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# **Sustainable use of natural resources: Water**

*The views*

*expressed in this document are purely those of the authors and may not be regarded as stating an official position of the European Commission*



# Key messages

- We are water creatures and cannot survive without it
- We do not take good care of our water
  - We pollute water
  - We use and waste a lot of water and do not leave enough for nature to continue serving us
  - We modify our rivers and lakes
- We need to better manage our water by putting nature as the source of water at the centre





# We are all water creatures

Water makes up

- 60% of our body
- 70% of our brain
- 80% of our blood

We cannot survive without it





# We are all water creatures

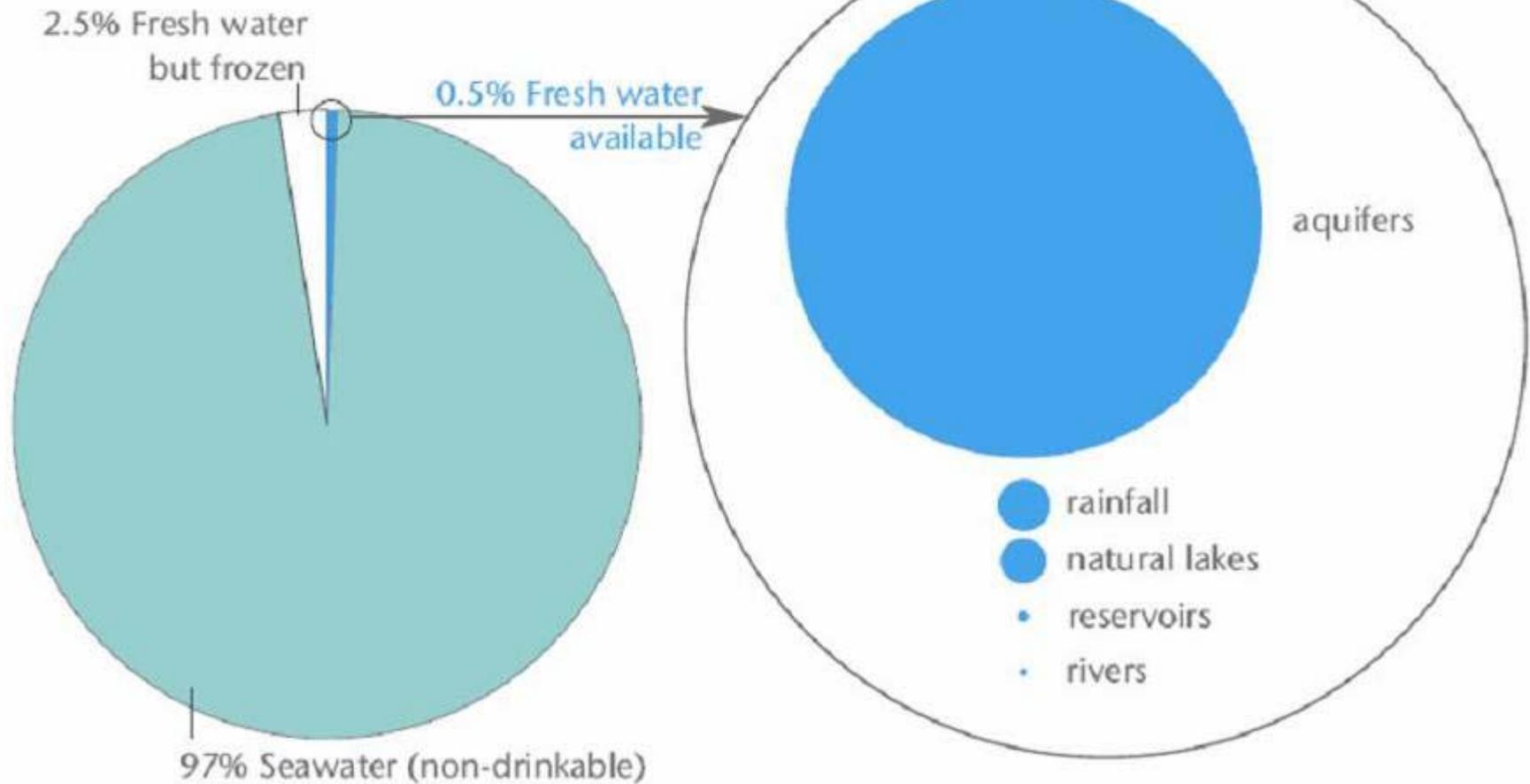
- Water isn't just a matter of physical survival
- It has deep spiritual significance for all major religions
- It is also deeply embedded in our culture whether, music, literature or films





# The Global Situation

Fresh water available



Adapted from "Water facts" by the World Business Council on Sustainable Development

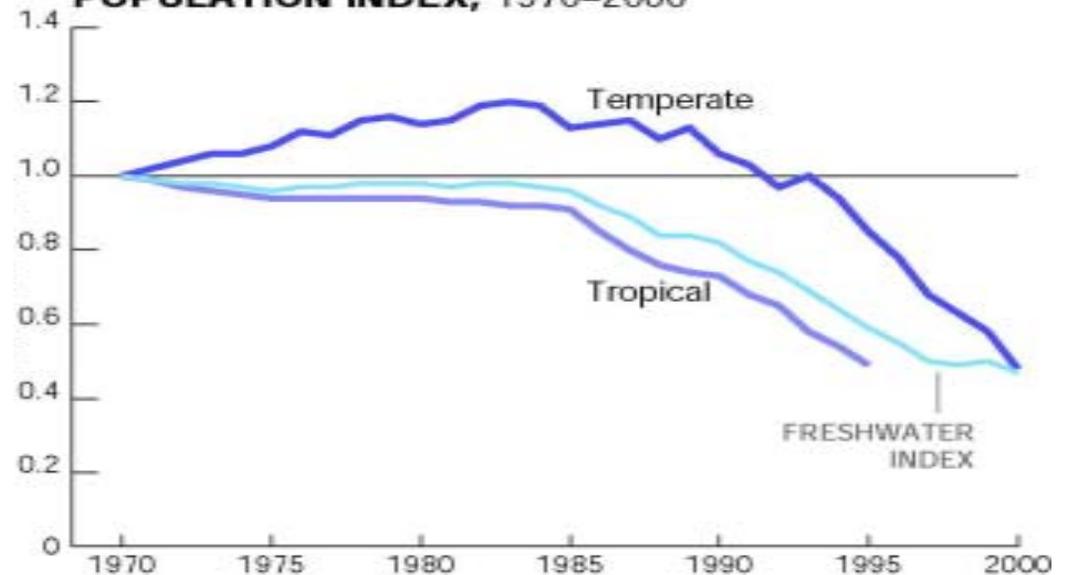




# We share it with the others

- Freshwater ecosystems – rivers, lakes, wetlands – account for less than 0,01% of the world's total surface area
- Yet...freshwater habitats are home to 40% of fish species
- Adding amphibians, water birds, reptiles and mammals, makes it home to 1/3 of global vertebrate species
- It is the most imperilled of the biomes

Fig. 9: FRESHWATER SPECIES POPULATION INDEX, 1970–2000



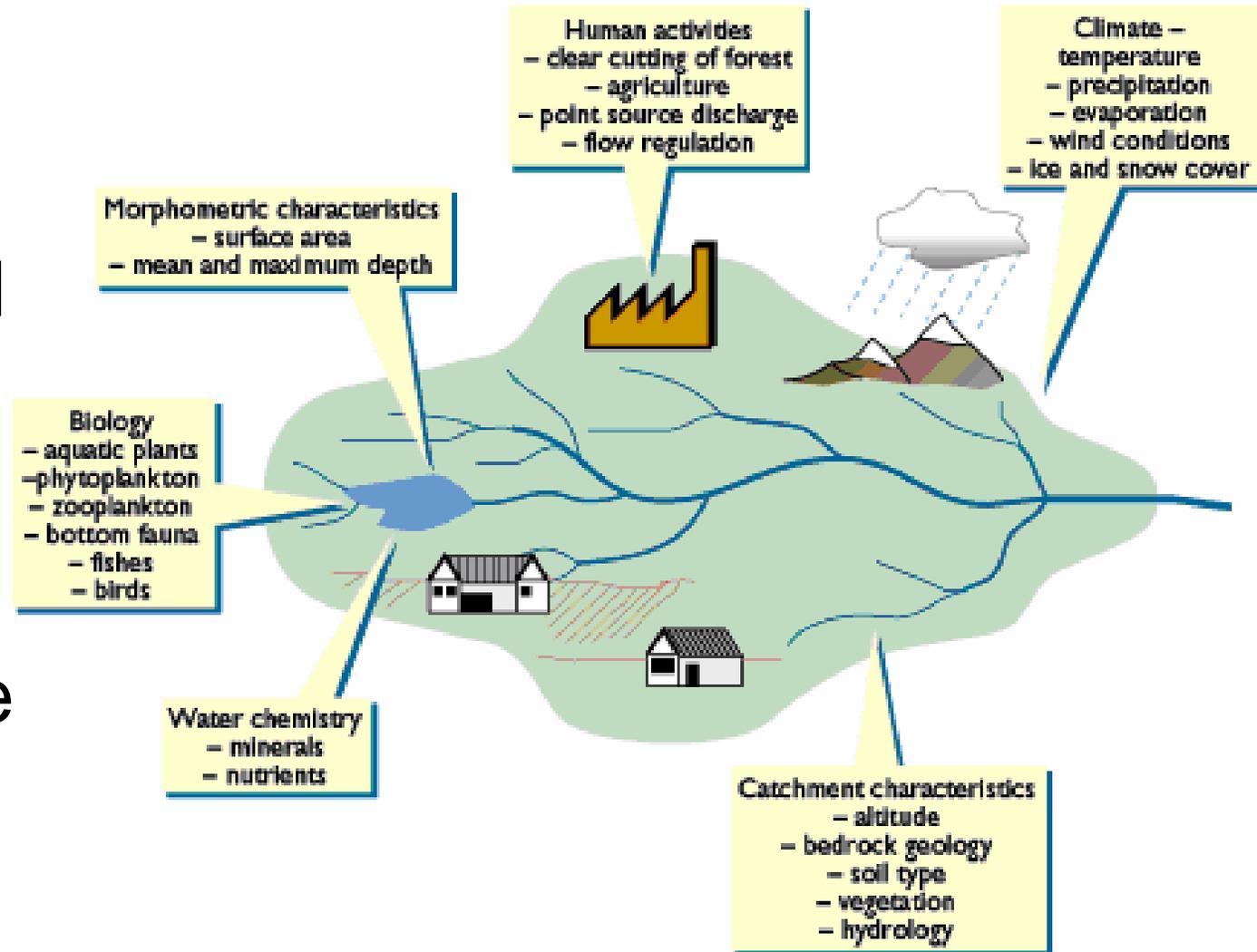
WWF Living Planet Report





# The key water challenges in the EU

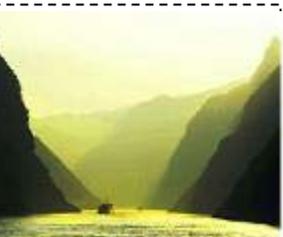
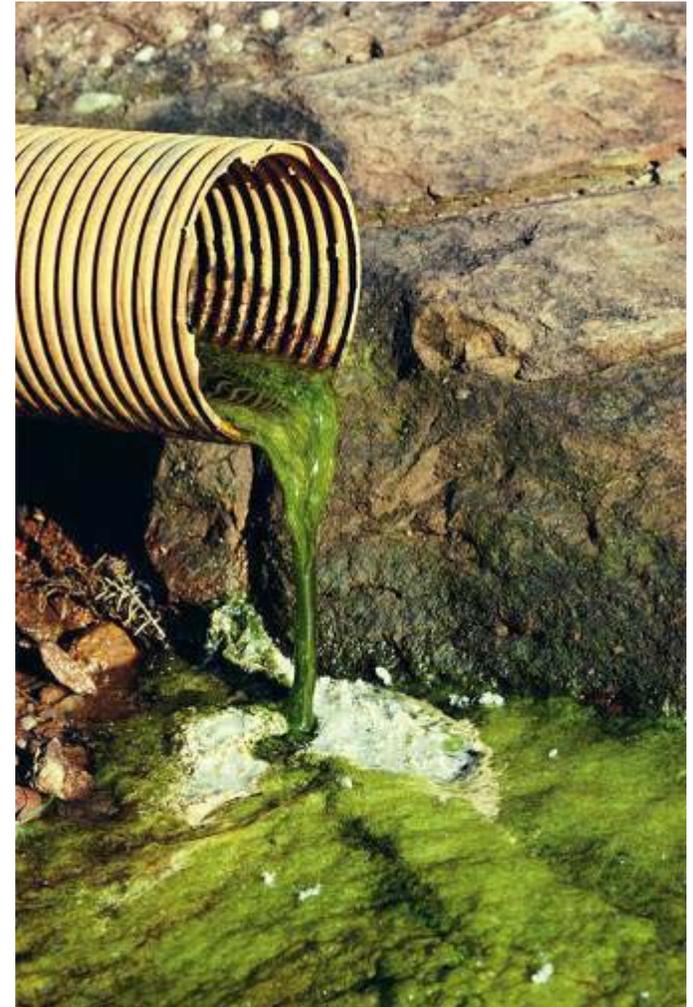
- Water pollution
- Water over-abstraction and wastage
- Water bodies modification
- Climate change as additional pressure





# We pollute our water

- Access to clean water is precondition for human health and well-being
- Unpolluted water is essential for ecosystems (e.g. eutrophication)
- Pollution comes from direct point sources (e.g. industrial plant) and diffuse sources (e.g. farmers)
- Some progress over last 30 years especially with point sources
- Known chemicals: nutrients, phosphorus, pesticides, heavy metals, etc
- Emerging concern: Pharmaceuticals and textile and plastic additives





# Solutions

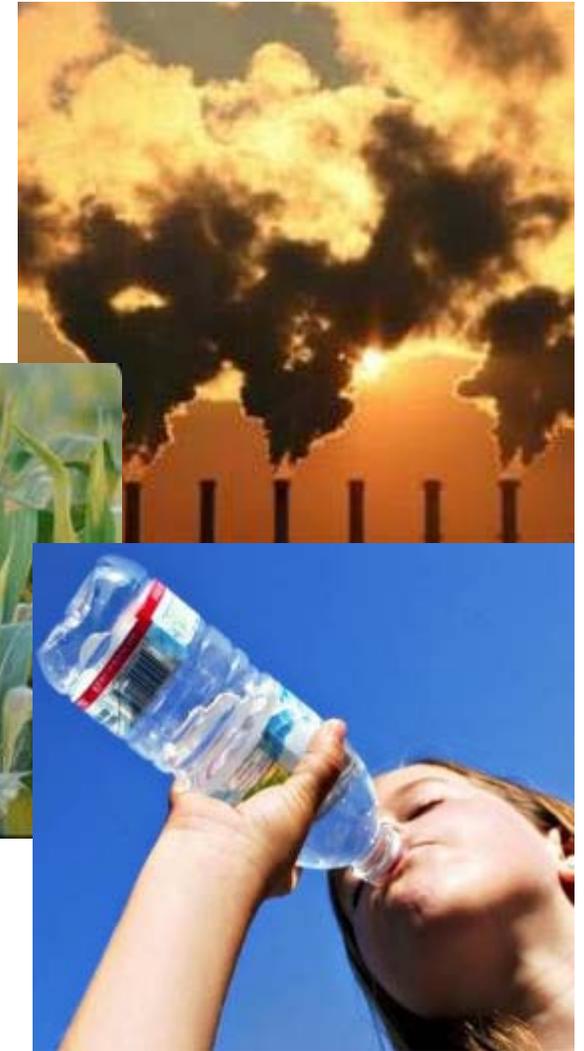
- EU's current response
  - Treat wastewater and control industrial discharges
  - Improve nitrates and pesticides management in farming
  - Control most hazardous chemicals
- Additional response needed
  - Let nature clean water
  - Prevent pollution at source, replace chemicals with safer alternatives
  - Make polluter pay
  - Reduce pesticides and fertilisers used in farming





# We use and waste a lot of water

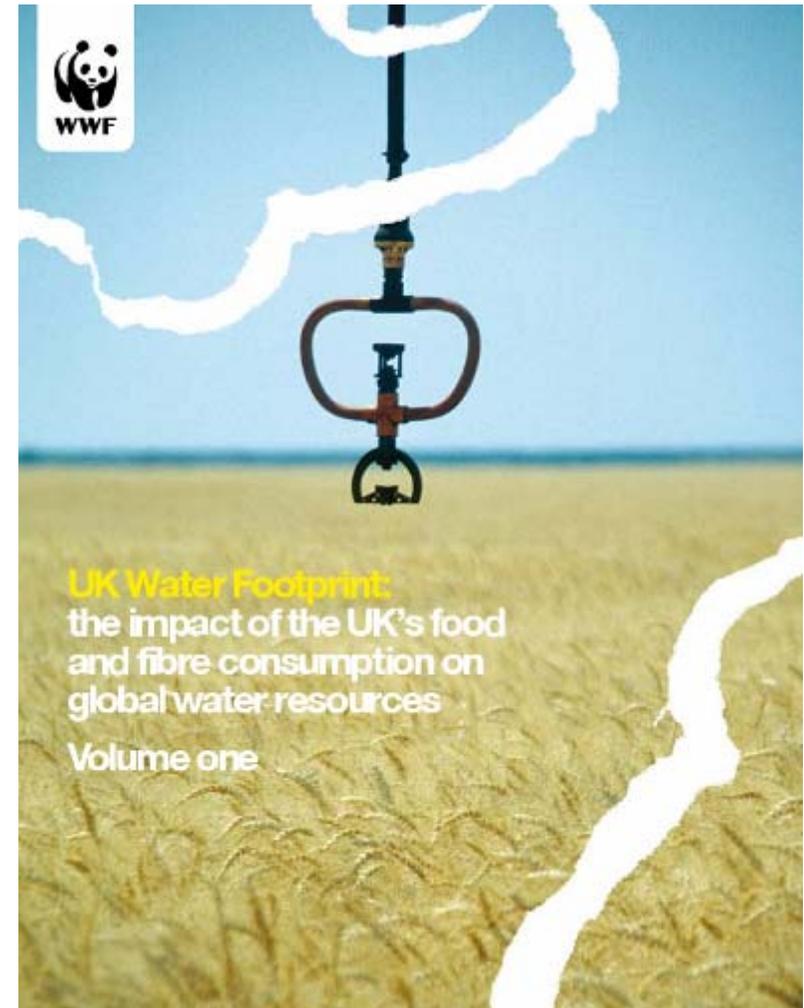
- Water and population are unevenly distributed in the EU
- Water is needed to grow food and clothes, produce energy, transport goods etc
- Demand for water in some places exceeds the amount of water available
- We waste a lot of water – according to European Commission 40% can be saved through technology alone (up to 60% for irrigation)
- Water use by sectors
  - 44 % agriculture (65% in the Med)
  - 40 % industry and energy production
  - 15 % public water supply (EEA 2009)
- EU also dependent on water from others





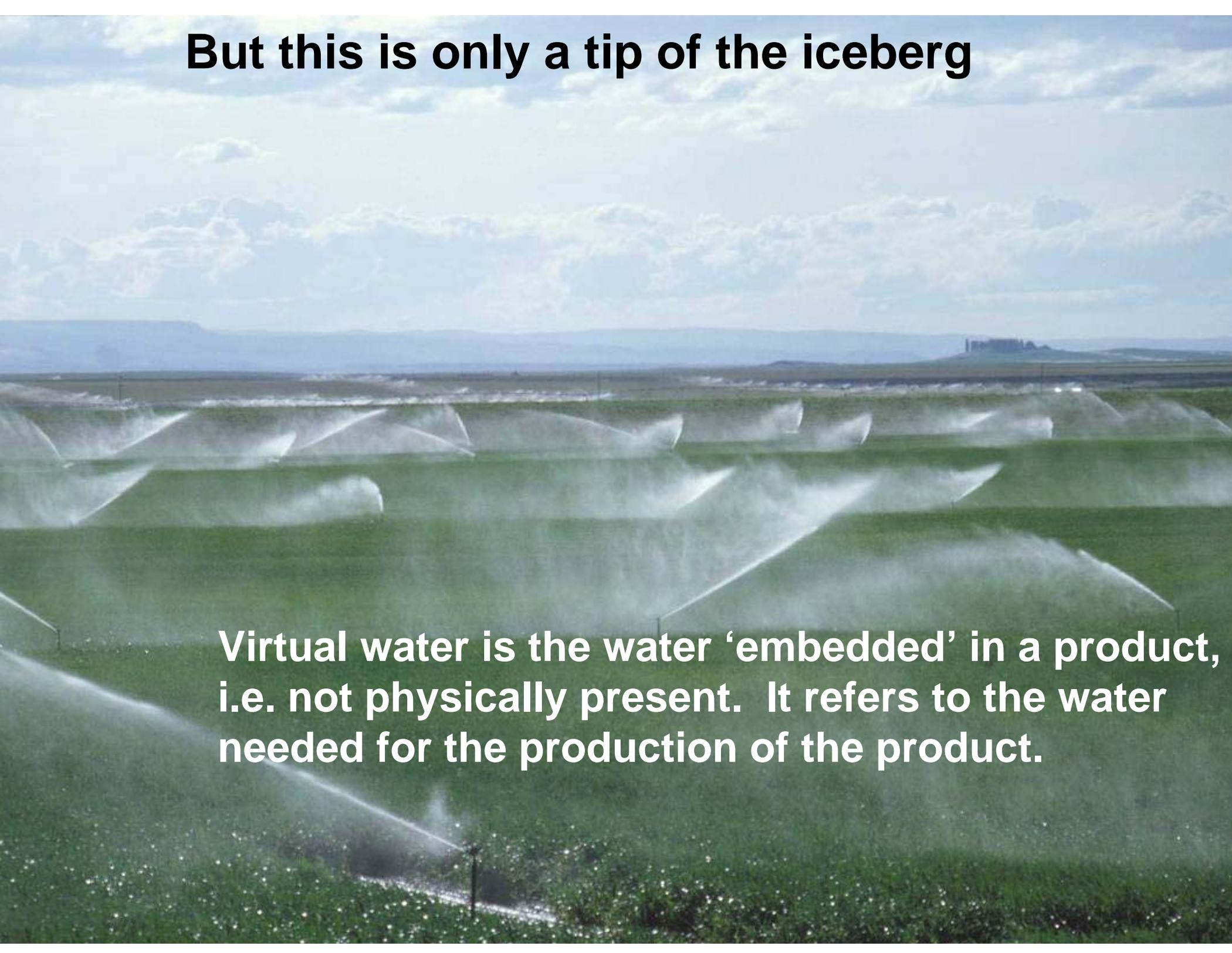
# Example: UK Water Footprint

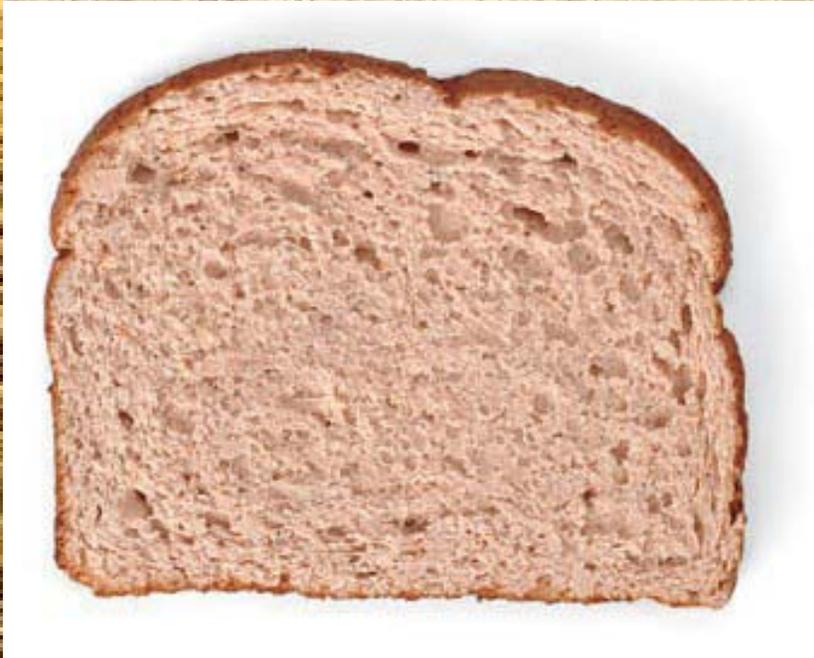
- 1 person in UK uses on average 150 litres a day for drinking washing, cooking etc.



**But this is only a tip of the iceberg**

**Virtual water is the water 'embedded' in a product, i.e. not physically present. It refers to the water needed for the production of the product.**

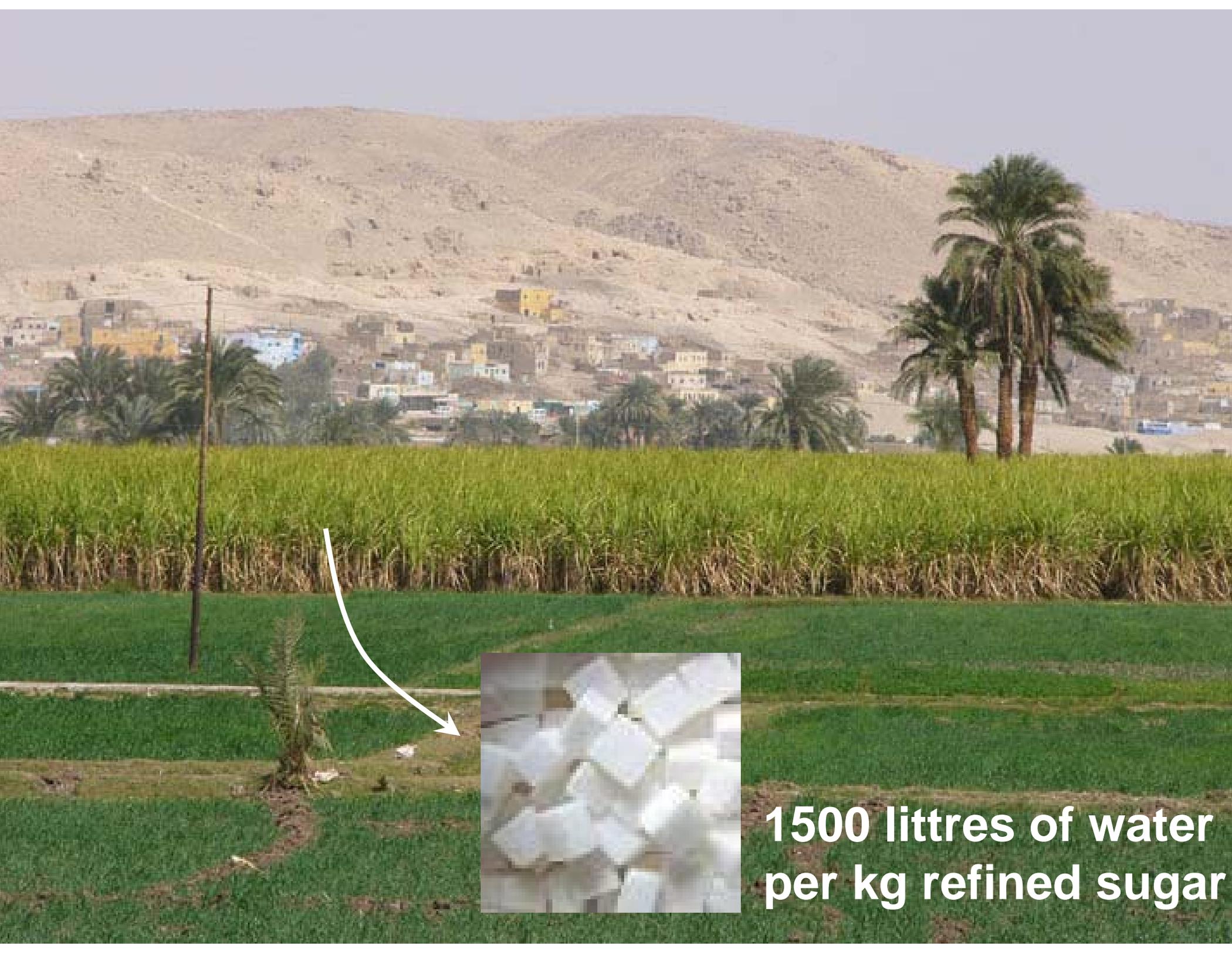




**40 litres of water  
for 1 slice of bread**



**135 litres  
water**



**1500 litres of water  
per kg refined sugar**

**2,500 litres of water  
for 1 cotton shirt**





**2400 litres of water  
for 1 hamburger**



# UK Water Footprint

- 4,645 litres per person per day (50 normal bath tubs) including
  - agricultural products 3,400 litres per person per day
  - industrial products 1,095 litres per person per day
  - household water 150 litres per person per day.
- 38% comes from the UK
- 62% is imported from elsewhere (6<sup>th</sup> largest importer in the world)
- Many of these are water scarce countries (e.g. Spain, Morocco, Pakistan)





# ...we do not leave enough water for nature

- Over-abstraction of groundwater and surface water results in
  - falling water tables, empty wells, and, in coastal areas, the intrusion of saltwater from the sea
  - lakes and wetlands dry out (important for wildlife but also for tourism, leisure, cleaning water, mitigating floods etc.)
  - rivers do not reach the sea and stop providing their services to us (fishing, swimming, providing clean water)





# Solutions

- EU's current response
  - ensure that the rates of abstraction are sustainable over the long term,
  - promote sustainable water use
  - ensure a balance between abstraction and recharge of groundwater
- Additional response needed
  - need to improve efficiency of water use and develop water saving culture
  - leave enough water in the ecosystems so they can continue serving us (environmental flows)
  - introduce fair water pricing, apply to all uses
  - reduce EU's water footprint
  - link water, food and energy





# We modify our rivers and lakes

- We straighten rivers for navigation, block them with dams to produce energy, drain wetlands to use for agriculture, cut off their floodplains to appropriate space for human use
- 50% of Europe's wetlands have been lost, 80% of the Danube floodplains and 90% of the Rhine have been cut off over last century
- 200 football fields of land has been sealed off every day between 1990 and 2000 and therefore unable to regulate water flow (EEA 2007)



Photo credit: Jiri Rezac, WWF UK





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# Impact and cessation of environmental services

**Provisioning services:**  
fish, wood, drinking  
water, genetic resources

**Cultural services:**  
Recreational, tourism,  
aesthetic, educational

**Regulating services:**  
flood protection,  
ground water recharge,  
climate regulation

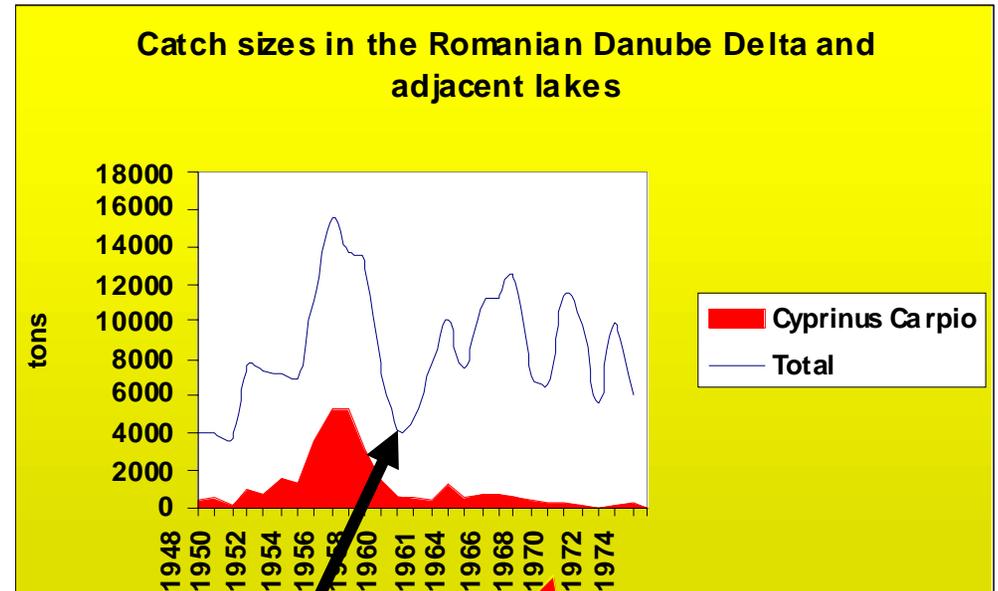
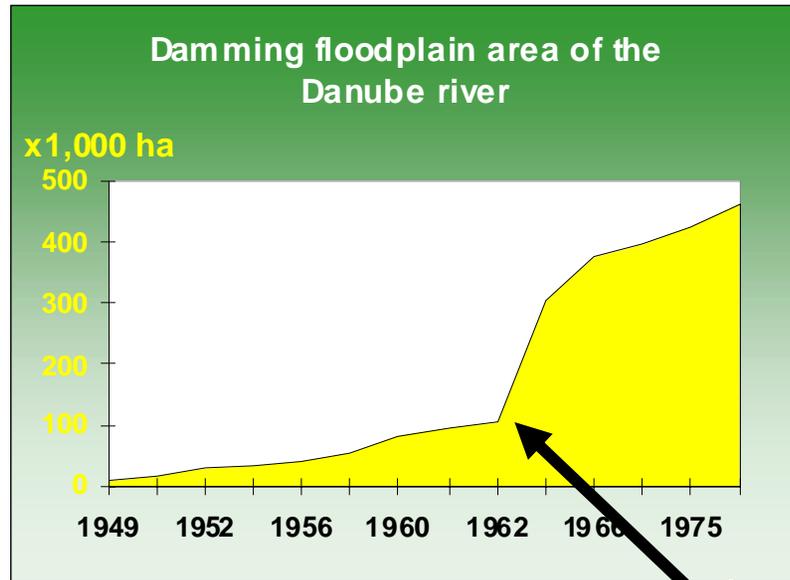
**Supporting services:**  
Nutrient cycling,  
primary production

**Habitats and species:**  
plants and animals

**Filter for the Black Sea:**  
nutrient retention



# loss of wetlands = loss of fish catch



Source: Danube Delta Institute 2007

- corresponding loss of fish breeding areas
- corresponding loss of fish catch in the Danube Delta





# Solutions

- EU's current response
  - Sustainability tests for new developments
  - Improvement of existing modification, removal obsolete structures
- Additional response needed
  - Give rivers space along their banks and courses wherever possible and work with nature not against it
  - Reconnect rivers with their floodplains and wetlands
  - New modifications as a matter of last resort and thorough assessment
  - Link land use rights with water protection duties



Photo credit: Jiri Rezac, WWF UK





# Climate is changing...

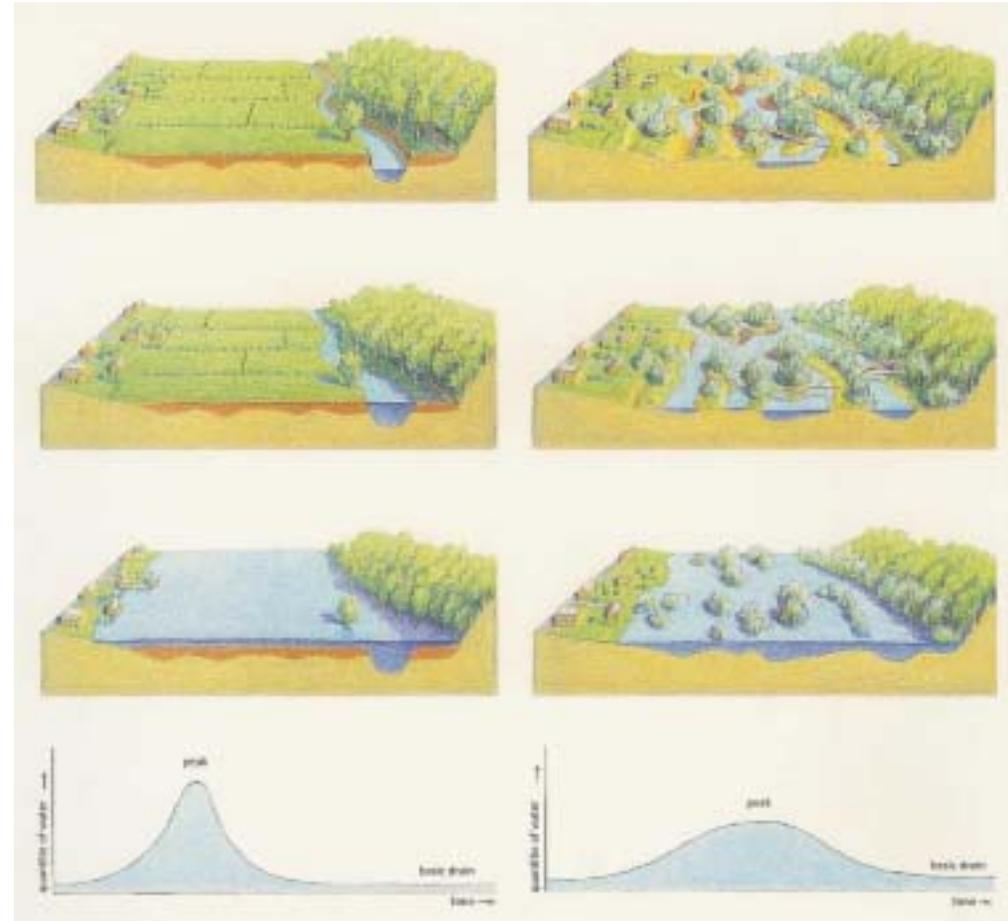
- Changes in precipitation – dry places expected to get drier, wet places wetter
- Increased frequency and intensity of extreme events – floods and droughts
- Increased temperature – increased temperature of water
- Changes to water quantity, water quality and timing
- But climate comes on top of other pressures

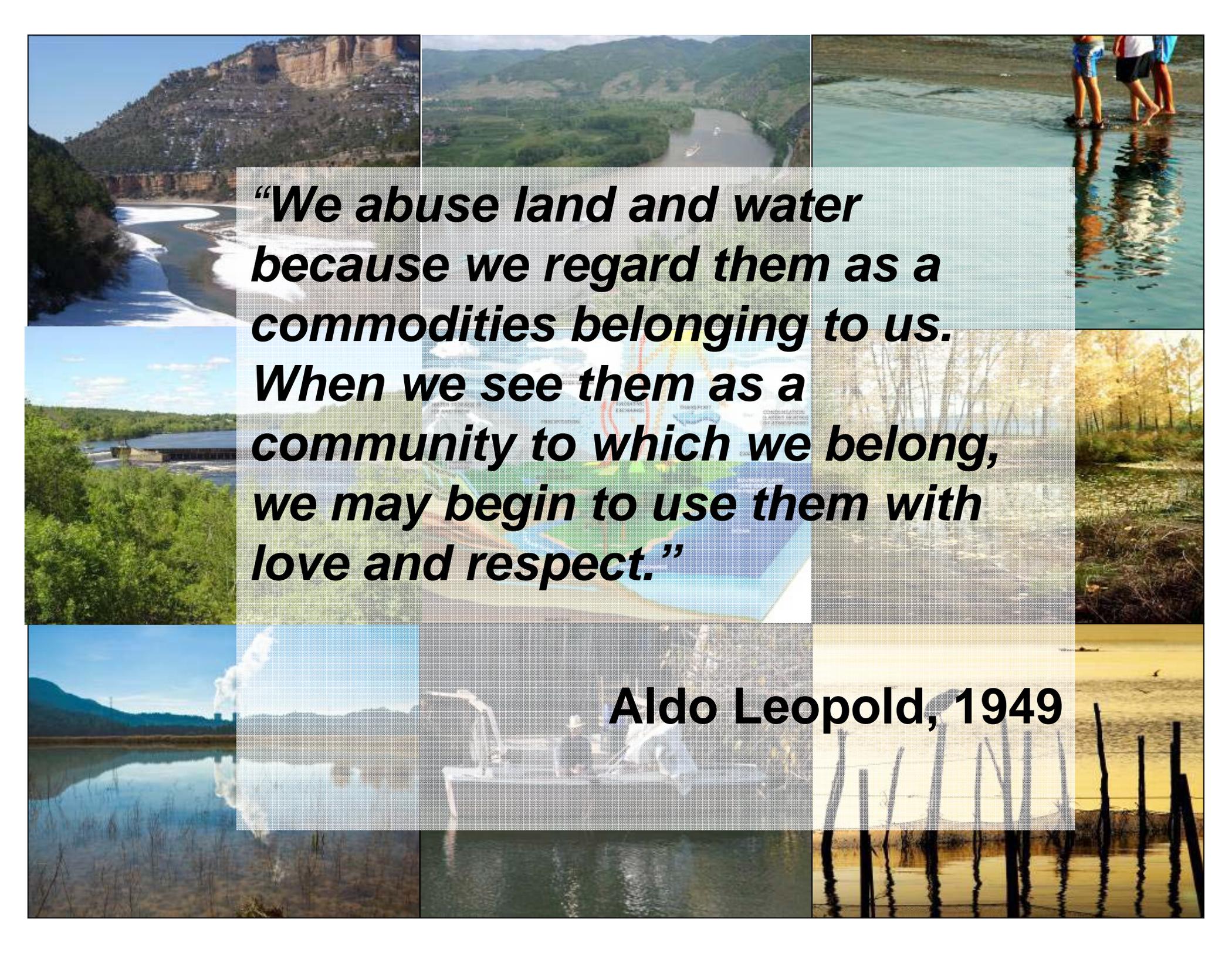




# Solutions

- EU's current response
  - Improve knowledge base
  - Start with no-regret adaptation
- Additional response needed
  - Reduce non climate pressures
  - Increase resilience of natural and human systems
  - Help species, human communities, economies move their ranges
  - Give preference to green infrastructure
  - Climate aware planning





***“We abuse land and water because we regard them as a commodities belonging to us. When we see them as a community to which we belong, we may begin to use them with love and respect.”***

**Aldo Leopold, 1949**







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