

# Presentation

Presentation from the 2010 World Water Week in Stockholm

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**WORLD**  
in Stockholm,  
September 5–11, 2010  
**WATER**  
**WEEK**

## ***Maintaining Ecosystems and Related Livelihoods through River Basin Management: Challenges and Solutions***

*Dr Chris Baker, Wetlands International*

# What is this seminar about?

- Should we be concerned about the pace and effectiveness of integration of ecosystems into river basin management?
- Are we using the right approaches to achieve this?

# Food Security

- Under-nourished between 1020million (FAO 2009) - 833million (USDA)
  - Asia 642 million (FAO) - 379 million (USDA)
  - Sub-Saharan Africa 265 million (FAO) - 385 million (USDA).
  - Increased 9% globally despite a 12% rise in global food production per capita since 1990
- Agriculture accounts for over 70% (CA) of water use and the single biggest driver of wetland degradation (MEA)
- Ecosystems support food supply for people
- Food security often at the cost of undermining regulatory ecosystem services

# Water Security

- Nearly 900 million people do not use drinking-water from an improved source, compared with an estimated 1.2 billion in 1990 (WHO / UNICEF 2010)
- 2.3 billion people live in river basins under water stress
- Little attention being given to maintenance of good and clean water sources
- Continued high dependence on natural water sources
  - Increasing contamination and degradation

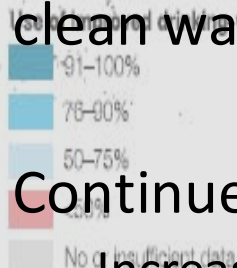


FIGURE 3: Use of improved drinking-water sources, 2008

Source: WHO/UNICEF (2010)

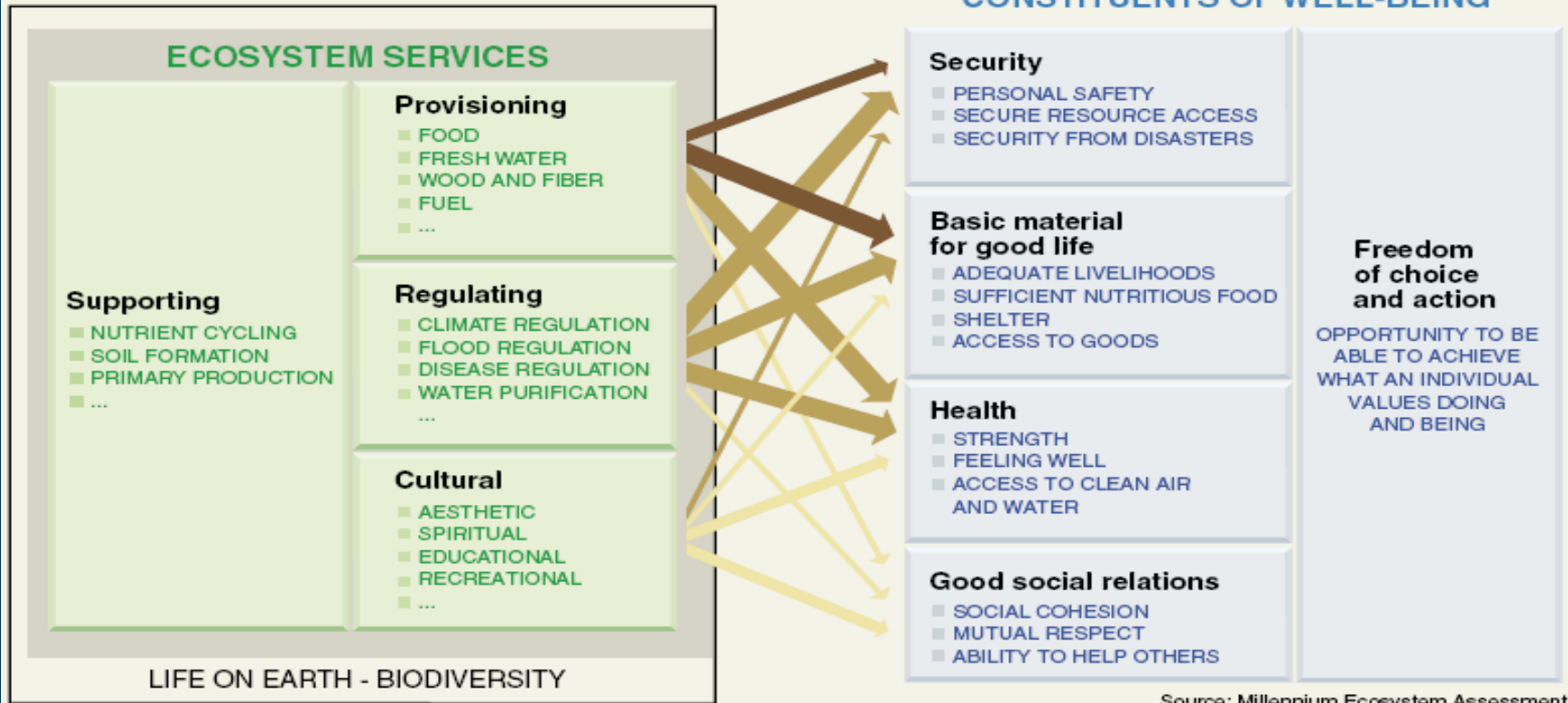
# Biodiversity Conservation

- **Well over 50% of wetlands lost or degraded in the last century.**
- **Wetlands are globally the most rapidly degrading of all ecosystems** (*Millennium Ecosystem Assessment, 2005*)
- **Biodiversity loss: 29% loss of species 1970-2003** (*WWF Living Planet Index*)
- **Increasing numbers of closed basins (CA)**



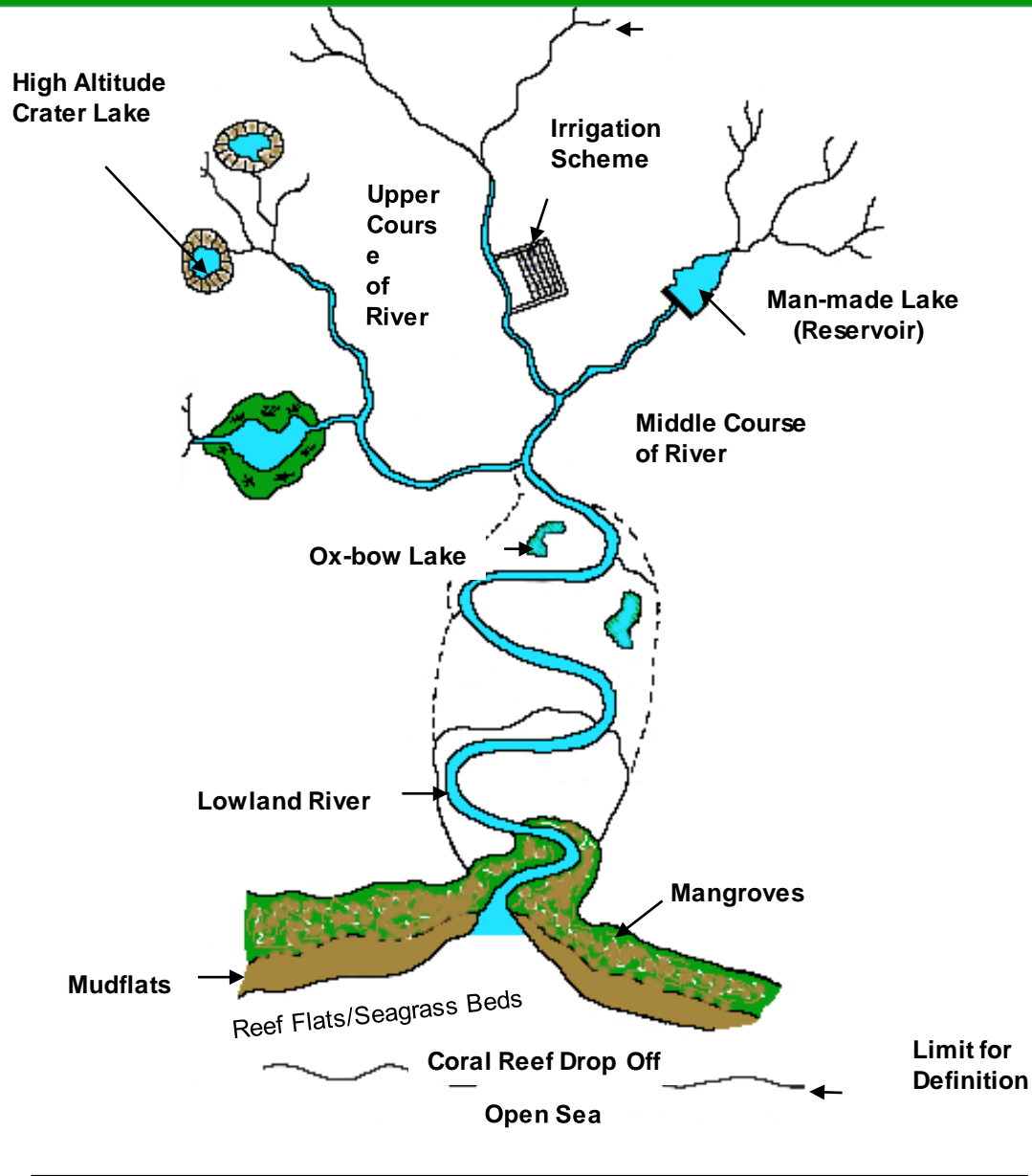
Source: Global Lakes and Wetlands Database GLWD (Lehner and Döll 2004)

# Wetland ecosystem services approach



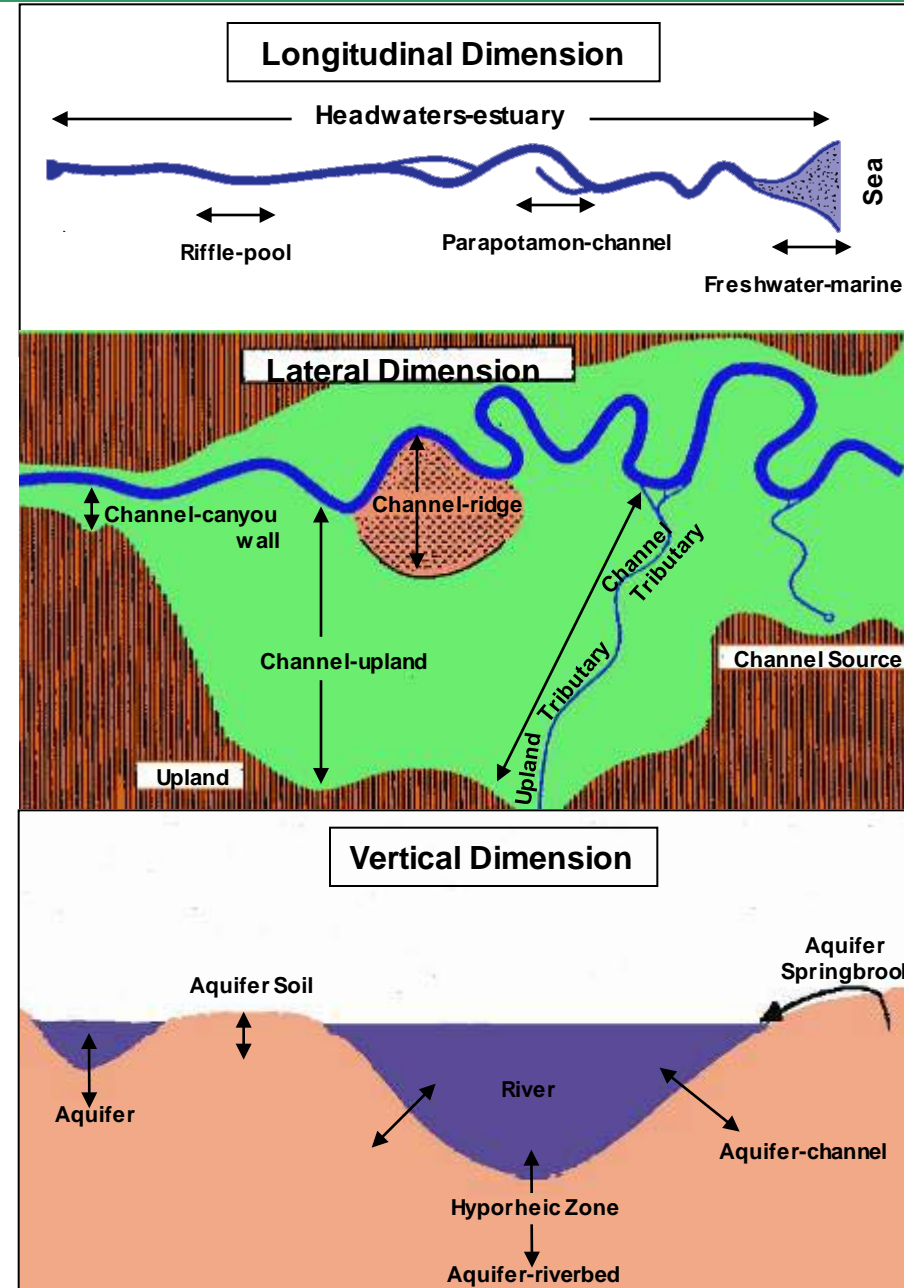
- Need to look for win-win solutions balancing food security and ecosystem services
- Maintaining ecosystems must be part of water security

# Service delivery depends on maintained water regime



# Rivers and wetlands are integrally linked

- **Interconnectedness of wetlands with river systems** is a key requirement for sustainable water resource management
- Wetlands are the natural water infrastructure



# River Basin Management matters!

## Large-scale irrigation and river diversions

alter natural flow regimes, reduce downstream water availability for agriculture, and contribute to salinization through saltwater intrusion in the coastal zone.

## Agricultural expansion

is often achieved by converting natural inland water systems, reducing aquatic biodiversity and natural flood control functions, and increasing soil salinity through evaporation. When accompanied by intensive use of agrochemicals, off-site pollution effects can be extensive.

## Overharvesting of wild resources,

especially fish, is driven both by the subsistence needs of a growing population and by unsustainable commercial exploitation, threatening future food security and livelihoods.

## Roads and flood control infrastructure

often interrupt wetland connectivity, disrupting aquatic habitat, reducing the function of wetlands to remove pollutants and absorb floodwaters, and potentially increasing the losses when high floods do occur.



## Dams

interrupt the connectivity of river systems, disrupting fish spawning and migration. Dams with large reservoirs alter seasonal flood regimes and retain sediment needed to maintain the productivity of floodplain agriculture.

## River channelization

and dredging for navigation reduces riverine habitat and alters flood patterns.

## Forest clearing

in permanently or seasonally-inundated zones, often motivated by unsustainable aquaculture production, dramatically reduces habitat for wild aquatic organisms. In the coastal zone, it also makes the landscape much more susceptible to erosion.

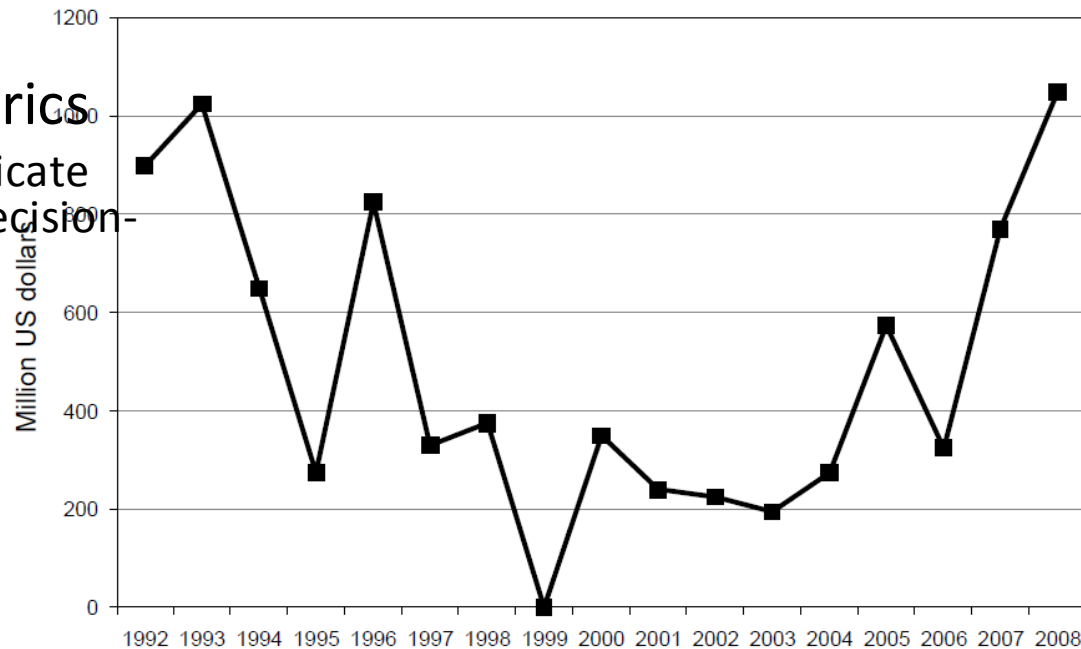
## Urban and industrial pollution,

when released untreated into aquatic environments, reduces water quality, affecting the diversity and abundance of aquatic organisms as well as human health.

Implies a shift from  
site / patch to  
landscape  
management

# Reasons for concern

- Increasing policy vs. weak implementation
- Biodiversity jewels vs. service delivery
- Infrastructure planning and operation
  - EIA vs. SEA
  - Operational goals remain largely single sector
- Incompatible communication metrics
  - No means to communicate ecosystem values in decision making
- Increasing rate of infrastructure development
- Climate Change



World Bank Investment in dams, Richter *et al* 2010

# Programme Overview

- Policy: How to integrate wetland management into river basin and catchment management policy
- Planning: How to balance trade-offs between development related and ecosystem benefits
- *15.30 Coffee Break*
- Operation: How to establish wetland ecosystem water requirements as part of water management and allocation?
- Donor policy: How can donor planning and assessment processes be improved to take ecosystem services and benefits into account?
- Panel Discussion.