wetlands and water

ecosystems and human well-being

the life cycle of water and biodiversity

European Parliament, Brussels. 9 February 2011

EP INTERGROUP ON CLIMATE CHANGE, BIODIVERSITY AND SUSTAINABLE DEVELOPMENT

protecting water-related ecosystems for sustainable development



wetlands are water-related ecosystems


inland – coastal – man-made *wetlands*


glaciers - torrents - rivers - streams - lagoons - coastal marine areas
rice-paddies - saltpans - fens - bogs - mires - lakes - swamps - marshes


wetland ecosystems …

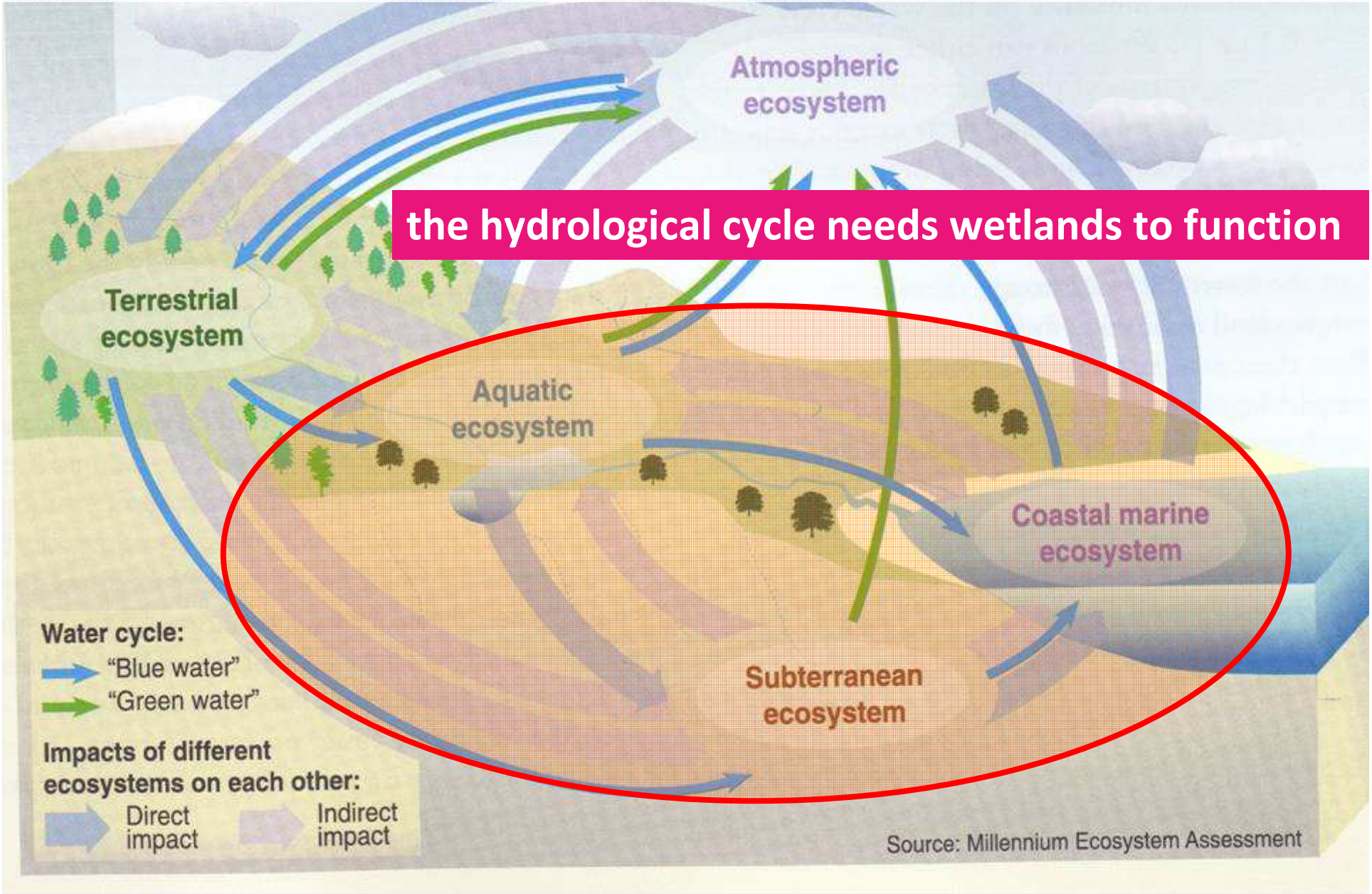
some conclusions of the MA:*

- **>50% wetlands destroyed** during the 20th century
- wetland degradation and loss **more rapid** than other ecosystems
- indirect drivers **population growth** and economic development
- **coastal ecosystems** most productive yet highly threatened
- **climate changes** to exacerbate wetland loss and degradation, **decline** of species, increase of vector-borne and waterborne **diseases**
- excessive **nutrient loading** a growing threat to rivers, lakes, marshes, coastal zones and coral reefs

*Millennium Ecosystem Assessment **synthesis on wetlands and water**

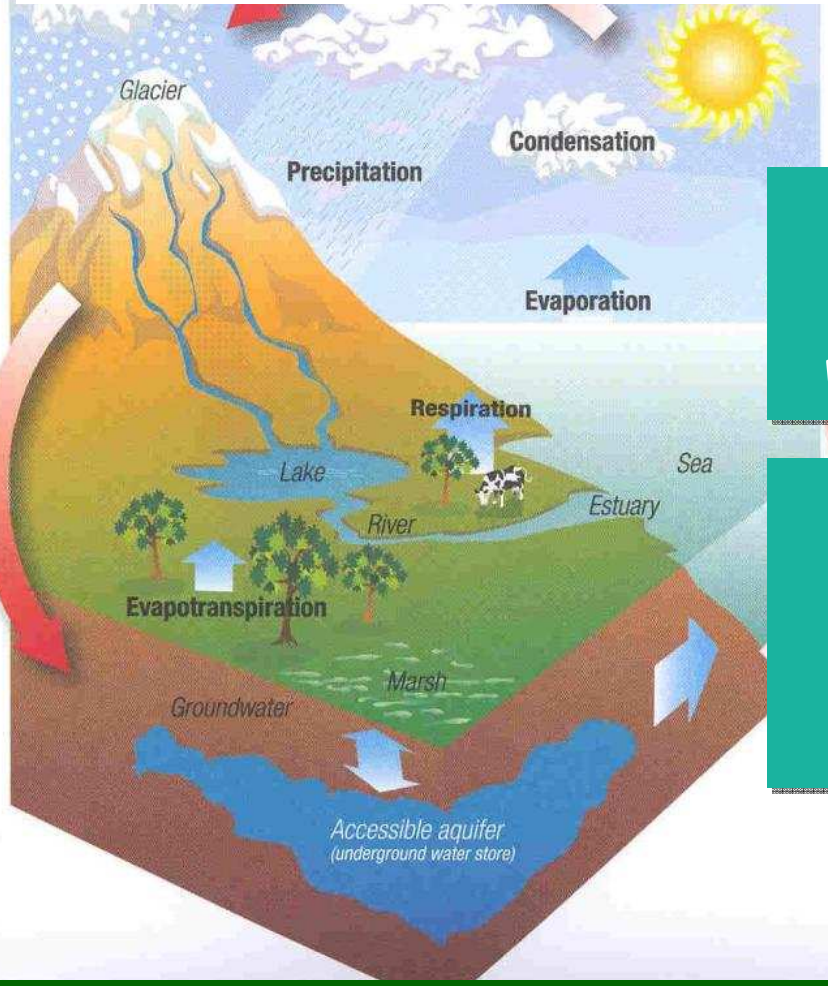
wetlands are **functional parts of the hydrological cycle**

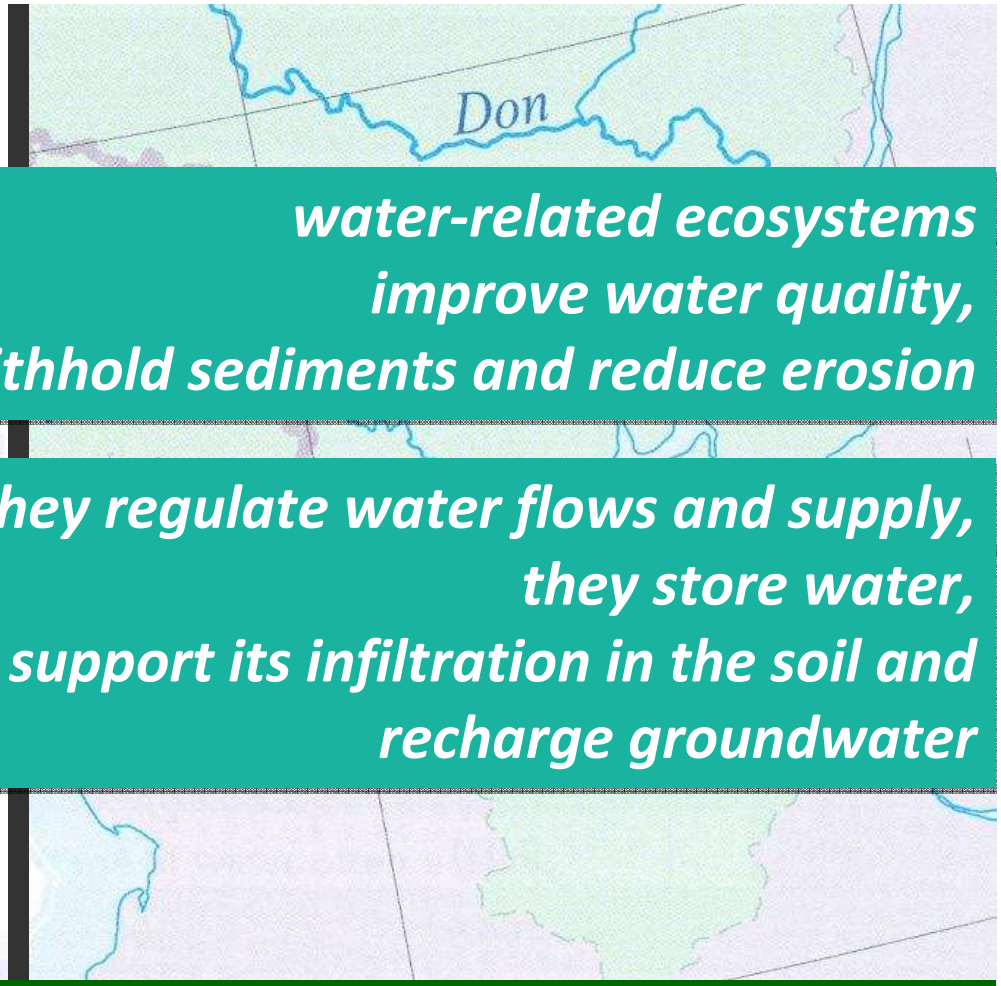
they include **aquatic**, **subterranean** and **coastal marine** ecosystems



starting with a catchment basin approach

… to understand the basic hydrological functions of the wetland ecosystems:

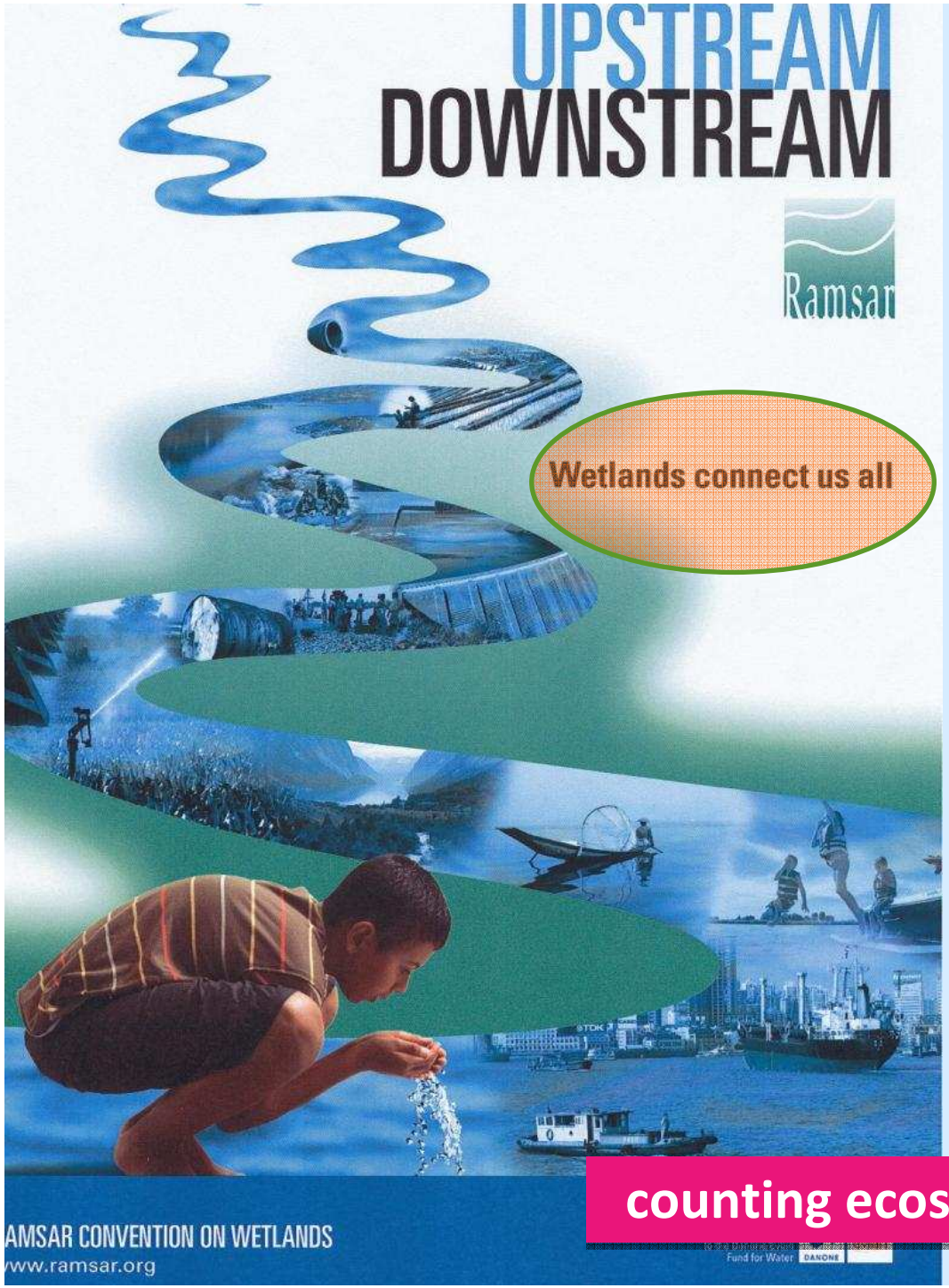




water-related ecosystems improve water quality, withhold sediments and reduce erosion

they regulate water flows and supply, they store water, support its infiltration in the soil and recharge groundwater

how to approach the understanding of wetland ecosystems?



special ecosystems …

an ecosystems approach is essential:

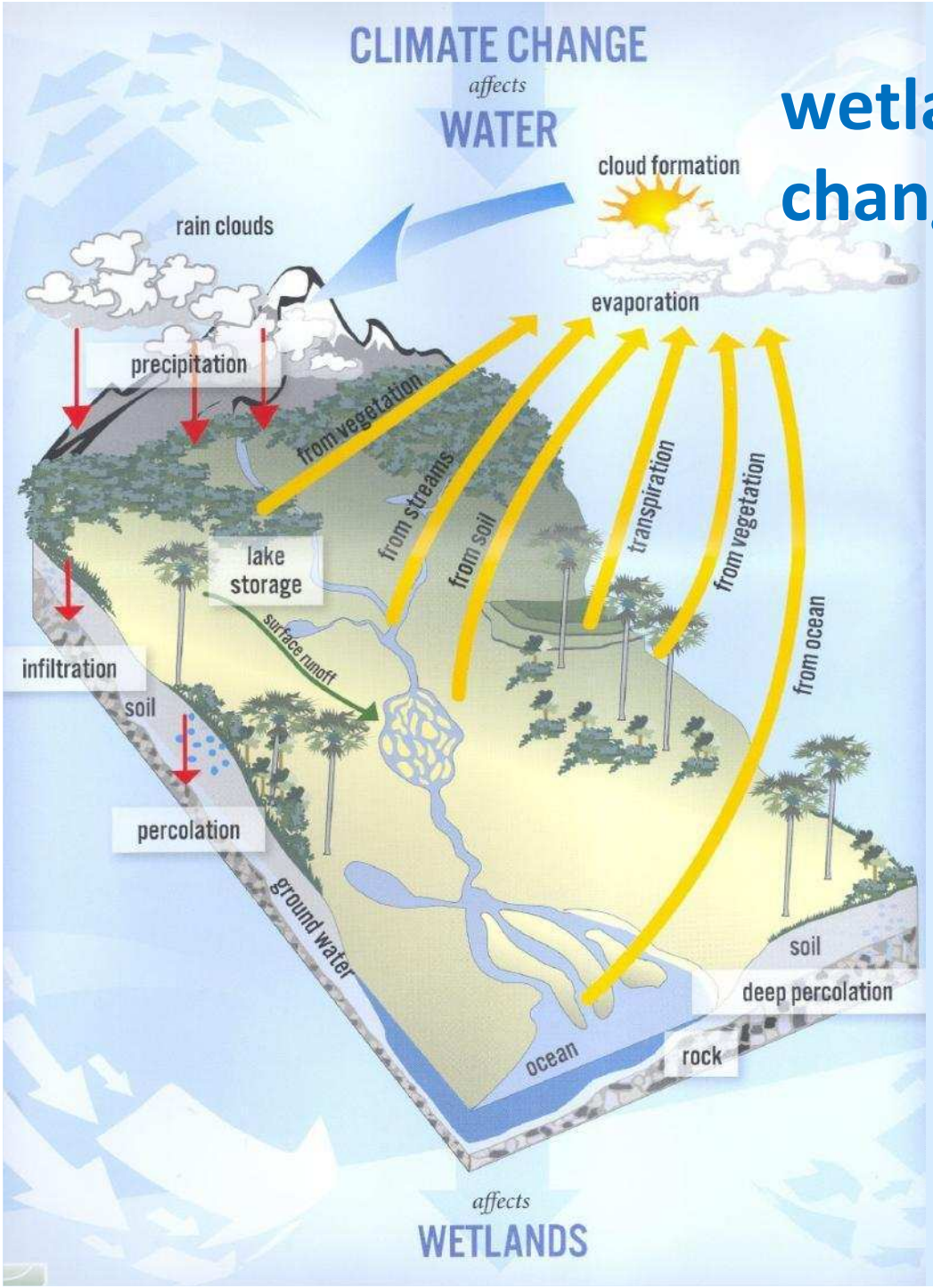
> water **flows** make wetland ecosystems particularly important

> wetland ecosystems are **functional structures** of the hydrological cycle in each catchment

> the functioning is complicated through **connections** between surface and underground waters - in coastal areas between fresh, brackish and salty waters

> rivers and connected wetlands act as **migratory corridors** for many species (fish, invertebrates, birds, plants, etc.)

counting ecosystems as water infrastructure



wetlands and climate change

*the main climate impact is on the **hydrological cycle***

wetlands provide **resilience** to harmful effects (through storm protection, freshwater storage)

wetland **rehabilitation** can mitigate CO_2 emissions from degraded wetlands

keep the carbon **stored** in wetlands where it is

peatlands are the most space-effective carbon stores of all ecosystems

restoring **forested** wetlands has carbon sequestration potential

caring about climate change - *means*

caring about wetlands - *means*

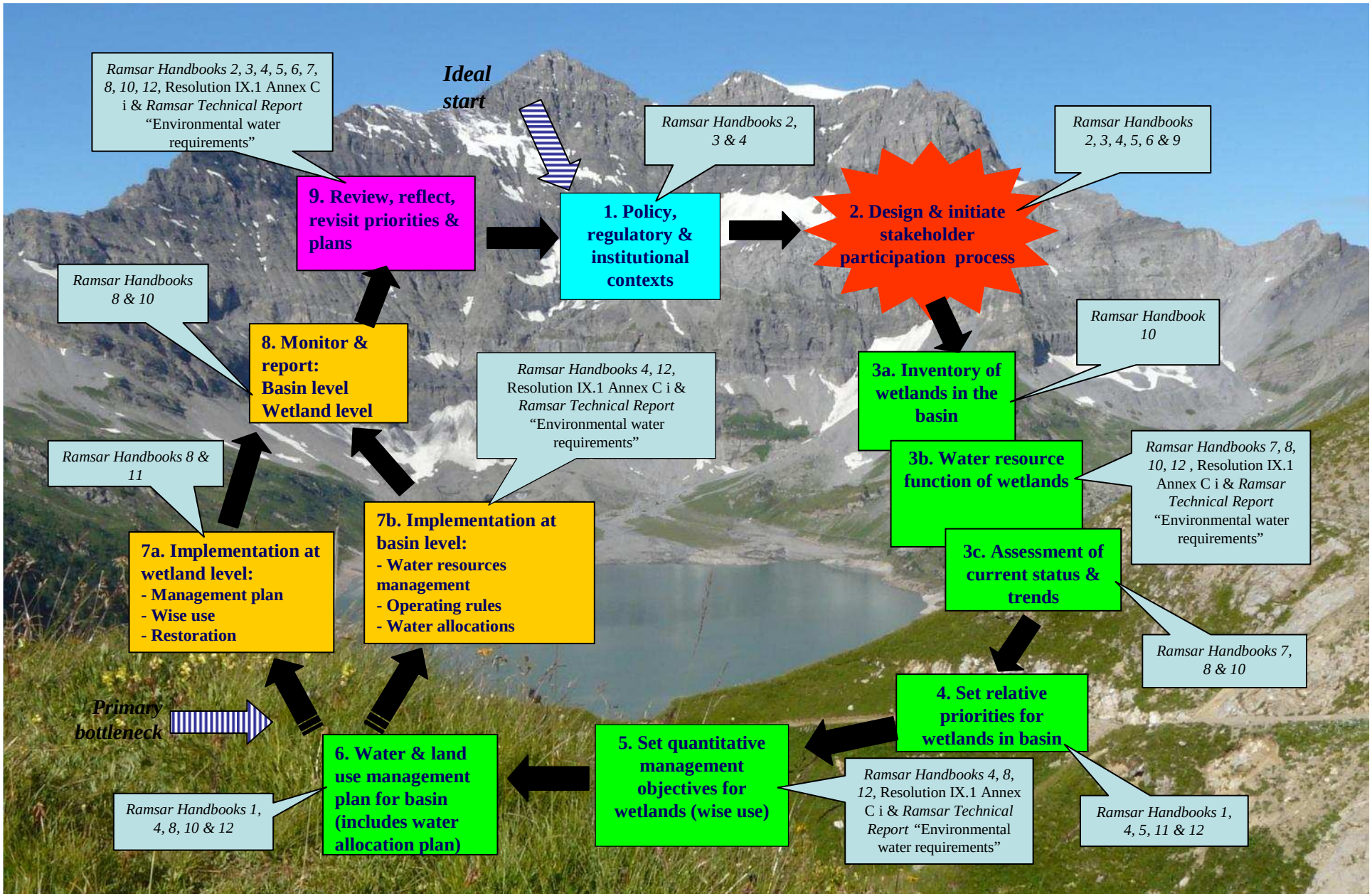
caring about biodiversity

climate change **mitigation** is all about **carbon**

climate change **adaptation** is all about **water**

wetlands store, release, purify, provide **freshwater**

store about a fourth of the **terrestrial carbon**



the **critical path:**

linking catchment basin planning with local site management

the Wise Use concept

making use – in a sustainable way
of ecosystem services for human well-being:

payments for ecosystem services

- **provisions** (water, food, fiber, fuel, biochemicals, genetic resour.)
- **regulations** (climate, water, erosion, hazards, pollination)
- **culture** (spirit, inspiration, recreation, aesthetic, education)
- **support** (soil formation, nutrient cycling)

guidance to work on

culture and wetlands

cultural aspects linked to site management
(history, tradition, archeology, beliefs)

links between biological and cultural diversity

human activities at wetlands:
habitation, resource uses, social & spiritual activities

overcome the « free-of-charge mentality » > *public policy changes*

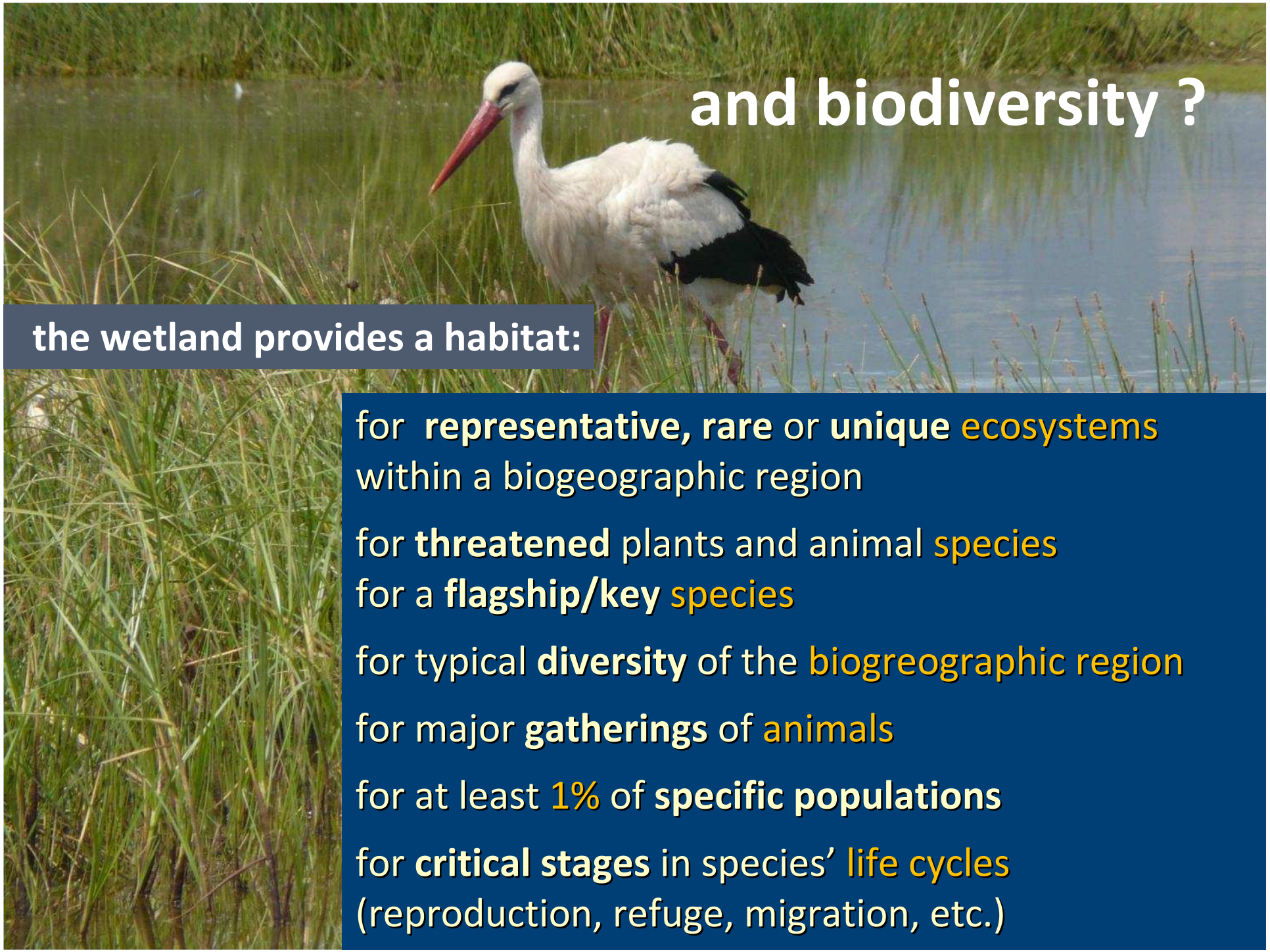
identify ecosystem dependencies and impacts > *consumer choices*

reduce risks and deliver ecosystem services > *business opportunities*

transfer of benefit estimations > *better development decisions*

The Economics of Ecosystems and Biodiversity:

… measuring to manage our natural capital



and biodiversity ?

the wetland provides a habitat:

for **representative, rare** or **unique** ecosystems within a biogeographic region

for **threatened** plants and animal species
for a **flagship/key** species

for typical **diversity** of the biogreographic region

for major **gatherings** of animals

for at least 1% of **specific populations**

for **critical stages** in species' life cycles (reproduction, refuge, migration, etc.)

wetland work based on 3 pillars

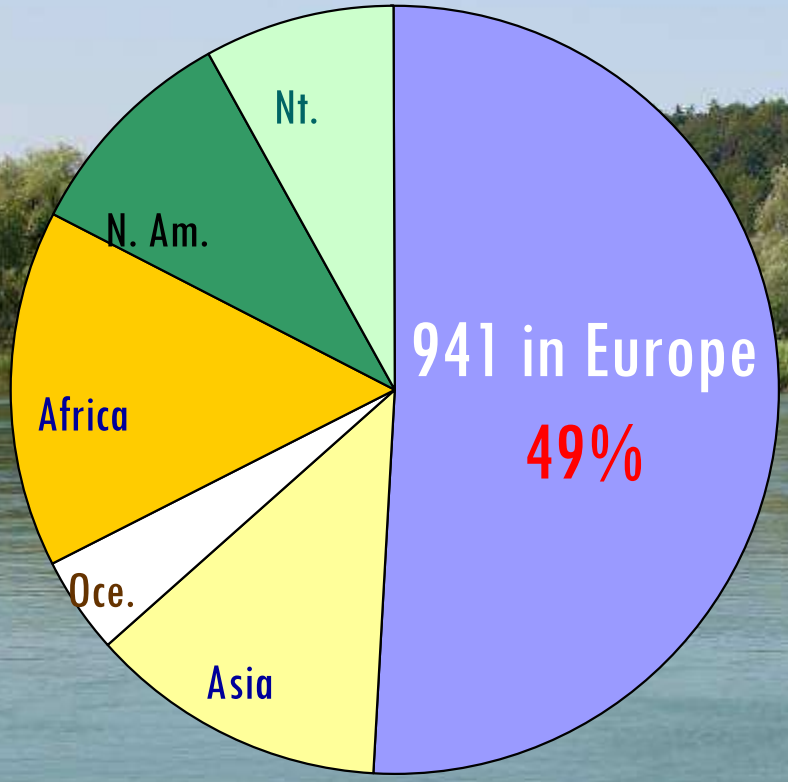
engagements of the Ramsar Parties *(all EU27+133 other countries):*

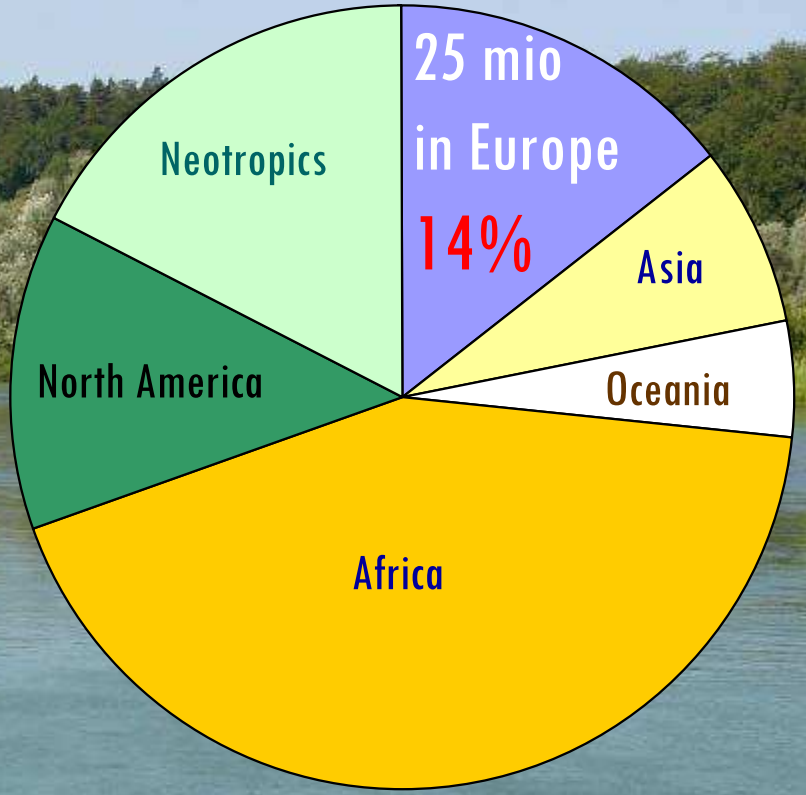
1 Designation of Ramsar **Sites** of international importance

2 Wise use of all wetlands in their territory

3 International cooperation
in shared basins and sites, for shared species and interests

Wetlands of International Importance «Ramsar Sites» inspire the Natura 2000 network





1912 sites in the world:

769 (40%)
in EU27

187 million ha

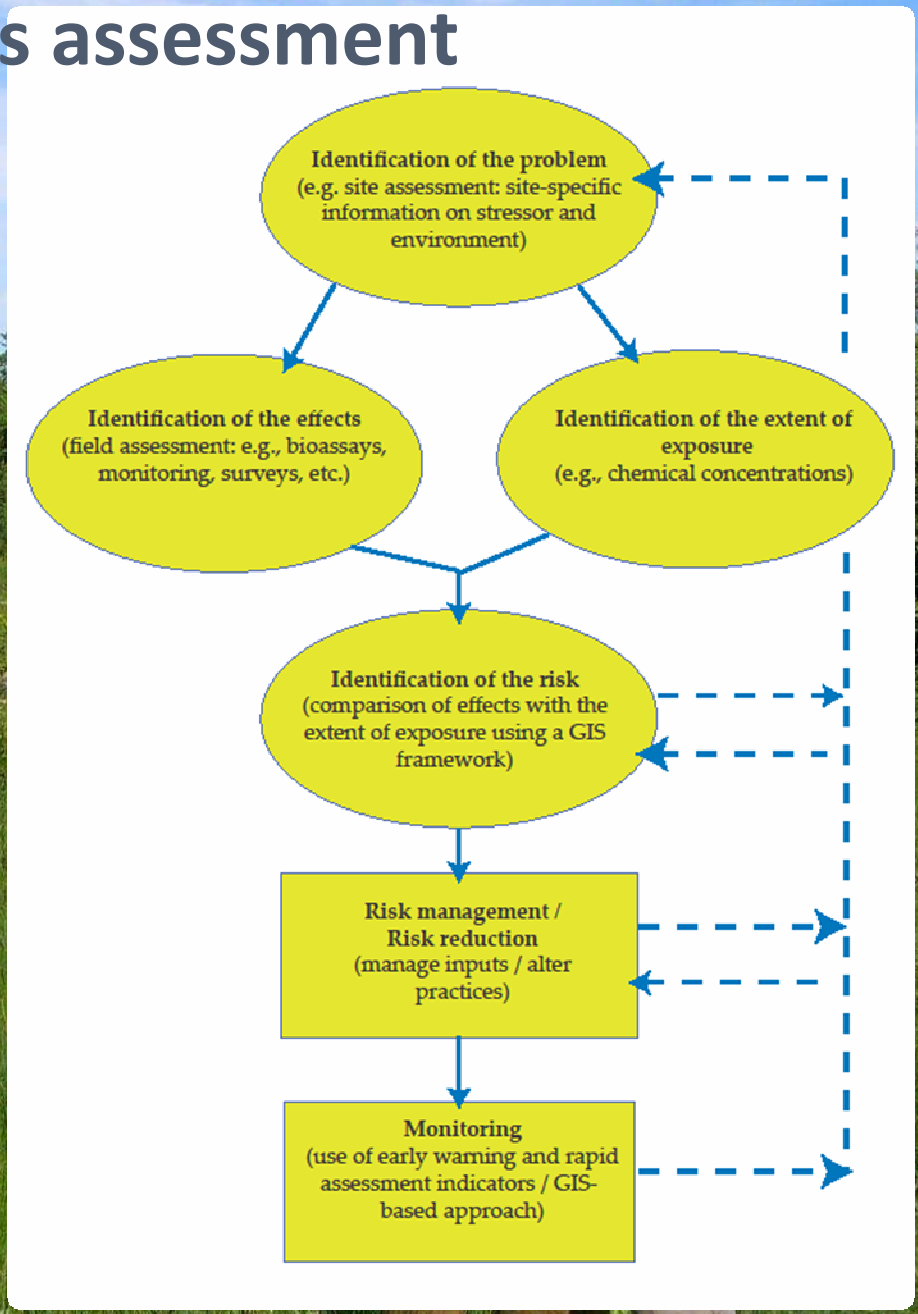
12.1 mio ha (6.3%)
in EU27

on site biodiversity risks assessment

mayor issues:

hydrology
nutrients/pollutants
vegetation change
disturbance
factors affecting key species

stakeholder involvement
land-use planning
communication, education, awarenss, participation



ecosystem products in terms of:

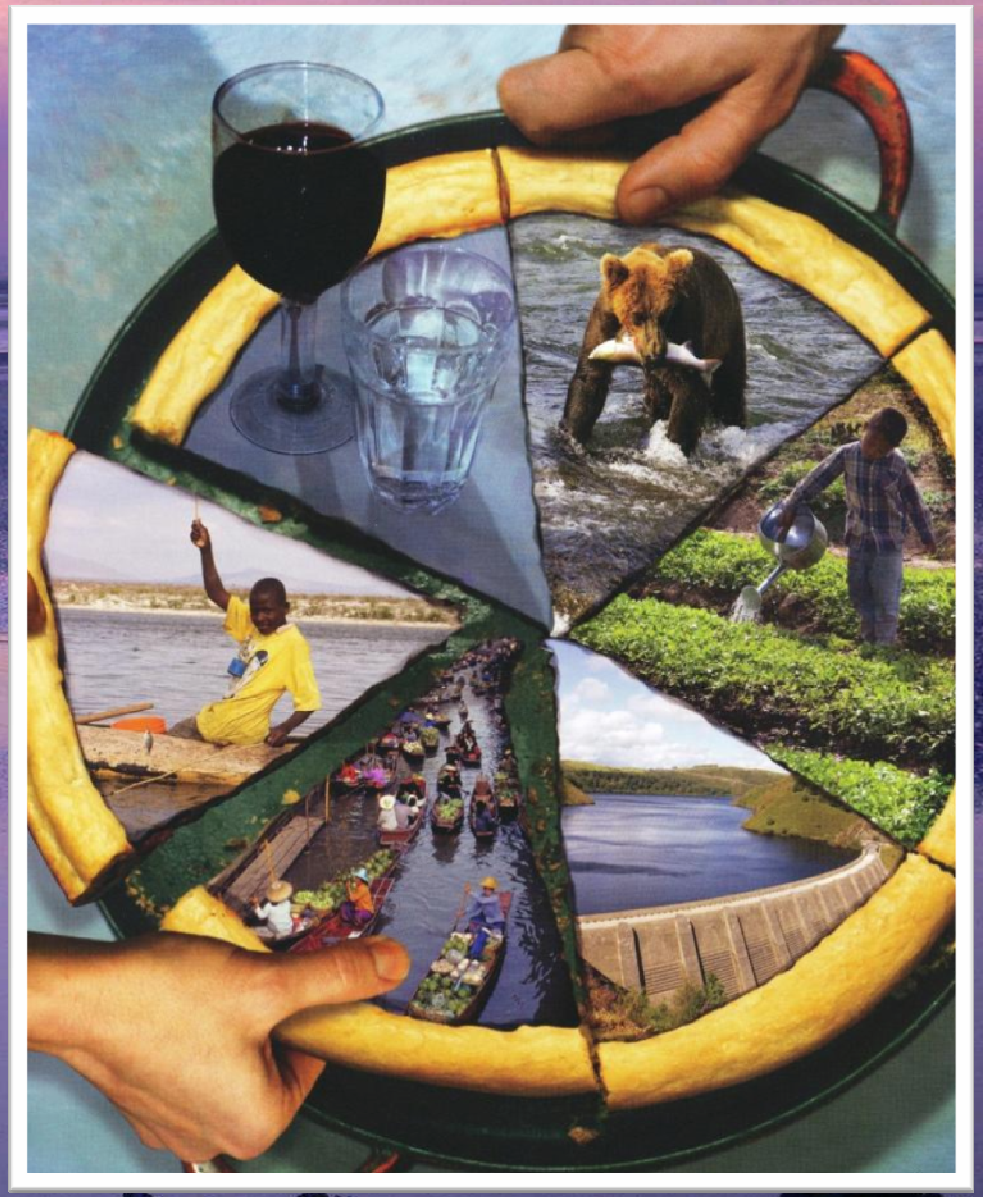
water (quality/quantity)

marketable products (fish, fibre, food, drugs, etc.)

energy

biodiversity (indirect uses, potential future uses, non-marketable uses)

non-use existence and bequest values



practical challenges: ***how to divide the ecosystem benefits?***

biodiversity policy priorities

extractive industries
energy production (incl. biofuels)
agriculture-water-ecosystems
poverty eradication
human health
water management (quality, storage, desertification)
mitigation and compensation for ecosystem loss
wetland restoration

the first modern environmental treaty turns 40 – the age when life begins

… **and happy to work closer with the EU instances**