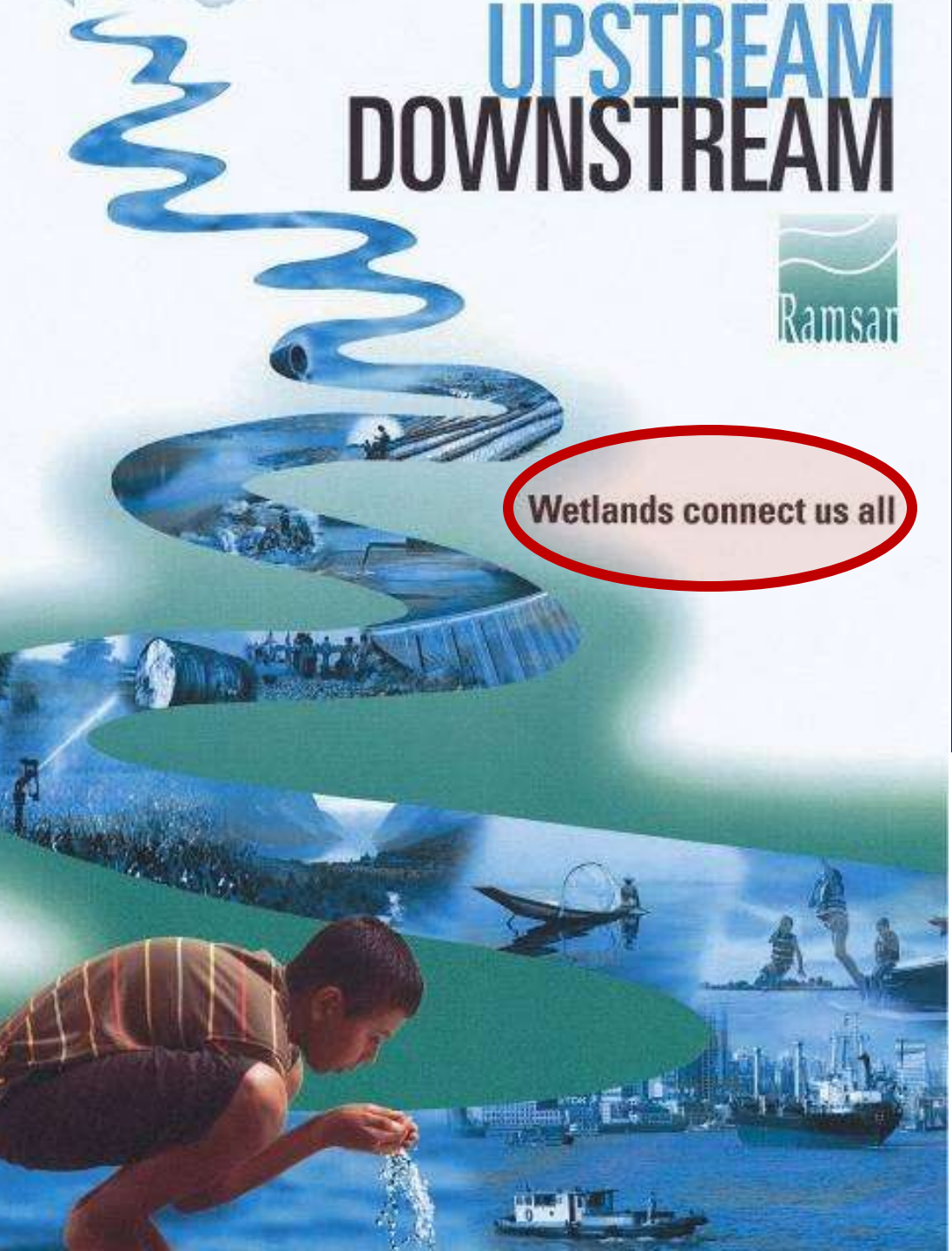


monitoring and restoring the services of water-related ecosystems

Ramsar guidance and support

Workshop on current issues of biodiversity protection and participatory development

Labergement – Ste-Marie, Doubs, France, 19-20 April 2012

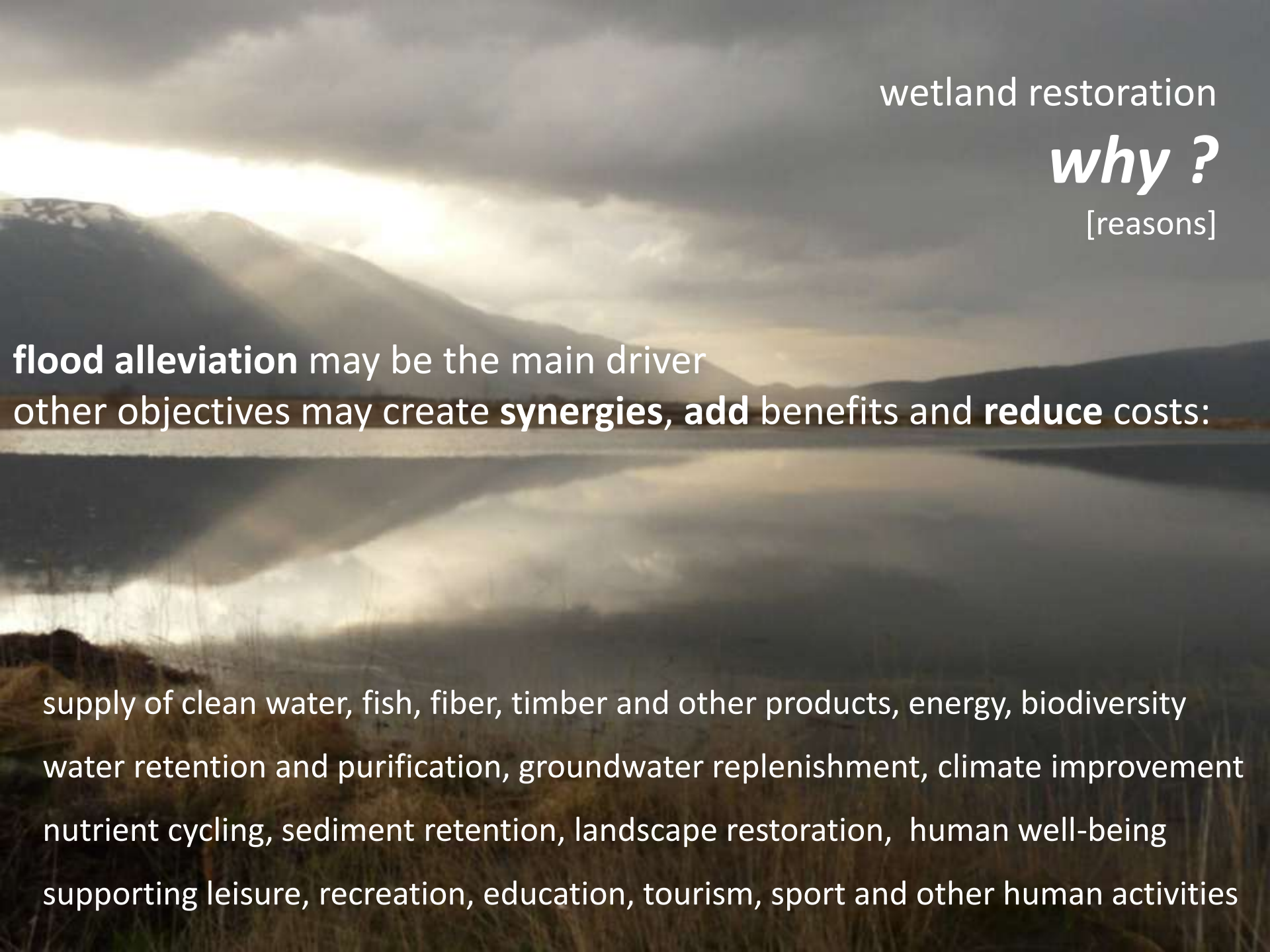
by Tobias Salathé
Ramsar Convention Secretariat

[it's time for fundamental changes]

preaching to the converted is not sufficient any longer –
outreach to other sectors of society and new partners are needed

> adopting a true "ecosystems approach"
> identify and valuate "ecosystem services"
> we humans are part of ecosystems

why all this?
and how to go about it?



wetland restoration

why ?

[reasons]

flood alleviation may be the main driver

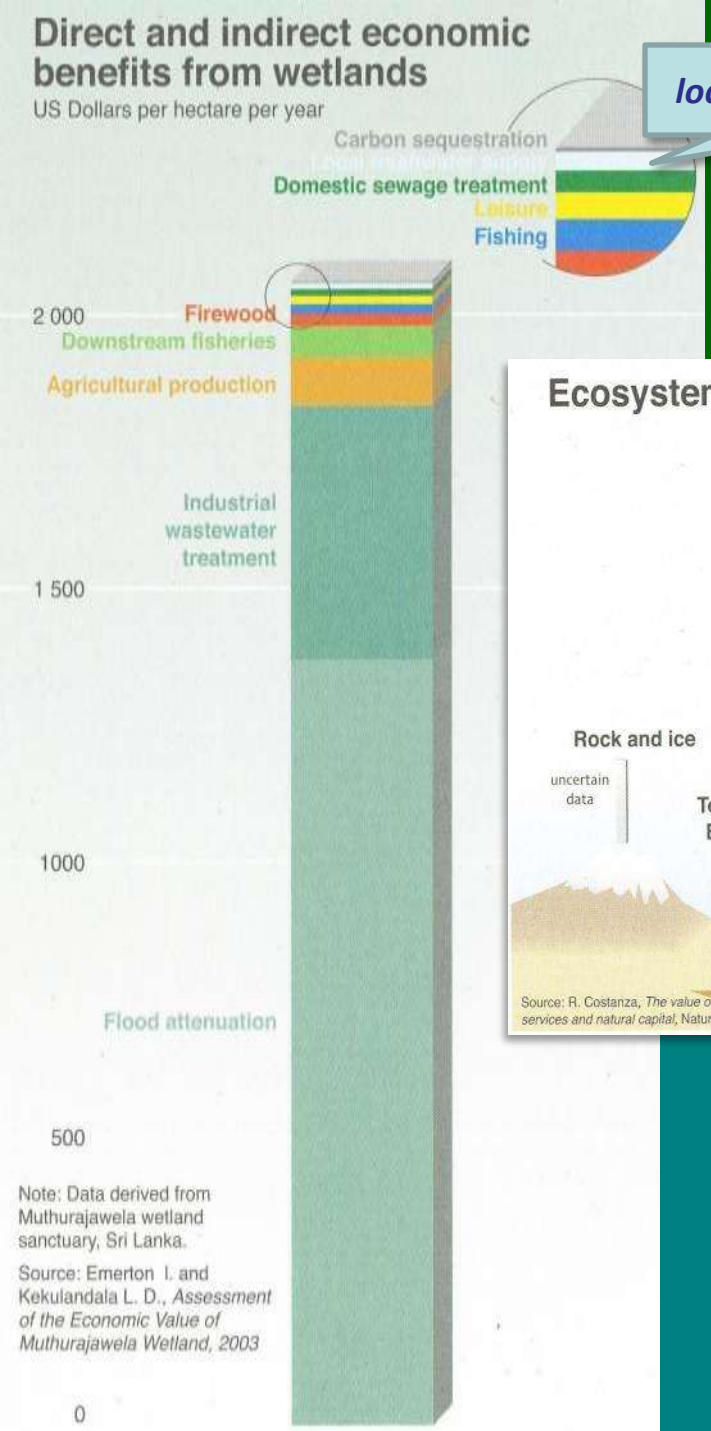
other objectives may create **synergies**, **add** benefits and **reduce** costs:

supply of clean water, fish, fiber, timber and other products, energy, biodiversity

water retention and purification, groundwater replenishment, climate improvement

nutrient cycling, sediment retention, landscape restoration, human well-being

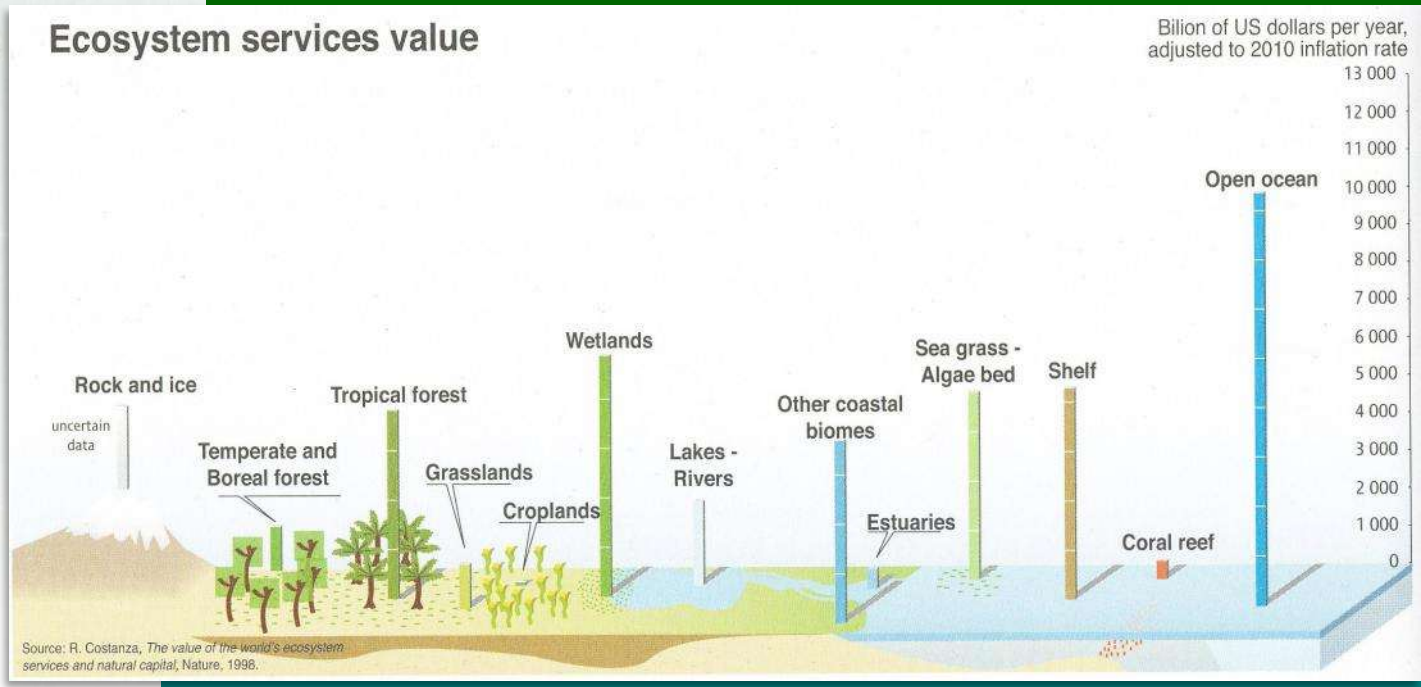
supporting leisure, recreation, education, tourism, sport and other human activities



local freshwater supply

why ?

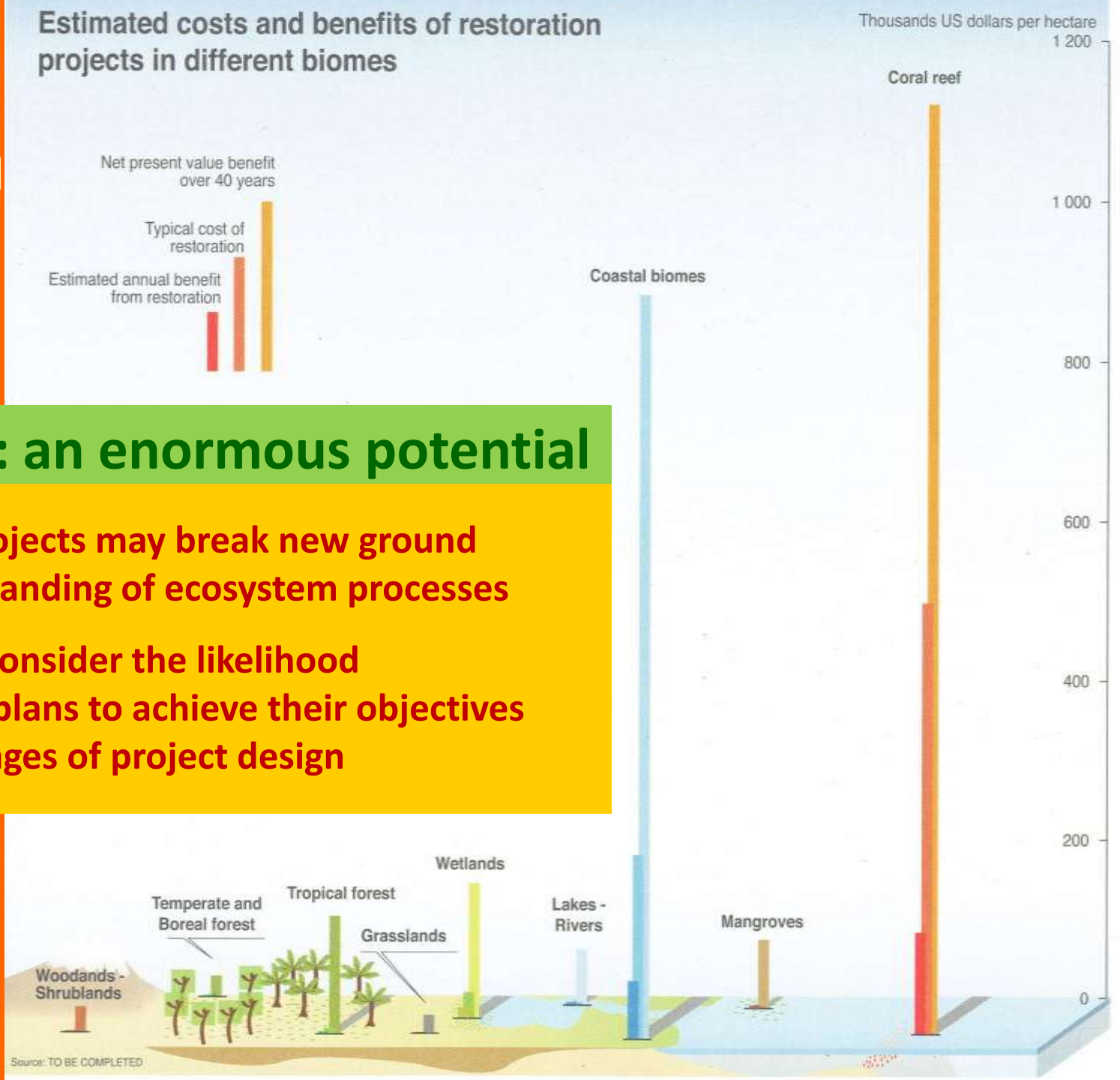
analyse and value ecosystem services



wetlands provide most valuable ecosystem services

why ?

[costs vs. benefits]



restoration: an enormous potential

> **restoration projects may break new ground in the understanding of ecosystem processes**

> **it is useful to consider the likelihood of alternative plans to achieve their objectives in the early stages of project design**

source: UNEP

why ?

[climate]

active wetland restoration contributes to reduce problems of:

excessive water withdrawals

biodiversity loss

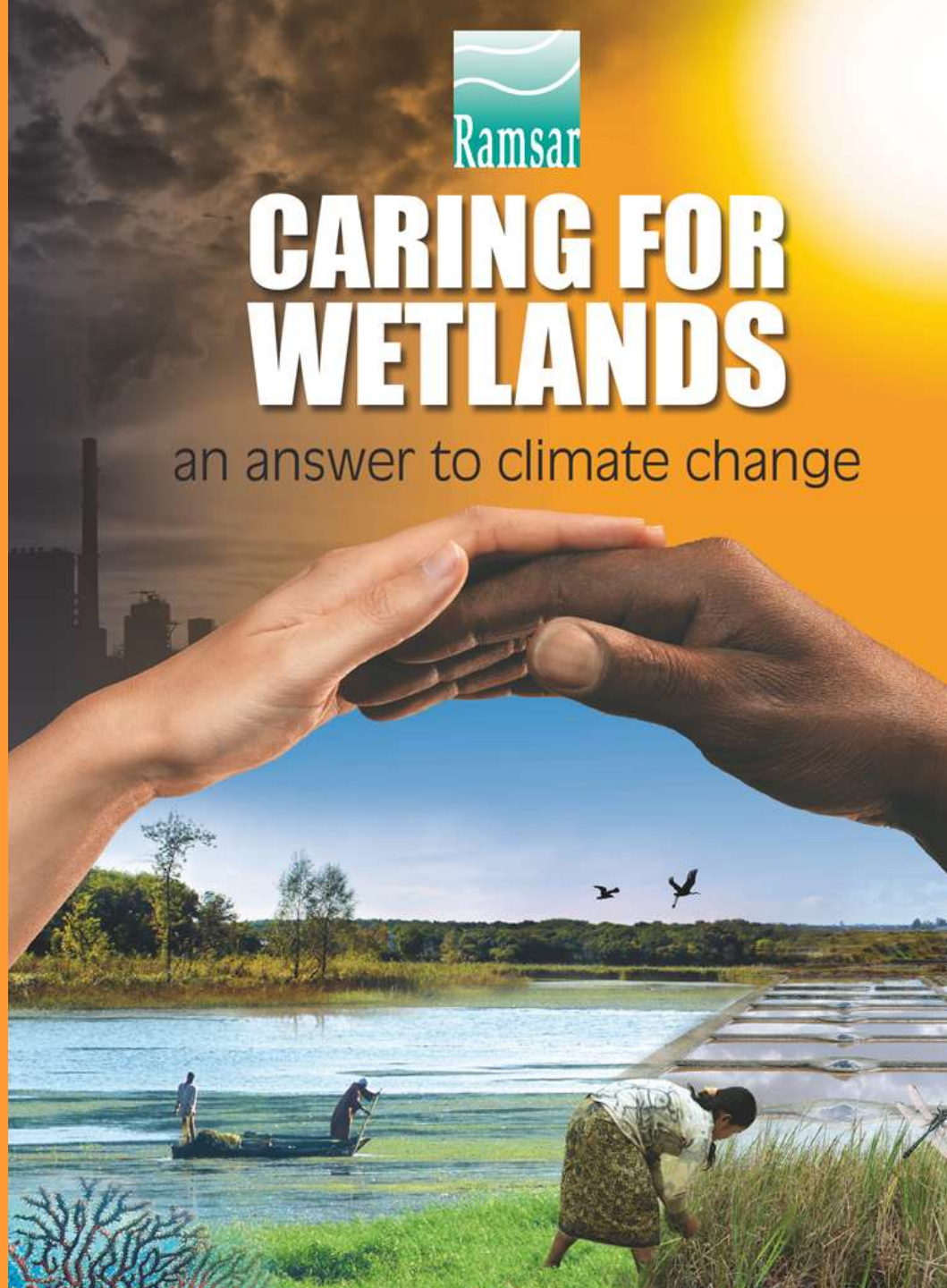
water pollution

nutrient loading

siltation

invasive species

overexploitation
(fish, timber, etc.)



why ?

[climate]

wetland restoration helps adapting to climate change

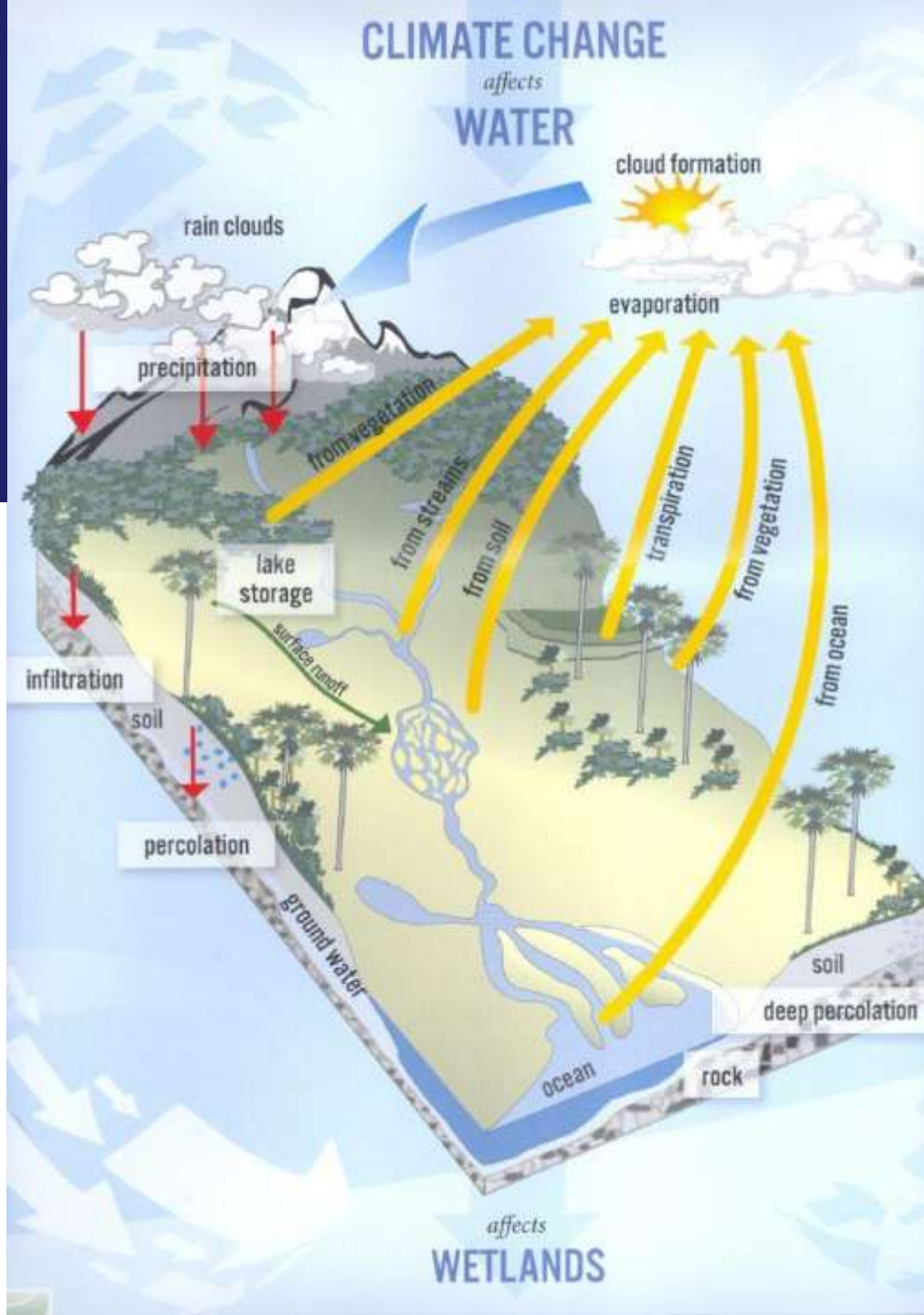
the main climate impact is on the ***hydrological cycle***

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

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

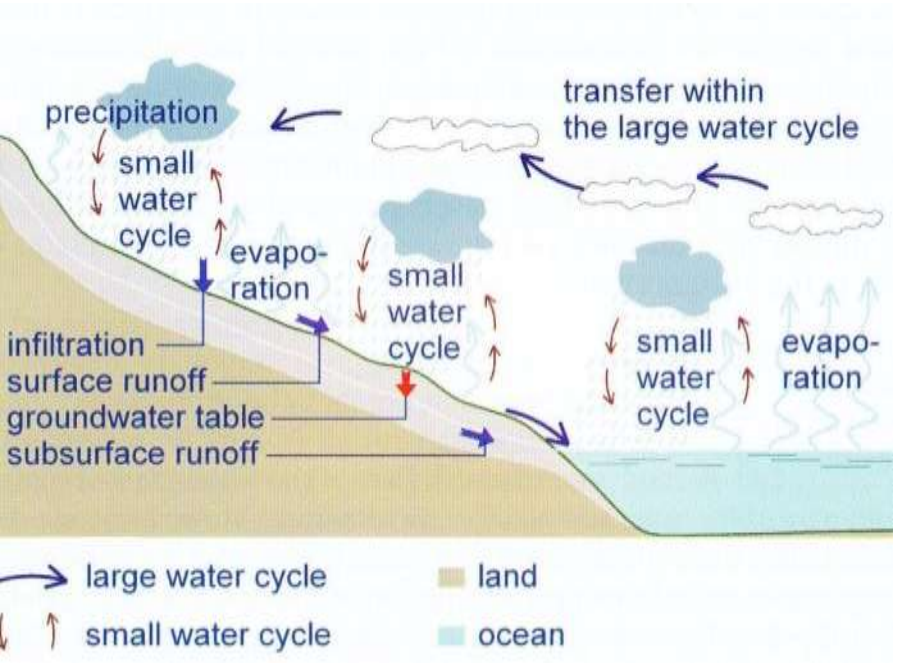
keep the carbon **stored** in wetlands where it is

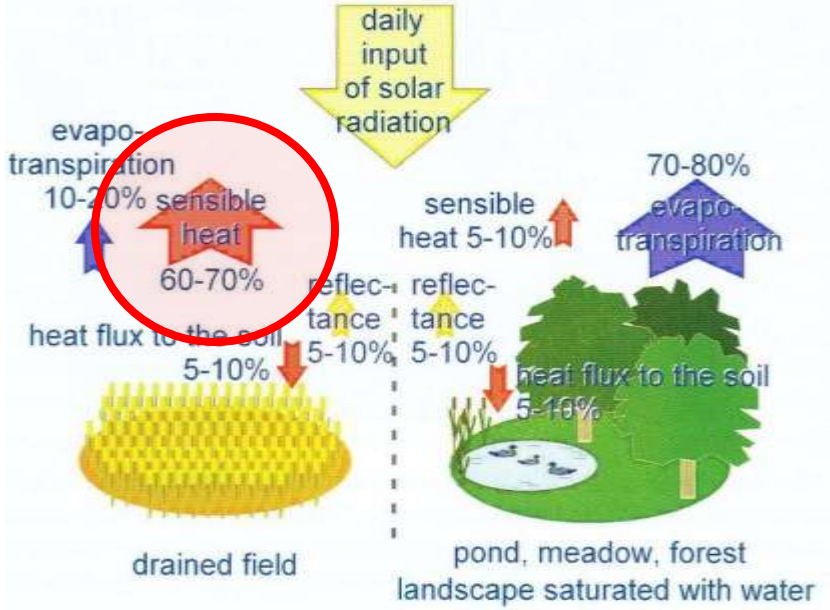
functioning **peatlands** are most space-effective carbon stores



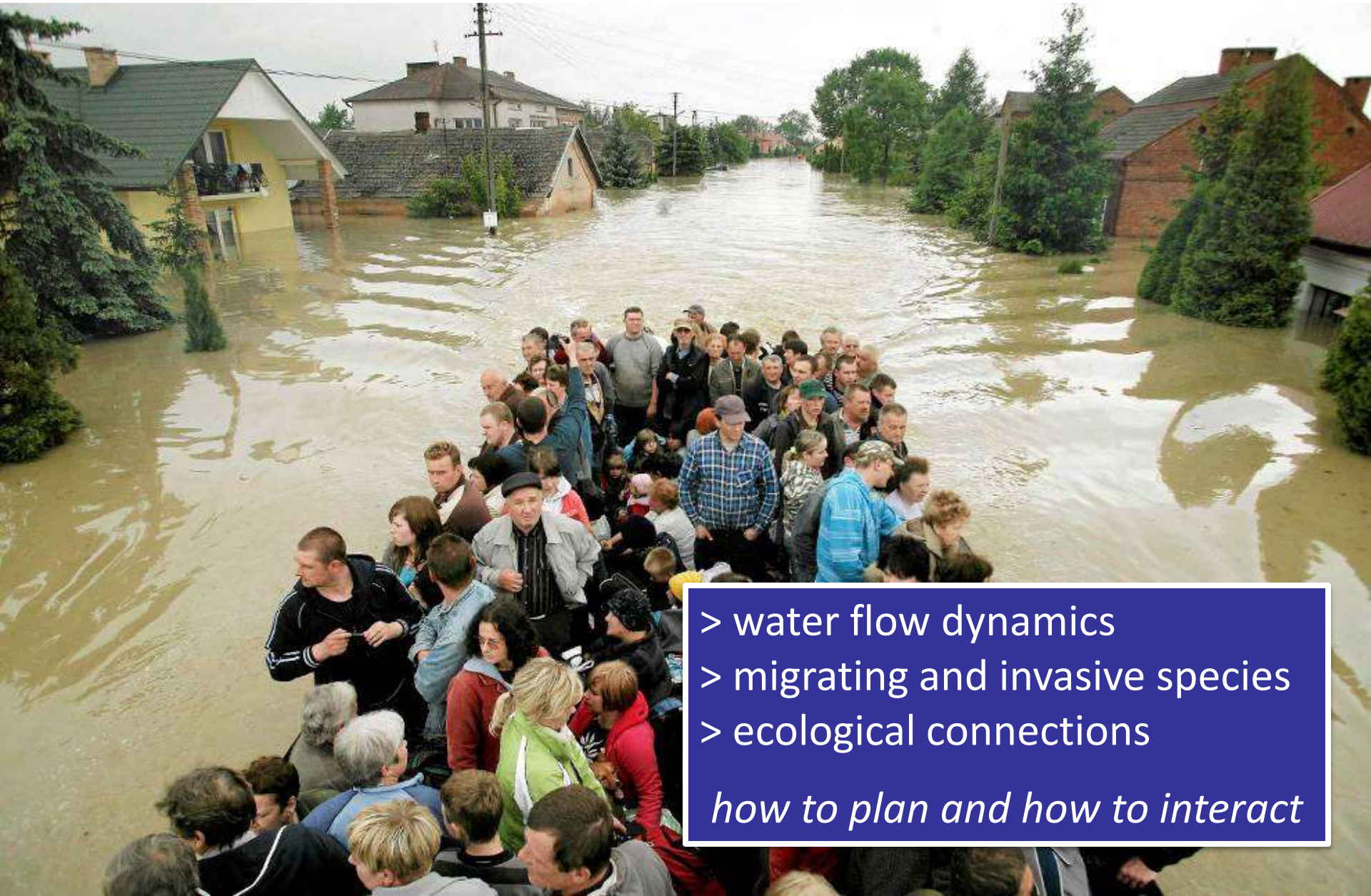
why ? climate change adaptation is about water

1. *water circulates through large and small cycles,*
2. *transformation of natural land into drained and urban areas limits evaporation and infiltration of water into the soil,*
3. *this limits the supply of water to small water cycles,*
4. *with little water in the soil, on its surface and in plants, solar energy creates sensible heat and cannot be transformed into evaporation,*
5. *the surface overheats and dries out the larger water cycle.*





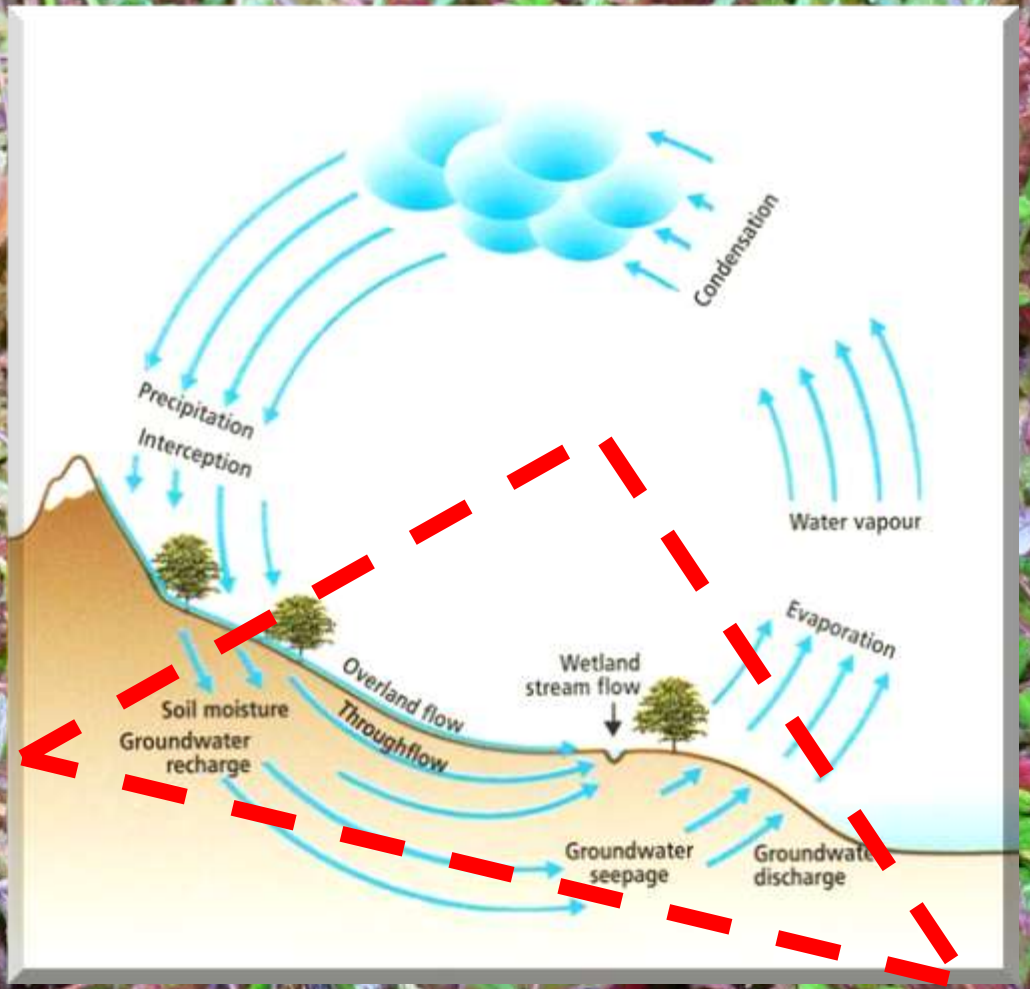
how ? major issues of restoration



> water flow dynamics
> migrating and invasive species
> ecological connections

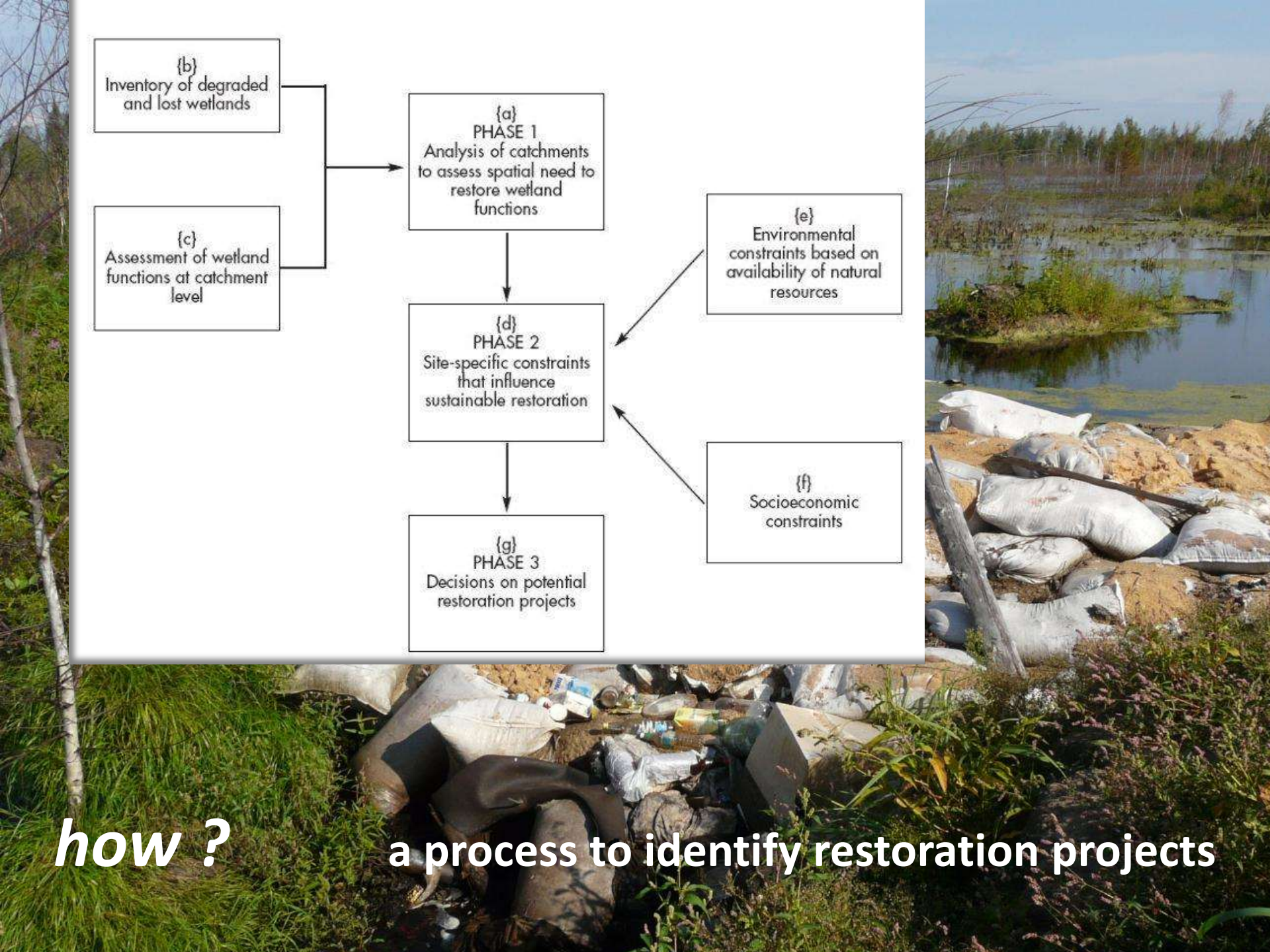
how to plan and how to interact

how ? at the heart the hydrocycle



weak knowledge:

groundwater ecosystem services and their interactions with above-ground ecosystems

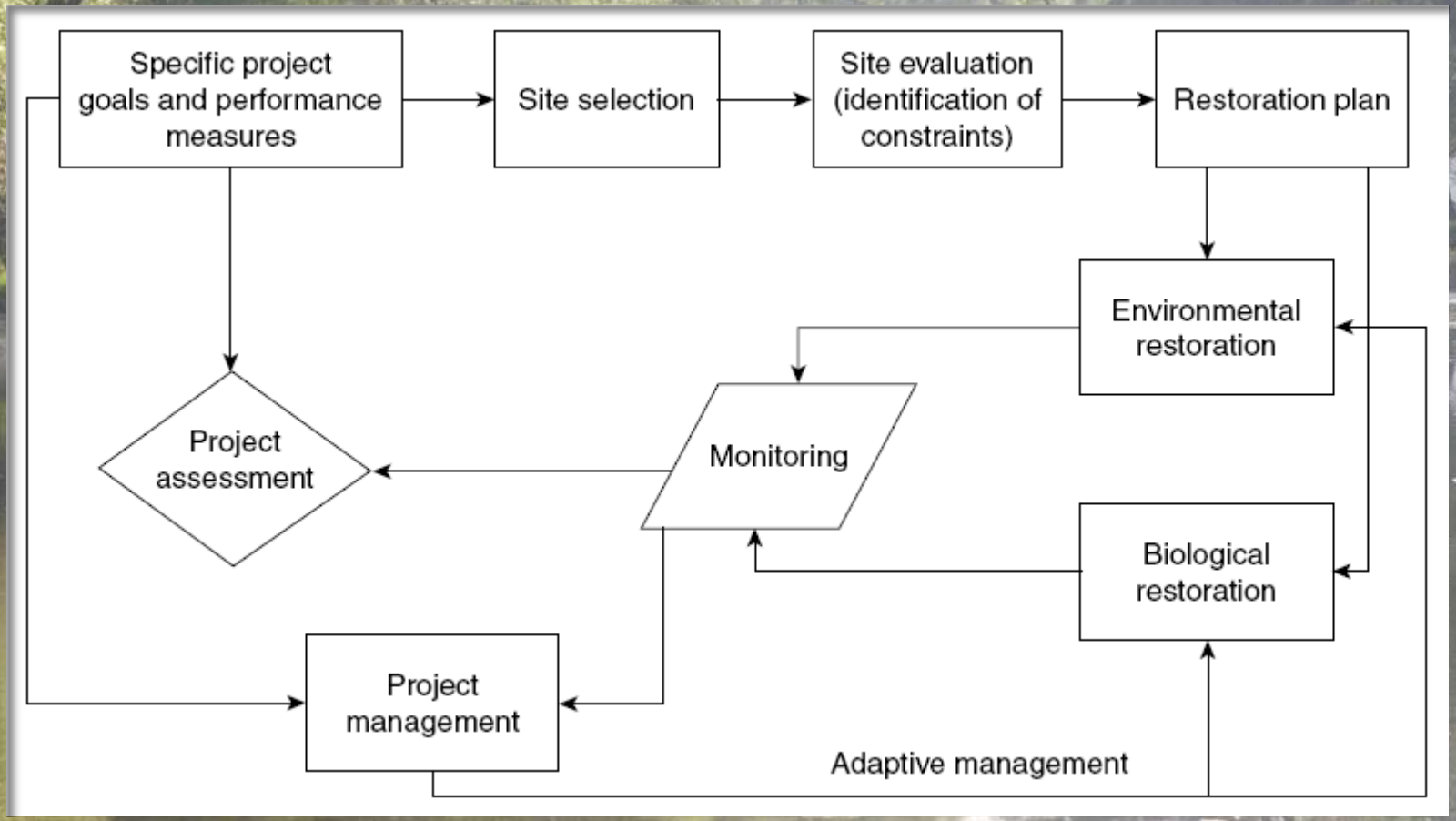


how ? **a process to identify restoration projects**

how ?

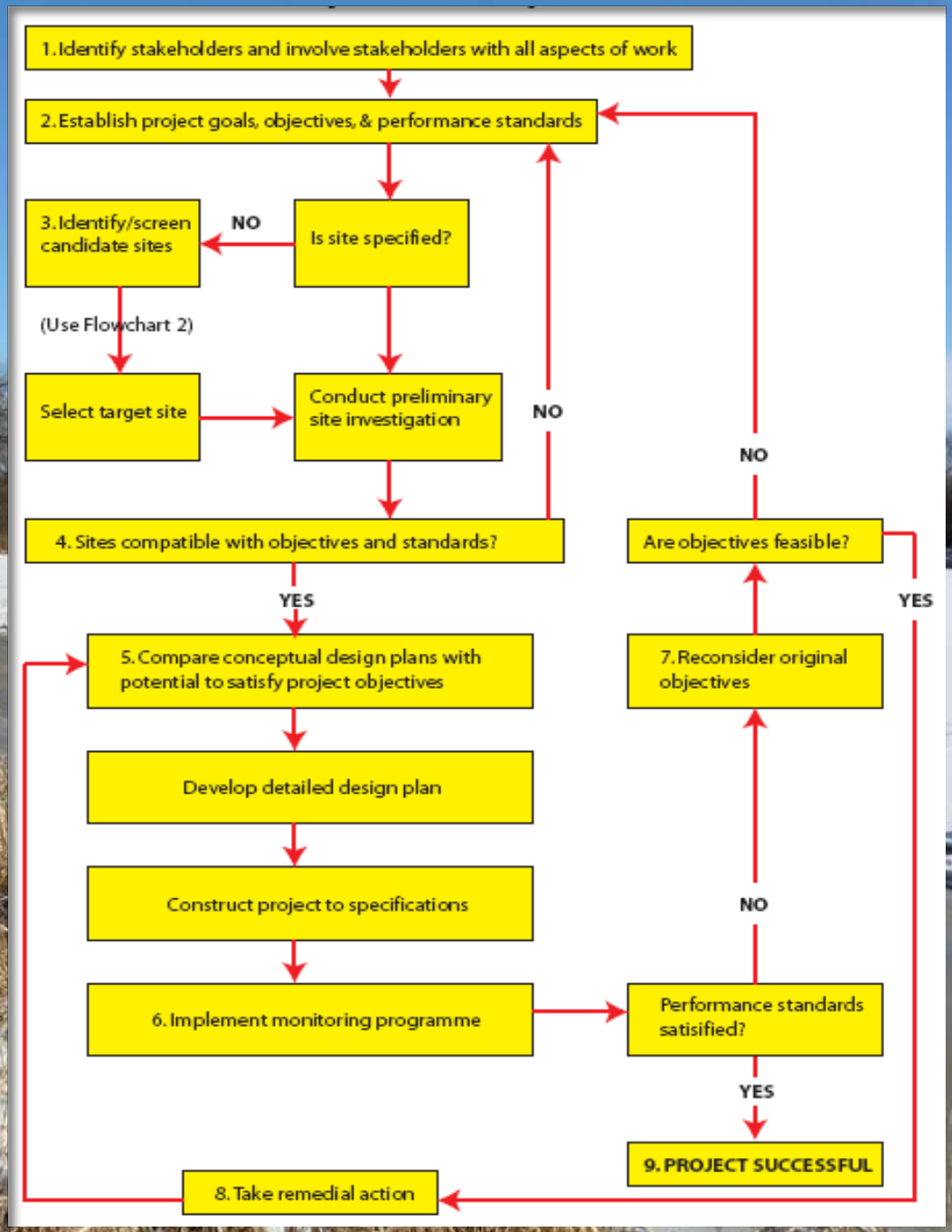
operational frame

more important than anticipated



how ?

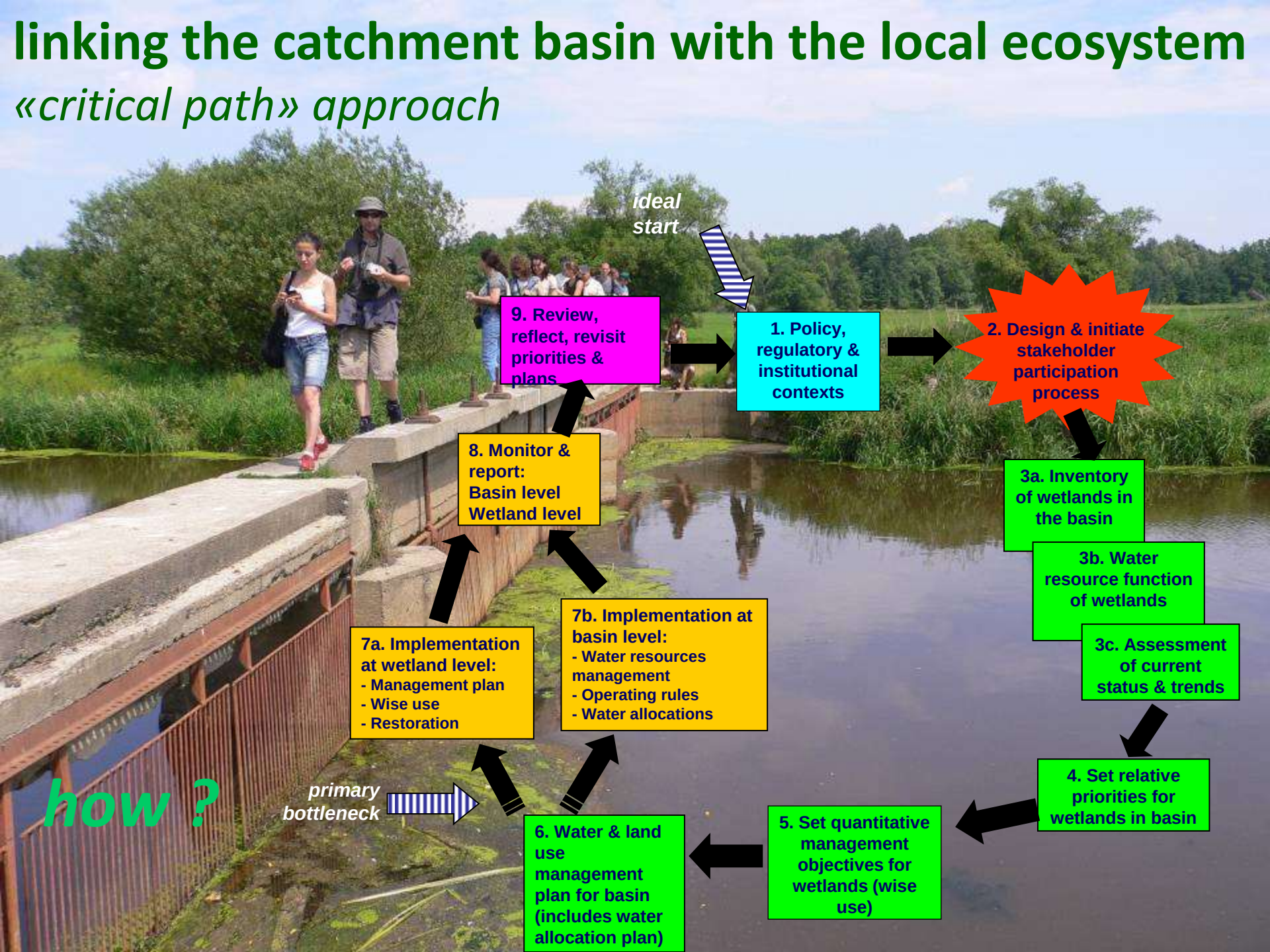
planning guidelines for wetland restoration



Ramsar Handbook 15
addressing change in ecological character of wetlands

linking the catchment basin with the local ecosystem

«critical path» approach



how ?

[issues]

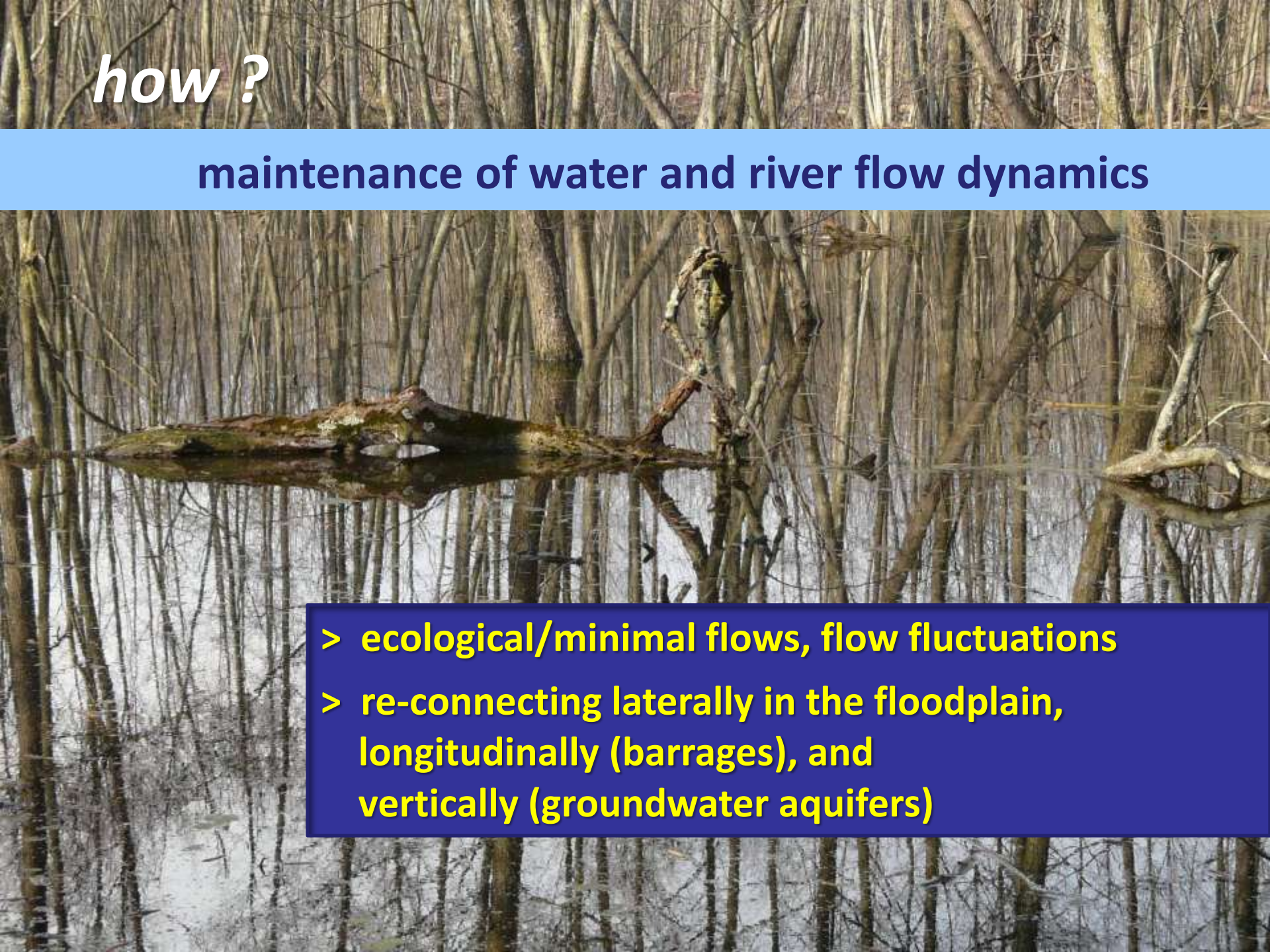
wetland ecosystems and their hydrological stress

eutrophication (agricultural runoffs and diffuse pollution)
drainage and land reclamation
water **abstraction**
artificial **channelizations**
decreasing **water levels**
sedimentation and siltations
dredging impacts
effects of **dams** and barrages
salt water intrusion
altered underground **flows**
agriculture and forestry effluent **pollutants**
household and urban **sewage** and waste waters
industrial and military effluents
persistent **drought**
lasting **desertification**

a ranked list of causes throughout Europe

how ?

maintenance of water and river flow dynamics



- ecological/minimal flows, flow fluctuations
- re-connecting laterally in the floodplain, longitudinally (barrages), and vertically (groundwater aquifers)


how ?
managing migration corridors
for migration of fish, birds, others
to stop invasive species

UN World Tourism Organization: "ecotourism"

- in natural areas to appreciate nature and traditional cultures
- with educational and interpretational features
- for small groups, by small operators, and locally owned businesses
- minimal impacts on the natural and socio-cultural environment
- maintenance of natural areas as attractions
- economic benefits for natural areas with conservation purposes
- alternative employment and income opportunities for locals
- increasing awareness for the conservation of natural and cultural assets

wetlands: home and destinations

- reduce pollution, dispose waste properly, minimize use of pesticides and fertilizers
- obtain food stuff and biological resources from sustainably managed sources
- support conservation through practical actions and financial contributions
- assure that no invasive alien species are introduced
- do not put threatened species at risk or let them enter the souvenir supply chain
- raise awareness of the ecosystem values through tourism sector communication and marketing channels