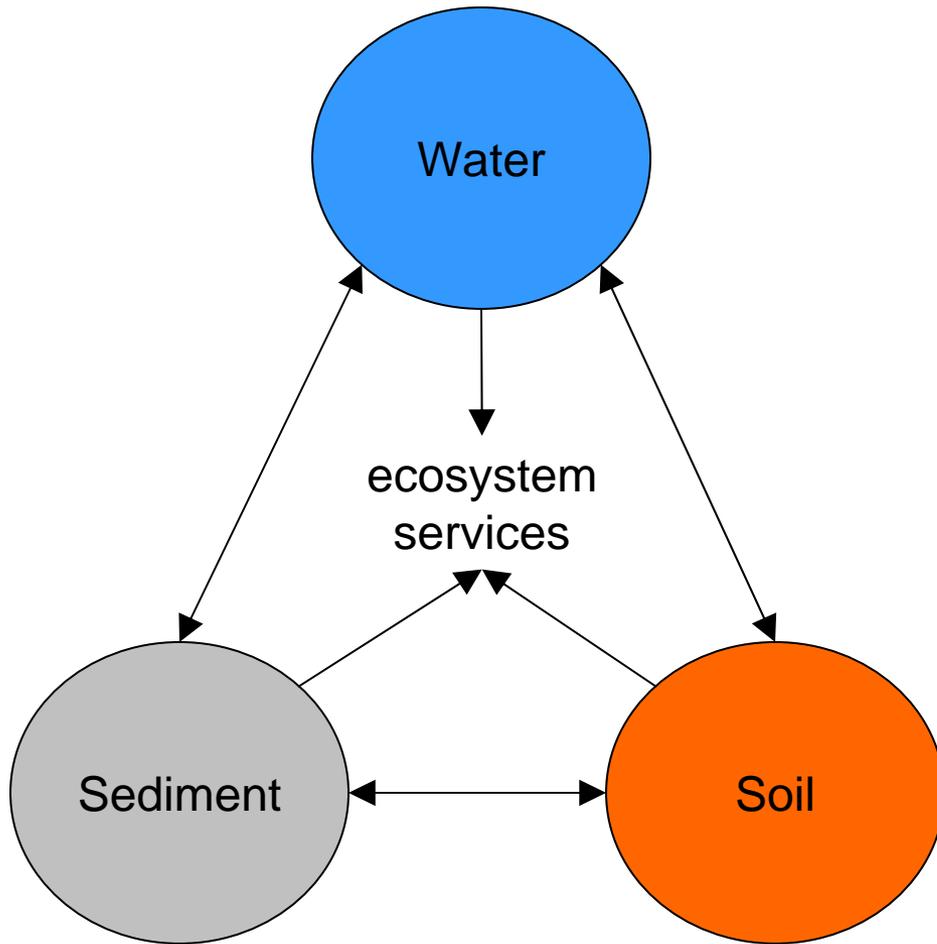
Possible implications for sediment management

Sediment ecosystem services and their status

	Degraded	Mixed	Enhanced
Supporting	habitats wetlands estuaries	river profile	sink for waste
Provisioning (goods)	fertiliser beach sand	food for benthos	building material absorbent
Regulating	flood protection	nutrient cycling	toxics availability
Cultural	beaches river landscape	beautifier archive	study object

Quick-and-dirty exploration for Europe, based upon personal 'expert judgement'

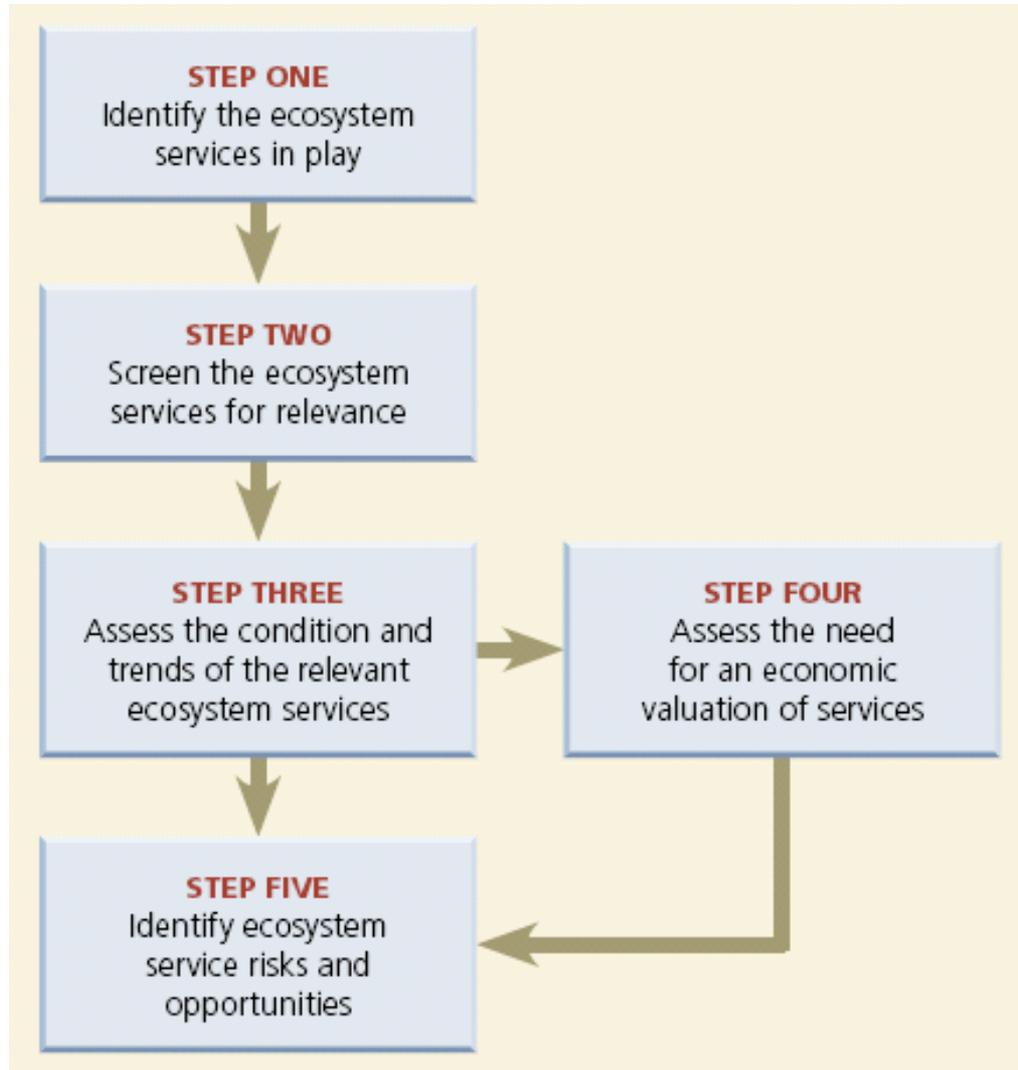
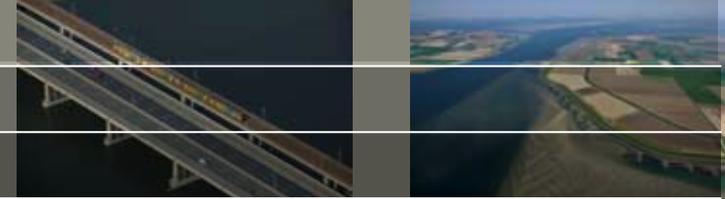
Systemic approach (linkages)



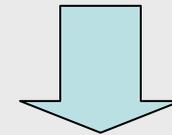
SedNet Round Table (7-8 October):

- Effective river basin management recognises that the RB is a system encompassing water, soil, sediment, atmosphere and biota and the processes that link these components together.
- Sediments need to be considered as an important natural resource and provider of important ecosystem services

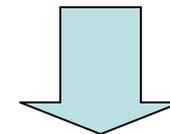
Way forward



- Apply concept in real world cases
- Several national projects already running (e.g. SUES at Deltares)
- Comparative analyses



- Practical guidance!



EC FP7 project?

Source: *Ecosystem Services: A Guide for Decision Makers* (WRI)



**Thank you for your
attention**